

**43rd EXECUTIVE COMMITTEE MEETING
INTERNATIONAL UNION OF GEOLOGICAL SCIENCES**

**JANUARY 15 - 18, 1997
COYHAIQUE, CHILE**

MINUTES

R. Brett opened the 43rd Executive Committee Meeting by welcoming the Committee members and observers to Coyhaique. He thanked the host, IUGS Vice President F. Hervé and his Organizing Committee for the hospitality in arranging the meeting and for organizing of a unique field excursion in Patagonia prior to the Executive Committee meeting. Before the meeting a workshop on "Geology and sustainable development: Regional perspectives" had been held in Santiago and Coyhaique.

The participants then introduced themselves briefly. Five of the members were new to the Executive Committee.

1. APPROVAL OF AGENDA

U. Cordani requested that item 6 (31st IGC - Status of planning) be discussed on the first day of the meeting, which was accepted.

The Committee APPROVED the agenda with no further changes.

2. MINUTES OF THE 42nd EXECUTIVE COMMITTEE MEETING HELD IN BEIJING, CHINA, AUGUST 1996

2.a. Approval of Minutes

A. Boriani stated that because of temporary problems at the Secretariat in Trondheim, no minutes were yet available. H. Refsdal regretted the lack of Council and Executive Minutes from Beijing due to high staff turnover and problems arising from moving of the Secretariat premises. I. Speden underlined, however, the need of having Council meeting minutes as priority.

2.b. Actions arising from these minutes

A. Boriani reviewed the actions arising from the Beijing meeting noting that most of the actions had already been carried out or would come up later in the agenda.

One item, however, the Commission on Marine Geology (CMG), would not be covered by the agenda. This Commission was cancelled by the Council during the Beijing session following the advice of the Advisory Board for Research Development (ABRD). W. Fyfe referred to a letter from the Canadian National Committee expressing concern about the demolishing of the CMG, which had as its aim to bring researchers from developing countries into the marine geology programs. Regret had also been expressed by the ICSU Scientific Committee on Oceanic Research (SCOR). I. Nyambok reported other concerns about the cancellation of the Commission from his country. Looking at the Commission's achievements during the few last years, R. Brett stated that he did not see that the existence of an IUGS commission would improve access for people from developing countries to this field of geology. The relationship with SCOR would also continue without a commission, by having an IUGS representative on SCOR.

R. Brett announced that one of the Vice Presidents, Professor Ikuo Kushiro (Japan), had resigned from the Executive Committee. The Committee can refill the position if the resignation is submitted within a year of the appointment, but the Executive Committee feels that it can survive without one of the Vice Presidents. F. Hervé raised the question of the legality of a reduced number of Vice Presidents. U. Cordani pointed to the fact that this situation had already occurred in the past and suggested postponing further discussion of the problem to item 8.e. (Nominating Committee).

3. ANNUAL ADMINISTRATIVE AFFAIRS

3.a. President's Report

R. Brett presented a brief report to the Committee and said that many of the issues he had been involved in would be dealt with under other parts of the agenda. He commented that the role of IUGS is not so important in the developed countries, but in the developing world, like China, the role of IUGS is substantial and IUGS needs to increase its influence in these countries. The main problem is the shortage of funding, but it is necessary to emphasise the importance of geology for economic growth in these countries.

IUGS will soon establish a committee for public affairs which is charged with increasing awareness of the importance of the geological fields of science. Geologists are amateurs in the field of fund raising and the Union therefore needs the assistance of experts. Brett said that he, as Secretary General, had unsuccessfully tried an associate membership drive. He will therefore form a Finance Committee. He added that any Vice Presidents who are members of wealthy organisations should try to get funding from their own agencies to go to attend Executive Committee meetings. .

The Committee ACCEPTED the President's report.

3.b. Past President's Report

W. Fyfe stated that IUGS is one of the most active unions of the ICSU family. He reported on meetings in UK with the Royal Society and in Brazil with the World Bank where the message was that only research directly related to society and development will be funded.

The Committee ACCEPTED the Past President's report.

3.c. Vice Presidents' Reports

R. Brett urged the participants to report on anything that could be relevant to IUGS. Some of the Vice Presidents had been in office only half a year.

F. Hervé reported on the organisation of the present Executive Committee meeting in Santiago and Coyhaique, noting that five members of the organising committee had been working four to five months to organise the meeting, the workshops and the field excursions. Economical support had been obtained from the Aysen Region, from organisations in Santiago, from CODELCO, and from the Chilean government. Communication expenses were paid by the University of Santiago.

The Committee THANKED F. Hervé, the organising committee and

its sponsors for an outstanding meeting.

V. Zharikov said that his activities had mainly been related to the Russian National Committee for IUGS and IGCP. He expressed his gratitude to the Beijing organisers for the support given to scientists from the former Soviet Union for participation in the

IGC. He referred to the Russian report for further information. He further informed the committee that in Russia there are 50 new subscribers to *Episodes*. Zharikov regretted, however, that the Russian National Committee had failed to pay its IUGS membership fee for 1996 due to financial difficulties, but he stressed that Russia will do its best to fulfil its obligations in the future. Brett thanked Zharikov and pointed out that the USSR was much bigger than present-day Russia, which generously has paid the same amount, and that a lower category would perhaps be more reasonable. Zharikov stated, however, that Russia does not want to reduce its level of fee. G. Caldwell (Chairman, ABP) expressed his thanks for the 50 new subscriptions to *Episodes* in Russia, which will be very helpful to IUGS.

Zharikov further mentioned the rouble account and the mutual agreement between IUGS and the Russian National Committee for Geologists which allows some Russian geologists to go abroad to international meetings and non-Russian geologists to have their meetings (accommodation) paid for in Russia. A. Boriani proposed that every four years, he would inform the Commissions and affiliated organisations about the rouble account and how to use it. An application for use of the account should be submitted at the beginning of the year.

I. Speden reported that after his appointment to the Executive Committee he has been co-opted onto the New Zealand National Committee of Geoscience, which operates under the auspices of the Royal Academy of Science. Its chairman, Prof. Steve Weaver, has recommended to the Council of the Society that the level of the New Zealand subscription to IUGS be raised one step. Discussions indicate that this proposal may be supported because of the high level of activities in international affairs. Speden noted that he has established contacts with the National Committee of Australia, Dr. P. McFadden, and with Dr. Robert Findlay of the Department of Mineral Resources, who is the official contact for IUGS in Papua-New Guinea. Those organisations and individuals have expressed a strong interest in promoting communication and developing relevant projects. Reports on IUGS meetings and activities in Beijing were sent to the Australian and Papua-New Guinean contacts and published in the Newsletter of the Geological Society of New Zealand. Speden further noted that it appears necessary to promote IUGS in the Philippines, New Guinea and Indonesia and that this will be done.

G. Gaál reported that he had, on behalf of the Hungarian Geological Survey, organized and chaired the annual meeting of

the Forum of European Geological Surveys (FOREGS) in Budapest. FOREGS now includes most European countries. He had participated in an international field meeting with hundreds of participants, organized by the Yugoslavian Academy of Science, held in Belgrad and Kosovo. On this occasion he had met leading geoscientists of the Carpat-Balkan region. Gaál suggested that IUGS ask Macedonia, Bosnia and Slovenia to become members. Gaal proposed dividing the world in provinces, each under the responsibility of one Vice President, but a general agreement between the Executive was that every Vice President should take care of promoting IUGS and collecting information all over the world according to interest.

Liu Dun-Yi commented on the Geological Congress in Beijing last year, and that he as Chairman had been very busy with the organization of the Ninth International Conference on Geochronology, Cosmochronology and Isotope Geology (ICOG-9) to be held at Peking University in Beijing from August 20-26, 1998.

I. Nyambok reported on initiatives and activities in his region, but said it was noteworthy that the IUGS profile is still rather low in Africa and needs to be enhanced. He commented that the Secretary General's (R Brett) visit to Nairobi in 1996 was a positive contribution toward increasing the visibility of IUGS in Africa. The initial activities of his Vice Presidency will involve reinvigorating the National Committees in Africa and increasing awareness of IUGS. He suggested that some events that can be undertaken in this respect are organising IUGS lecture tours and supporting young scientists. The IUGS lectures on relevant issues may be organised under extra-budget programmes. The major activities in the past year have been the preparation of the proceedings of Geological Society of Africa's International Conference and IGCP project meetings.

W. Al-Hashimi reported on actions for promoting IUGS in the Arab world, noting that the Union is not very well known. Yemen will become a member.

The Committee ACCEPTED the Vice Presidents' reports.

3.d. Secretary General's Report

A. Boriani referred to his written report for the months after the Beijing Council meeting. (See Appendix 1.) He noted that he had been busy setting up his office at the University of Milan and anticipated a return to full operations in May 1997. Economical support of the office is given by the Italian Research Council. His assistant is Dr. Alba Zappone (PhD), who

besides the IUGS work also will do some research. Boriani announced a visit to the Secretariat in Trondheim with Dr. Zappone for several days in February.

3.e. Treasurer's Report

Z. Johan reported on the transfer of the IUGS account from Hannover to Orleans and expressed his gratitude to Dr. Schmidt-Thomé for his help.

He reported that 106 countries are now members of IUGS, but only 69 are active. The inactive ones are mostly in categories 1 and 2. Johan showed the distribution of active and inactive members with fees ranging from USD 28,000 for category 8 to USD 400 for category 1. He found it interesting that out of the 49% which did not pay dues last year, 53% come from category 1. This, however, only represents 9% of the total budget. It was noted that two members from the European Union are not active. Johan told the Committee that he was unhappy about the situation and the Nominating Committee should be informed that new Vice Presidents should come from active countries which have paid their membership dues. For further information on the membership problem, Johan referred to the Treasurer's written report.

R. Brett pointed out that even when the members fail to pay their dues they have almost all membership rights, and therefore urged the Vice Presidents to take care of inducing member countries to pay. He also asked J. Aaron to show the inactive countries on the IUGS home page on the Internet.

M. Schmidt-Thomé commented that the statutes are not being followed when countries that have been inactive for two years or more are still on the list of members. But in the past it was decided to only put their names in brackets on the list of IUGS member countries in *Episodes*.

Johan commented on the difficult financial situation of UNESCO, noting that UNESCO is also suffering from the IGCP reduction of USD 45,000 from the UK. This makes the IUGS budget for 1997 uncertain. However, Johan had been told that the funds from UNESCO will arrive in the first months of 1997. Compared to 1996, the budget for 1997 has decreased substantially. As the Treasurer's report for 1997, already submitted, shows, the budget for the upcoming year is very tight. CLIP, for example, will no longer be funded by UNESCO. The income structure for

1996 shows that 44% was coming from membership dues, 24% from IGCP and 22% from special contribution of IGCP programmes. The total 1996 contribution from UNESCO should have been USD 26,300, and USD 1,200 have been paid so far. The missed payment from Russia also influences the figures.

Johan went on giving some estimates of the 1997 budget based on figures also from 1996. The loss of the UK contribution to the IGCP made the carry over from 1996 very low. The budget for 1996 was USD 600,000. The 1997 budget was only USD 533,000, which is a substantial decrease.

G. Gaál asked how IGCP would be able to cope with a budget cut of USD 45,000 and Johan replied that this needed to be discussed at the IGCP meetings in Paris the following week.

Johan concluded his report by pointing out that the printing of *Episodes* will be cheaper in China, but that he thought costs for routine meetings of the Vice Presidents are too high. Brett stressed that the Bureau members are paid by their own countries. Nevertheless, because of special circumstances, the cost of bringing the rest of the Executive Committee to Chile was USD 30,000. Johan suggested finding a travel agency in Europe which could take care of all the tickets at a discount.

The Committee ACCEPTED the Treasurer's report.

3.f. IUGS National Committees

A. Boriani stated that only eight reports had been received from National Committees probably due to the fact that the Executive Committee is meeting so soon after the IGC in Beijing, or perhaps there had been a problem with the circulars. He commented on the reports of Azerbaijan, Byelorussia, Hungary, Lebanon, Ukraine and Italy. About 100 reports are missing. Normally about 25 reports have been received. What has happened?

R. Brett emphasised that it is not mandatory to have National Committees and to submit a report. Many of the National Committees representatives were present in Beijing during the Council meeting.

G. Gaál asked again if this does not call for major activity by the Vice Presidents. He also proposed including the National Reports on the IUGS home page as information and as encouragement for those who did not submit a report.

A discussion on the role of the National Committees and reports to the Executive Committee followed. Boriani emphasised that in many countries National Committees do not exist, and in others their tasks are unclear. G. Gaál proposed replacing National Committee reports with Vice President reports, because the Committee needs to know what is happening in the different countries. Other Committee members disagreed and Brett suggested instead to distribute a list of national contacts to the respective Vice Presidents. Boriani suggested that the Vice Presidents should bring written reports to the Executive Committee meetings and Schmidt-Thomé stressed the need for having written reports sent to the Secretary General or to the Secretariat before the annual meeting.

Boriani noted that out of the eight reports only three countries had made suggestions or comments of interest to the Executive Committee. Azerbaijan is asking IUGS's help in receiving journals. They want also to participate in international programmes. Lebanon is asking how they may become integrated in IUGS activities, and the Ukraine is asking for financial support for Ukrainian geologists attending international meetings. Boriani remarked, however, that IUGS does not provide financial support, but that in some cases the IUGS Commissions will be able to help through their projects.

Gaal reported on a letter from the Hungarian National Committee with request for major attention on waste disposal, mainly nuclear, and suggested an IUGS Working Group on Waste Disposal.

The Lebanese Adhering Body requested the printing of the Yemen Stratigraphic Lexicon as an IUGS publication, without any financial commitment to IUGS. The Committee asked Boriani to inform those concerned that IUGS will consider publication of the Lexicon, provided the manuscript is sent to Dr. Caldwell for reviewing.

New members.

R. Brett informed the Committee that, as the vote on the membership of the Geological Society of Taipei did not come up during the IUGS Council session in Beijing, the vote has been made by postal ballot afterwards. Apart from three abstentions from three countries, the membership was approved.

Boriani reported that Mongolia, represented by the Geological Society of Mongolia, has applied for IUGS membership. The Society was established in 1996 as a non-profit and non-governmental organization and officially registered by the Ministry of Justice of Mongolia. It has close links to the

academic institutes, universities, the Ministry of Agriculture and Industry, and private geological companies.

The Committee noted that the Geological Society of Taipei is now a full member of IUGS, and unanimously APPROVED Mongolia as a provisional member pending the ratification by the Council.

4. ANNUAL REPORTS OF IUGS BODIES AND FUTURE PLANS.

4.a. Advisory Boards

4.a.1. Advisory Board for Research Development (ABRD)

G. Caldwell suggested that this item should be postponed and considered under the agenda item on "Strategic Planning" and revisions to Commissions.

4.a.2. Advisory Board for Publications (ABP)

G. Caldwell, the ABP Chairman, reported that the Board had held a two-session meeting during the Executive Committee meeting to review a number of issues. Some of these needed to be raised at this meeting. The most important is the current status of *Episodes* and its future transfer to China. Caldwell described the background of the Bureau meeting in Beijing, for which a Memorandum of Understanding (MOU) for the production of *Episodes* had been formulated. Some changes had been made in the MOU and the final version had now been signed by both parties.

Caldwell told the Committee that the *Episodes* files would be moved from Nottingham to Beijing in early 1997, and China would be responsible for printing the 1997 issues. Because of the transition and delay in the publication of the September and December 1996 issues, the first issue to be produced in China should not be expected before mid-summer. The magazine's operations are expected to return to normal again at the beginning of 1998. Caldwell also reminded the meeting of the ABP's former recommendations, that if IUGS wants to publicize its activities and improve its visibility, *Episodes* has to be improved and made more of a ranking journal. It must be expanded, appear regularly, and appeal to a larger cross-section of the geological community.

An editorial board, composed of about 30 internationally based outstanding geologists, should be established to assist the editor in soliciting and evaluating manuscripts. This matter

should have the highest priority in the next few months. New articles are urgently needed and should be submitted to the new editor as soon as possible. The ABP had had lengthy discussions on the editorial policy of the new editorial board, and a modified editorial policy would be proposed, which would emphasize the magazine's preference for original, short, leading-edge articles. It had been suggested also that the magazine have three major sections: 1) Geoscience and society, 2) Short articles on new developments, as in "Geology" and in "Nature", and 3) Review articles. *Episodes* would continue to carry on calendar of events, book reviews, conference reports, etc. I. Nyambok emphasized the importance of the planned expansion of the news section for *Episodes*.

Caldwell urged the Executive Committee to play an active role in bringing *Episodes* the prestige it should have by suggesting the best names for a strong editorial board and soliciting suitable contributions for future issues. He pointed out that *Episodes* is very important for IUGS and must not be allowed to fail. China has established a first-rate team to work on the magazine, including Zhang Hongren, Secretary General of the Beijing IGC, as Editor and Hou Hongfei, a highly qualified scientist with significant management experience, as Technical Editor.

W. Fyfe asked when it could be hoped that the first Chinese-produced issue would be ready. Caldwell responded that the Chinese delegation would visit Nottingham in March and work with the former editor to develop a plan for the first two issues. It is, therefore, realistic to expect the first issue by the end of June 1997. Fyfe added that he believed a scientific organization *must* be producing a journal if the organization is to be judged of any real value.

A discussion followed on how to solicit good articles for *Episodes*. It was suggested that IUGS' new home page on the World Wide Web could be used for this purpose. Caldwell further encouraged the Vice Presidents to follow V. Zharikov's initiative of last year, when he actively tried to raise the number of *Episodes* subscriptions in Russia. There are now about 800 paid subscriptions.

Liu Dun-Yi related that the Chinese delegation is pleased that IUGS trusts them to do well and stressed their commitment to doing so. He added that suggestions and comments are welcome at any time, on any subject, and can be made to himself or Zhang Hongren. The Chinese team realizes the hard work that lies ahead but trusts that it will have the help of those members of IUGS who have experience to share.

Caldwell noted that the new editor will be invited to the Executive Committee and ABP meetings to improve contacts.

Brett summarized the contacts with the American Geological Institute (AGI) that had led to their proposal to include *Episodes* in "Geotimes".

The Executive Committee EXPRESSED its appreciation that China has accepted to produce "Episodes" for IUGS and its hope that the magazine will increase its visibility and have a stable home for many years.

The Committee THANKED the present editor, R. Walshaw, for all his work with *Episodes* over the last several years.

Non-serial Publications

Caldwell further reported that the ABP had discussed other major issues, including the non-serial publications briefly, produced by the Geological Society of America (GSA). GSA had published two Stratigraphic Correlation Charts (with text) and the "International Stratigraphic Guide", Second Edition. The guide had sold incredibly well, although GSA had done little to advertize it. The guide has been translated into Russian, Chinese, and Korean. W. Fyfe stressed the importance of marketing, and a discussion followed on the possibility of publishing IUGS publications with other publishers. Caldwell stated that IUGS had decided, some years ago, against being a publishing house in its own right.

In the history of IUGS, it had produced a number of good publications, but too often these had been stored as soon as they were printed and then forgotten. Caldwell referred to two books which COGEOENVIRONMENT had published with Balkema and which were presented at the meeting as examples of IUGS-sponsored work being produced by the private sector.

The ABP has agreed to conduct a review of the potential of non-serial publications in IUGS and would like the Committee's approval to do so. The results would be brought as soon as possible to the Bureau and to the Executive Committee in order to discuss more fully the future of IUGS non-serial publications. Until a solution to the production of non-serial publications is found, IUGS itself will bring out only periodical stratigraphic correlation charts, as it has done in recent years.

The Committee expressed a general view that it is worth while producing non-serial publications and AGREED that ABP should conduct a review of the matter within IUGS.

A short discussion followed on a request from Dr. Markes Johnson, Chairman of the ISSC on the Silurian System, to print the Stratigraphic Correlation Chart of the Canadian Silurian as an IUGS publication. The Geological Survey of Canada would contribute USD 3,000 to this publication. The ABP recommended acceptance of this generous offer and that an attempt be made to publish the Silurian Chart for a total of USD 6,000 (a 50:50 split between the GSC and IUGS).

The Committee AGREED to have the Canadian Correlation Chart as an IUGS publication, in line with the above suggestions.

IUGS Videos

R. Brett informed the Executive Committee that he had received a letter from an American geologist, who is also a good writer and film maker, asking for permission from IUGS to make a video for the Union focusing on earth-science processes. He did not ask for any money from IUGS, only to use the name, saying that the video could be useful for the field of geology and for the Union. Caldwell noted that the ABP had discussed the matter and supported it, provided that there would be a contract protecting IUGS. Fyfe remarked that IUGS should read the manuscript before entering into any agreements.

The Committee SUPPORTED the idea of making a video or videos under the aegis of IUGS, provided an appropriate contract was signed.

The Committee THANKED G. Caldwell for his ABP report and commended him for his efforts in finding a new home for *Episodes* and preparing the Memorandum of Understanding with China.

4.b. COMMISSIONS

As a general comment, A. Boriani recommended that the Secretary Generals of Commissions check their statutes and by-laws to see if there are rules about election of officers. If Commissions do not have their own statutes, they must use the IUGS Statutes.

The Commissions will also be asked to come up with their own strategic planning, if this does not already exist.

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

Chief Accomplishments in 1996:

The Commission cosponsored 3 major international meetings on comparative planetology: the "27th Lunar and Planetary Science Conference", held in March in Houston, Texas, U.S.A., and 2 "Microsymposia", one held in Houston in March and the other held in Russia in October. Plans are being finalized to cosponsor several additional topical conferences in 1997.

The CCP contributed various articles and conference reports to "Episodes" as well as publication of popular articles on aspects of planetary geoscience in such general journals as "Priroda, American Scientist, Scientific American". Numerous scholarly works were published by members of CCP, along with a considerable amount of informal outreach activity by CCP members to their respective non-scientist communities and organizations.

R. Brett commented that he knew the Commission well, that he was sympathetic towards the field, but that he was disappointed by the CCP's lack of activities in 1996. The articles they have written would have been written even without the Commission. The meeting which they reported on involved the EGS and Sudbury meetings, which also would have taken place without the Commission's existence. Brett noted that the Commission had been reviewed by the Advisory Board for Research Development (ABRD) in 1994 and suggested that the CCP be reviewed by the Board once more.

The Committee ACCEPTED the CCP report but advised a review of the Commission by the ABRD.

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

Summary:

The 1996 Annual Report describes the basic structure of the Commission and provides an overview of the Commission's activity, including the research to be carried out by the IUGS Commission on Fossil Fuels over the next four years (1997-2000).

During 1996, several meetings were held between J. Burrus and R. Sinding-Larsen at the French Petroleum Institute in order to provide research plans, implementation plans and in-depth reviews of the proposed Commission activities. In addition, cooperation with the IUGS-UNESCO Deposit Modelling Program was discussed in early 1996. Considerable attention was given to ensure the overall coherence of the CFF activities, their priorities and their relationship to other programs and activities.

The Commission actively helped to organize the Basin Modelling Session which was held at the 1996 International Geological Congress in Beijing, where the Commission had discussions with CCOP officials on how to implement the prioritized activities.

A report on strategic directions was presented in July 1995 to the ABRD, giving the scientific rationale for the proposed activities, the anticipated directions and how they might be developed. The proposed research directions regarding coal have not yet been subjected to critical scientific appraisal and are, therefore, in the early stages of their development.

W. Al-Hashimi (commentator) referred to the above summary of the annual report, noting that most of the Commission's efforts in 1996 had been devoted to the implementation of the Commission's strategic plan, which defines the following five activities or projects: 1) deep water project, 2) coal bed methane, 3) hydrocarbon and non-hydrocarbon geochemistry, 4) regional tectonics and local rock fracturing, and 5) SE Asia Petroleum Basin Comparison (SEA PBC). It seems from the report that the last project has achieved some real progress during 1996, apparently enjoying the support of the CCOP (Commission for Coastal and Offshore Geoscience programs in East and Southeast Asia).

The plans for 1997 will concentrate on the implementation of the SEA PBC Project (the Operation or science plan is already endorsed by CCOP Steering Committee). Al-Hashimi said it was clear that CFF has an enormous task, while facing the formidable problem of finding suitable agencies and individuals to implement the projects. The Commission as it now stands include only five members, representing Norway, France, the former USSR and India. Representatives for the USA, China, Australia and Africa remain to be nominated. He remarked that the most oil- and gas-rich province in the world, the Middle East, is not represented on the Commission, and encouraged it to contact the regional oil and geological organizations in this region.

The Committee ACCEPTED the CFF report.

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

Summary 1996:

COGEOENVIRONMENT continues to expand its activities, membership, liaisons and educational impact. With a broader executive base of officers, the Commission has increased its list of activities, with the full implementation of two new International Working Groups: Geoscience and Health, and Geoscience and the Economy. Working Group members have been identified and activities have been set in motion. Existing Working Groups have been equally successful, with the milestone A. Balkema publication of the Geoindicators text and Urban Geoscience text. Another COGEOENVIRONMENT text on aggregate resources is now in press with Balkema. Corresponding Membership grew to 216 members representing a total of 76 countries. Several meetings and conferences were cosponsored by the Commission. A new treasurer position has alleviated pressures on the Chairman, with the expectation of greater attention to funding from Corporate and Supporting Members for the next year. Formal ties with related or affiliated organizations, commissions and scientific bodies continue to grow

with mutual benefit. In particular, formal ties have been established with the IAVCEI, International Working Group on Landslides and TIES. Similarly, the number of Commission organized, sponsored and managed short courses, workshops, symposia and conferences continues to increase. The Commission is increasing its work in Geoenvironment mapping issues, geomedicine and the economy. Public awareness and appreciation of the Geosciences and the Environment continues to expand. A Russian version of the Brochure "Planning and Managing the Human Environment: the essential roles of geosciences" was published and distributed. Chinese, Italian and Spanish versions are now complete and await funding for publication. Newsletters 9 and 10 of the Commission were published.

F. Hervé (commentator) referred to this comprehensive and good report, stating that the Commission had been extremely active in 1996. The report also gave ideas of its intentions for the next five years. The Commission is working well, but the budget is diminishing also for this group. He commended Cogeoenvironment for its book "Geoindicators" which will be very useful for the world. The Commission has started its own home page on the World Wide Web which is linked to the IUGS page.

E. de Mulder, Chairman of Cogeoenvironment, said he would like to add a few things and mentioned the Commission's newsletter, to which the corresponding members were submitting material. He noted that the Commission has a comparatively large group of officers, but this is because each of the officers chairs, for instance, a working group. Two new activities have been launched, one on science and health and one on geoscience and economics. He hoped that the publication of "Geoindicators" and also the new Urban Geology book would reach the policy makers. Work is now underway to identify European funding ability for city projects. He also mentioned that the brochure "Planning and Managing the Human Environment" has been translated into Russian, will be translated into Spanish, Italian and Chinese later this year, and might be published in Arabic. The Commission's annual meeting in 1997 will be held in Athens in June in conjunction with the IAEG (International Association of Engineering Geology) meetings. The links to IAEG have been strengthened and de Mulder is on the IAEG Council.

De Mulder confirmed that the Commission will face a budget reduction, because the Netherlands will reduce its support, due to the privatization of the Survey. In spite of financial constraints, the Commission's expenses will increase due to printing of fliers and promotional material. The budget is about USD 60,000.

A. Boriani questioned whether the working group on geology and economy would overlap the IUGS Committee on Finances. De Mulder responded that the Commission wanted to increase the cost-benefit ratio of its work, but they would be pleased to

cooperate with IUGS on this matter. The Committee members mentioned several events and meetings on environmental geology and asked why Cogeoenvironment is not present, but de Mulder noted that the Commission policy is to only work on matters to which it has the possibility to contribute. There is so much activity in this field all around the world that the Commission would need to have many people working full-time just to follow it all.

A short discussion followed on publications and the IUGS logo, and Brett noted that neither the Urban Geology book, which is a joint activity with AGID and IAH, nor the Geoindicators had any IUGS logo on the cover. G. Caldwell stressed that it is important to use the impression these books make on their readers to the benefit of IUGS.

The Committee ACCEPTED the Cogeoenvironment report and CONGRATULATED the Commissions on its achievements and on starting a Commission at the right time.

4.b.4. Commission on Global Sedimentary Geology

SUMMARY 1996:

1996 marks a major change for the Commission with a change of leadership. Drs. Benoit Beauchamp (Canada) and Peter Cook (UK) have taken over the leadership with Beauchamp as Chairperson and Cook as Vice Chairperson.

Symposium at IGC: *The Commission held a successful Symposium at IGC that consisted of ten papers related to the research projects on the Cretaceous and Pangea.*

The Russian Country Committee for GSGP:

The leaders of the Russian Committee, M.A. Zharkov and N.M Chumakov, are completing 12 global maps of the Cretaceous that will depict sedimentary deposits, paleogeography, and paleoclimates as part of the Warm Biosphere Project.

Research Project On Cretaceous Resources, Events And Rhythms:

"El Kef Blind Test": The results of the El Kef Blind Test, which was organized and supervised by the Commission, will appear in the January issue of Marine Micropaleontology. This is most probably the first attempt to settle a controversy in sedimentary geology with a blind test. It is expected that the results will attract wide interest among those interested in the extinctions at the K/T boundary. Moreover, it could provide a model of wide application in geology.

Apticore: A joint effort of Italian and American scientists is currently analyzing a continuous core of 130 m of Mid-Cretaceous carbonates recovered in Italy. The objective is to gain information on the effect of volcanism on the sedimentary record at the beginning of this critical time in geological history.

German Science Foundation Project on Reefs: This multi-year project involving scores of researchers is nearing completion and a closing Workshop was held in October, 1996 to review the results.

Western Interior Cretaceous Stratigraphic Compilation: A series of stratigraphic cross-sections of numerous basins of the US Western Interior Cretaceous has been completed and displayed at two national meetings in the US.

Stratigraphy and Paleoenvironments of the Western Interior Seaway (Cretaceous) along the Kansas-Colorado-Utah Drilling Transect: This Project, partly inspired by the objectives of CRER, was a series of continuous core borings across the Seaway. A dozen papers reporting the results are being assembled for a special volume to be published by SEPM.

Research Project on Pangea:

The positive development under Project Pangea is the development of a Proposal for a global data base of hydrocarbons, phosphates and metallic ores that could be compared with reconstructions of sedimentary and tectonic environments. Plans are to submit this as an IGCP project during 1997.

I. Speden (commentator) referred to the written GSGC report, commenting that he thought the Commission was healthy. He noted that only a small number of the Program Development Committee had been able to attend the meeting held during the Beijing Congress and that two new initiatives therefore should be agreed to by the new leadership. Speden reported on the above mentioned projects, noting that some of them are large undertakings and that the Commission is clearly busy with major work. In June 1997, the GSGC will have a leading role in organizing an International Symposium to be held in Calgary, Alberta

A. Boriani asked if this Commission could help the unsuccessful Subcommittee on Systematics of Sedimentary Rocks.

The Committee ACCEPTED the GSGC report.

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

Chief Accomplishments in 1996:

INHIGEO sponsored three symposia at the 30th International Geological Congress, held in Beijing in August, 1996. Only a relatively small number of Commission Members were able to attend because of the Congress's geographical location, but the papers presented were remarkably well attended and indicated a considerable interest in the history of geology on the part of those attending the Congress. The papers presented at the section are to be published under the editorship of Professor Wang Hongzhen, Vice President of the Commission. Persons attending the Congress were able to visit sites of historical importance such as the caves of Peking Man, the Yangtze Gorges, etc. The new Board was elected at a meeting of the Commission in Beijing, and its new by-laws were ratified by the IUGS.

R. Brett (commentator) remarked that interest in the history of geological science seems to increase with age, and that therefore the members of this Commission tend to be rather elderly. INHIGEO seemed to have been more active in previous

years. It had, however, cosponsored three symposia at the Beijing IGC and produced new statutes and bylaws which had been ratified by IUGS.

Z. Johan commented that many other organizations, such as the Mineralogical Association, have history committees. He would like to know if they were cooperating with INHIGEO. He went on to maintain the opinion that the Commission could do a great job chronicling discoveries in geoscience, that the history of geology is also part of the history of philosophy of science and that it is important for geology to be on a high philosophical level. A. Boriani agreed that it is important to demonstrate to the world the influence of geological discoveries on the development of thinking. Johan argued that the Committee should ask the Commission to present a programme for their future priorities.

The following suggestions were made:

1. Write a history of important discoveries in earth science.
2. Describe the influence of geological discoveries on the development of philosophy and the evolution of thought.
3. Write a history of geosites and the development of the interpretations of them, since one of the points of geosites is to increase public interest.

G. Caldwell argued that one should bear in mind that this Commission has promoted a new interest in the history of geology in many parts of the world during its 20 years of existence. J. Aaron agreed with Caldwell and said that the Commission had shown interest in the evolution of geological thoughts and the history of science.

The Committee ACCEPTED the INHIGEO report, commending it for promoting new interest in history of geology in many parts of the world, but advised that the Advisory Board for Research Development review the Commission.

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

V. Zharikov (commentator) reported on the Commission's chief accomplishments in 1996, which had been two meetings, one workshop on "Geochemical Earth Reference Model" and production of the "Hofman Volume" of the proceedings of the Goldschmidt meeting.

A discussion of the importance of this Commission to IUGS followed. The Committee agreed that it is successful and does

good work but argued that it could be an affiliated organization instead. Zharikov stated that the Commission is doing useful work but that the Executive Committee probably should ask for its terms of reference and maybe also a strategic plan.

A. Boriani reported that the time of service for the Chairman of the Commission on Igneous and Metamorphic Petrology, Dr. Ian Campbell, expired at the time of the Beijing meeting. As new Chairman of CIMP, the Commission had suggested Dr. N.T. Arndt from France.

The Committee ACCEPTED the CIMP report and the new Chairman.

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

Chief Accomplishments in 1996:

1. *The revision of the Guidelines for the establishment of global chronostratigraphic standards.*
2. *Cooperation with the Commission on the Geological Map of the World (CGMW). A joint working group of ICS and CGMW was established. The ICS/CGMW Intercommission Working Group met for the first time on Aug. 7, 1996 in Beijing. Another meeting is scheduled to take place in Paris at the end of January 1997.*
3. *ICS Bureau meeting at Neuchatel, April 13-14, 1996. The most important issues dealt with were:*
 - A. *Change to ICS Statutes. The new statutes are currently being voted on.*
 1. *to abolish the counting of non-responses as Yes-votes (proposed by the Chairman)*
 2. *to limit the duration of membership of ICS Bureau members*
 - B. *Possible phasing out of Subcommissions.*
 - C. *Creation of an ad hoc committee to discuss the possibility of redefining the Neogene/Quaternary boundary defined in 1984 by a GSSP.*
 - D. *Distribution of allocations to individual ICS bodies by the Bureau.*
 - E. *Final draft of the Guidelines*
 - F. *The Bureau asked the Chairman to look for a new convenor for the Committee on Genetic Stratigraphy.*
 - G. *Reactivation of the International Stratigraphic Lexicon has to be abandoned.*
4. *ICS Business Meeting on Aug. 9, 1996 in Beijing. The main topics were:*
 - A. *Revision of the Statutes.*
 - B. *Future organization of ICS.*
 - C. *Stability of boundary definitions.*
5. *Other activities*
 - A. *During the 30th IGC in Beijing, the Chairman and in several cases also the 1st Vice-Chairman participated in the business meetings of the following Subcommissions: Ordovician, Devonian, Permian, Triassic and ISSC. The Chairman participated as an observer in the session of the new IUGS EC on Aug. 14, 1996.*
6. *Symposium 1. Stratigraphy of the 30th IGC in Beijing. The Chairman and 2nd Vice-Chairman co-chaired Session 1-1 "The multi-disciplinary approach in establishing the geochronologic scale". Both presented a paper.*
7. *1997 Work Plans of the Commission. The main project of the Bureau is the revision of the Global Stratigraphic Chart and its publication in cooperation with CGMW and UNESCO.*
8. *Comments and explanatory remarks to the reports of individual ICS bodies.*

Most of the Subcommissions and working groups with Subcommissions work in close cooperation with IGCP Projects. Detailed information can be found in the annual reports of Subcommissions. Most of the Subcommissions have also elected new officers, and several of them are studying new subjects alongside with or after the definition of stage boundaries by GSSP's. Prospects for new activities are promising at the beginning of the new four-year term.

At the request of Acting Chairman A. Boriani, G. Caldwell gave a short summary of the history of ICS for the benefit of the many new members. He spoke to the status of global stratigraphic understanding today, to the rationalization that had taken place over the years in the positioning of systemic and intra-systemic boundaries, to the implications of all of this stratigraphic work for the better understanding of other aspects of geology (organic evolutionary events and patterns, paleobiogeographic provincialism, paleocontinental reconstruction, tectonic evolution, for example), and of the prominent role ICS had played in achieving the advances noted. He illustrated his point with reference to the work of a few of the Subcommissions, including that on the Jurassic. He referred to the continuing flow of International Stratigraphic Correlation Charts with supporting texts, which IUGS had published for ICS and its subcommissions, and used the Ordovician System as an outstanding example of how these had enhanced global understanding of events during the corresponding period.

Caldwell referred to problems of various kinds that had arisen between ICS and the Executive Committee in the last decade, but reminded members present that, when they heard of these, they must set them in context of the magnitude of the contribution that ICS had made, and the substantial global impact of that contribution, over the same period. As the Commission involving the largest number of geologists and with the largest budget from IUGS, ICS had accomplished a remarkable amount for what, in context, must be seen as a small investment of seed money.

Boriani thanked Caldwell for his synopsis.

I. Speden, commentator, described his involvement with the Commission and endorsed Caldwell's remarks. He noted that ICS is a very substantial Commission with 16 Subcommissions, which generally had produced comprehensive and substantial annual reports and faithfully published its findings. His only comment on the Subcommissions would be that they might be more conscious of involving stratigraphers from all relevant parts of the world. Speden said he was satisfied with the changes in the ICS Statutes in accordance with the Executive's recommendations. In discussion of these general remarks, it was pointed out that

membership in the ICS Bureau could be sustained for as long as 16 years, and to most members of the Executive, this seemed to be too long.

As an example of current problems, Speden referred to the difference of opinion between ICS and INQUA on the placing of the Pliocene-Pleistocene boundary and continuing efforts to resolve this problem. Boriani informed the meeting that IUGS had set up an ad hoc working group to address the issue, with three members from both ICS and INQUA, and with A. R. Palmer as Chairman. Palmer had been chosen because of his experience and skill in stratigraphical matters and because of his total neutrality on the question of the boundary in dispute, Palmer's own expertise lying in much older rocks. The ad hoc working group will meet in Strasbourg during the EUG in late March, 1997.

Concerning the Committee on Genetic Stratigraphy, Speden commented that various Subcommissions were interested in this rapidly developing field and wondered if a special committee was the best answer. In his view, the topic called for a coordinated and holistic approach.

Going through the various activities of the Commission for last year, Speden identified a very successful symposium that had been held during the Beijing IGC. He endorsed revision of the Global Stratigraphic Chart together with CGMW and UNESCO, and mentioned co-operation with IGCP projects. Speden expressed concern, however, about the poor level of reporting to IUGS by the Subcommissions in 1996, when only 6 of the 16 Subcommissions had submitted an annual reports. This contrasted sharply with previous years, when reporting had been complete, or essentially so.

Discussion at this juncture in Speden's report brought further expressions of concern and surprise at the unusually low level of Subcommission reports for 1996. I. Nyambok, noting that most of the Subcommissions' officers were from Europe and North America, stressed the importance of encouraging the participation of stratigraphers from developing countries.

Speden then turned to the last point he wished to raise from the ICS reports, which concerned Executive Committee action on two new Global Stratotype Sections and Points (Gasps). The first of these, that for the base of the Darwinian Stage of the Ordovician System, at, China, had been the subject of an unfortunate recent controversy. Speden outlined the main elements of the controversy, in the course of which he reminded the

Committee that the GSSP in question had been approved by the Subcommittee, with a 94% vote in favour. The Committee agreed that it was a regrettable episode. U. Cordani stressed that, as a general principle, IUGS, as an ICSU member, actively supported the free circulation of scientists, but that different countries had different cultures and these too must be respected. R. Brett referred to an article in EOS (the AGU newspaper) for December 10, 1996, on guidelines for scientists conducting research in foreign countries. Brett suggested that IUGS might well adopt these guidelines (see Appendix 2). Speden then presented the second of the GSSPs, that for the base of the Neogene Piacenzian Stage, in the Rossello section, at Punta Piccola, Italy. Again, the relevant Subcommittee had approved of this boundary placement by a great majority.

The Committee unanimously RATIFIED both of the above GSSPs.

The Committee ACCEPTED the ICS report as a whole, recognizing all the fine work done by the Subcommittees but expressing concern and surprise that so few Subcommittees had filed reports for 1996.

The Committee RECOGNIZED that the tasks of many of the Subcommittees of necessity take a long time to complete, and expressed a wish to see what the Subcommittees' timetables were for the tasks in hand and any future planned projects. With such challenges as shrinking external funding and an approved call from the Council for strategic planning within IUGS, the next four years could be crucial, and it was important for the Committee to have as much background and current information as possible at its disposal to ensure that decisions that they may have in relation to any Commission were well considered, fair, and just.

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

Summary 1996:

The Commission and three of its subcommittees 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. Contacts between chairman/secretary and subcommittees are regular.

SSIR (Subcommission on the Systematics of Igneous Rocks): Meeting at Southampton. The book "A Classification of Igneous Rocks and Glossary of Terms" was translated into Russian and will soon go to press. The paper "Classification of Lamprophyres, Lamproites, Kimber-

lites and The Kalsilitic, Melilitic and Leucitic Rocks" was published in "Canadian Mineralogist". A first paper on the applicability of TAS to plutonic rocks has already been published, and the subcommission aims at a more detailed exploration of this topic. Topics for 1997: discussion of grain size limits, installation of a working group on classification of lunar rocks, preparation of the 2nd edition of "A classification of igneous rocks...." (Le Maitre et al. 1989) and elaboration of a hierarchical approach to classification.

SCMR (Subcommission on the Systematics of Metamorphic Rocks): The Chairman and one member attended the SSIR meeting in Southampton to establish consistent nomenclature and classification in both SCs. Six publications under the general heading "Towards a Unified Nomenclature in Metamorphic Petrology" are reviewed and in the process of submission. Another five papers are being prepared. The glossary of terms made considerable progress. The next workshop of SCMR is planned for Sept. 97 in Ticino (CH) or Verbania (Italy).

SDBP (Subcommission on Data Bases for Petrology): A SC meeting was held in Beijing. Further communication with the SC was maintained by e-mail. Since 1995, IGBADAT has been accessible via FTP. The SC suffers mainly from the problem that entering data is very time-consuming and done only on a voluntary basis. Several major topics (maintaining and enlarging the database, easier accessibility via Internet, decision on a modern database structure) will be addressed in 1997.

SCSR (Subcommission on the Systematics of Sedimentary Rocks): In spite of efforts, the SC encountered substantial difficulties due to a lack of response from the scientific community. Therefore, the leaders of this subcommission resigned. We have to report to the IUGS Executive Committee about this decision in order to suspend the activity of this subcommission for the moment.

A. Boriani (commentator) stated that CSP is one of the classical commissions of IUGS. Many geologists know that IUGS exists only because they know the classification of igneous rocks prepared by this commission. Three Subcommissions are now active. Subcommission on the Systematics of Metamorphic Rocks (SCSR) is suspended for the time being. Boriani referred to the summary of the report, mentioning that the Subcommission on Data Bases for Petrology had some problems because the software is changing very rapidly, entering data is time-consuming and cannot be assigned to unskilled volunteers. In other words it is now difficult to handle large data bases that become obsolete very rapidly if it is not possible to keep the pace with the production of data. In conclusion Boriani said that CSP has been and probably still is important for IUGS, but, there are some problems.

A discussion followed on the reason for having this Commission, noting that there is no other international association of petrology but that a strategic plan for CSP would make the role of the Commission clearer. I. Speden commented that the Commission's role should be more on classification than databases. Boriani, however, remarked that the Subcommission on Data Bases for Petrology is the continuation of an IGCP project.

R. Brett expressed concern about the classification of lunar rocks, which he believed should be integrated with the work of the Commission on Comparative Planetology.

The Committee ACCEPTED the CSP report with the above comments, suggesting that the Advisory Board for Research Development review the Commission within a year.

4.b.9. Commission on Tectonics (COMTEC)

SUMMARY 1996:

In contrast to the programmes of many previous years, which were based on educational objectives, that for 1996 has been much more concerned with stimulating high-level international research collaboration. All programmes were "Co-productions" that arose as a result of individuals with a good project obtaining funding from at least one other source than COMTEC. Most future COMTEC activities are likely to be of this sort. The following three events, each convened by a different subcommssion, was the focus of a separate project: (a) an International Conference on the "Structure and Properties of High Strains in Rocks", held at Verbania, Italy, 3-7 September, with help from the Subcommittee on the Recurrence Assessment from Coastal Lowland Environments", held in the Atalandi and Gulf og Corinth areas, Greece, 11-17 November, organised by the Subcommittee on Tectonic Nomenclautre and Methodology in Paris, France, 12-13 December. In addition, the Subcommittee on the Rheology of Rocks organised a shortcourse on "New Directions in Structural Geology" at the University of Witwatersrand, South Africa, 22-23 June.

The new and vigorously active subcommission, the Subcommittee on Tectonic and Surface Process Interactions (SOTSP), has not only started work in 1996 but has also developed a comprehensive programme for coming years.

Liu Dun-Yi (commentator) reported on the Commission's activities in 1996, noting that the highlights were the international conference, collaborative fieldwork and research workshop mentioned above. COMTEC has a new Secretary General, Dr. Tom Blenkinsop from the University of Zimbabwe.

R. Brett mentioned that many people ask why there are three so similar organizations as COMTEC, IASTG and the Inter-union Commission on the Lithosphere (ICL), but remarked that ABRD had reviewed them and had concluded that they fulfil quite different functions, but they should be encouraged to cooperate with each other.

A discussion followed of the Commission's activities and directions, and the Committee members concluded that it was too soon to review the Commission again and that it would be better to refer the new officer to the ABRD recommendations.

Liu Dun-Yi went over the Commission's budget and mentioned the programmes which he said were quite different from what had been

done in the past. They were now more similar to the projects of ICL and IASPEI. He argued that COMTEC should be asked to contact these two organizations to seek information and cooperation. F. Hervé said that COMTEC, in the past, has run some very good workshops and been one of the most visible of the Commissions in South America because of its field work across the Andes.

The Committee ACCEPTED the COMTEC report, underlining that the Commission should consult the ABRD recommendations.

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

Chief Accomplishments in 1996:

1. *Sales of the hard copy version of the "2nd Edition of the Multilingual Thesaurus of Geosciences" resulted in a royalty payment to COGEOINFO.*
2. *A meeting of the Working Group on a Multilingual Thesaurus of Geosciences (MT) was held in Alexandria, VA., U.S.A., in June 1996. The meeting was attended by members from Spain, Germany, Italy, Finland, France and U.S.A. CNR in Milan, Italy will continue to maintain the MT. Maintenance of the MT is a continuing operation.*
3. *The MT is presently used as a standard for common indexing of geoscience literature in international cooperation programs, e.g. the PANGIS network in Africa. The MT is also used as a basis for the exchange of geoscience information between different language environments, e.g. between bibliographic databases in Europe and the U.S.A. Exchange programs based on the use of MT are conducted between Germany, France, Finland, Italy, Spain, Czech Republic and U.S.A.*
4. *Initiated evaluation by the European Geological Surveys of the potential use of MT as a major tool in earth science data exchange amongst those surveys (GAIA project).*
5. *15 African and Asian geologists attended a 6-month course in factual databases (including PANFACT) at Tervuren, Belgium. While COGEOINFO members supported this course, funding was mainly provided by the Belgian Co-operation Agency.*
6. *Participation in a meeting with UNESCO and CIFEG to determine the future form of the PANGIS bibliographic database. This database, in which all but three of the African nations are now involved, will be moved to a Windows-based DBMS in the near future.*
7. *A meeting was held in May, involving representatives from CIFEG, MRAC, UNESCO, COGEOINFO and CODATA, to consider the feasibility of a PANGIS-type operation in SE Asia (to be known as SANGIS).*
8. *COGEOINFO (WGSAG) organized, produced and co-sponsored (with GSA/IEE), a Symposium entitled "Geosciences Information for Tomorrow's Markets", held at the Annual General Meeting of the Geological Society of America in Denver.*

Liu Dun-Yi (commentator) reported that the Commission now has reduced its working groups to three. One of these groups is on geoscience application for developing countries, another on communication and standards.

It was mentioned that this commission have a potential for outside funding but that the IUGS contribution is important to

attract such funding. R. Brett informed that a meeting with UNDP in New York was planned.

G. Gaál, who had been the Chairman of the former Commission COGEODATA said that combining of the two Commissions COGEODATA and COGEODOC into COGEOINFO had been successful, but that COGEODOC had not been very cooperative after the merging. Z. Johan was afraid of mixing of activities in the commission.

It was agreed that there is a necessity for the commission to be reviewed by ABRD since it has not been reviewed in the last seven years.

The Committee ACCEPTED the COGEOINFO report, suggesting that it be reviewed by the ABRD.

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4.c. AFFILIATED ORGANIZATIONS

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

W. Al-Hashimi (commentator) regretted that no 1996 report had been submitted. R. Brett stated that if no reports were sent for two years running, a strong letter of warning should be sent to the affiliated organization.

Brett said that 30 per cent of the members of this organization was from outside the U.S. and that the organization no doubt was healthy. Gaál noted that their annual meeting had been held in Vienna with a large (4,000) number of participants.

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

Summary 1996:

The Association of Exploration Geochemists (AEG) had over 1200 active members in 1996. 1996 was primarily a planning year with no major meetings. Major meetings scheduled for 1997 are the 18th International Geochemical Exploration Symposium (IGES) in Jerusalem, Israel, and the 4th International Symposium on Environmental Geochemistry (ISEG) in Vail, Colorado, U.S.A. The AEG developed a Web site in 1996 and information about the Association and coming sponsored events can be found at <http://aeg.org/aeghome.html>. The Association held elections in 1996 and new Officers and Council Members were elected.

In addition to sponsoring meetings, giving short courses and publishing the "Journal of Geochemical Exploration", the Association publishes a quarterly newsletter, "Explore", which is distributed throughout the world. It contains timely articles on a variety of exploration geochemistry topics, including environmental topics related to exploration. The Association continues to produce special publications, including a digital bibliography of

over 11,000 references on exploration geochemistry, and computer software on statistical applications to geochemical data.

The Association has 11 Regional Councillors outside North America representing the United Kingdom, Europe, Scandinavia, Southern Africa, South America, Australia, Southeast Asia and China. The Association continues to liaise with other organizations in related fields such as environmental geochemistry, soil science and analytical chemistry.

The Association also offers a Student Paper Prize for the best paper submitted by a student. The prize includes a two year membership to the Association, a \$500 cash award and an opportunity for the student to present the paper at an Association sponsored meeting.

G. Gaál (commentator) stated that rapid development in sampling and analytical techniques has moved geochemistry on the cutting edge of geological sciences. Recent geochemical methods, originally used primarily for metal exploration, have developed into powerful tools used in a wide range of environmental applications including pollution control and monitoring geomedical and epidemiological studies. Gaál said that IUGS should be pleased with the increasing involvement of AEG in these issues, notably the organization of the 4th International Symposium on Environmental Geochemistry and encourages further development in this field. He also noted the Association's co-operation with IGCP.

The Committee ACCEPTED the AEG report.

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

Chief Accomplishments in 1996:

After the MAEGS-9, held the 4-15th of September, 1995, in St. Petersburg (Russian Federation), the Executive Committee Meeting was held the 21st of June, 1996, in Prague (Czech Republic), in order to prepare next MAEGS-10 (Prague and Karlovy, Czech Republic), to be held next September 1997.

Z. Johan (commentator) said that the organization was applying for economic support to organize their next meeting in Prague. Brett replied that affiliates will only be given money if they are co-operating with IUGS commissions or with developing countries.

V. Zharikov said he expected co-operation between the two European organizations, AEGS and EUG. Both Johan and Boriani remarked that this is impossible.

The Committed ACCEPTED the AEGS report

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

Chief Accomplishments in 1996:

1. *Preparation for Arab Gas Conference*
2. *Training courses*
3. *AGA Council meeting and election of new officer.*

W. Al-Hashimi (commentator) stated that the report shows that the Arab Geologist Association has successfully managed to continue its activities despite difficulties caused by UN sanctions on the host country, Iraq, and despite sharply increasing inflation. He noted that AGA has commenced preparations for the organization of the Arab Gas Conference and Exhibition, set up an organization committee and distributed the first conference circular. The conference is to be held in Amman in September 1997.

Al-Hashimi further reported that AGA continued with its training programme in seismic exploration and also continued with the publication of its newsletter, "The Arabian Geologist".

AGA also managed to hold its council meeting in Khartoum, Sudan in October 1996, during which new officers for the Executive Bureau were elected. During 1996, the Secretary General gave several lectures in Baghdad, Amman and Khartoum on the future of Middle East water resources, underground storage of petroleum products, etc.

Al-Hashimi concluded by noting that the AGA plan for 1997 includes the organization of a workshop on problems of geological correlation between Arab countries. He hoped that IUGS will support this event.

The Committee ACCEPTED the AGA report and commended the Association for its achievements under difficult conditions.

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

R. Brett (commentator) reported the Institute to be alive and well. It publishes *GEOTIMES* which now may be read on the World Wide Web. AGI strives to be-come increasingly international and welcomes suggestions on how to establish co-operation with IUGS.

The Committee welcomed further cooperation with AGI.

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

Chief Accomplishments in 1996:

AGID faced a difficult year in 1996 due to the termination of the annual grant from the Canadian International Development Administration (CIDA). The withdrawal of this grant, amounting to \$100,000 Canadian per annum over the last twenty years, arose not because of any shortcomings in AGID's performance but because of a drastic cut in the aid budget for NGO's. In fact, AGID was amongst the last thirty NGO's to receive a grant from CIDA from an original list of over two hundred.

Although 1996 was therefore a year of retrenchment, AGID remained a positive and pro-active organization. The Headquarters in Sao Paulo University, Brazil, continues to operate as the 'nerve centre' for the world-wide network of AGID geoscientists. AGID has some 1,800 individual members and almost fifty institutional members.

Inevitably, project activities were at a lower level in 1996 than in 1995. However, several valuable project activities were possible and with the devolution of some activities to local funding, 1997 should see an increase in activity. AGID co-sponsored a workshop in Vietnam on Industrial Minerals, sponsored and ran (jointly with COGEOED) a Geowriting Workshop for thirty two local geoscientists in Ethiopia, supported a conference on 'Mining and the Environment' in Indonesia and a workshop in 'Implementing Hazard-resistant Housing' in Bangladesh.

In addition to the above, ten postgraduate students in six developing countries received AGID scholarships to assist with their field studies and a further five scholarships will be awarded before the end of 1996. Altogether, AGID has assisted over eighty students in the last five years.

AGID continued to publish its journal 'Geoscience and Development' with two editions produced during the year. Three books were published in 1996, the first resulting from a conference organized by AGID/COGEOED and the second by AGID (UK).

1. "Geoscience Education and Training " (Stow & McCall, 1996)
2. "Environmental Geochemistry and Health " (Appleton, Fuge & McCall, 1996)
3. "Urban Geoscience " (McCall, De Mulder & Marker, 1996)

AGID participated actively in the IGC in Beijing.

I. Nyambok (commentator) referred to the submitted report and said that AGID will continue to publish in 1997 and to support student field work, and young scientists, particularly women. It has had good cooperation with the former COGEOED.

The Committed ACCEPTED the AGID report.

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

F. Hervé (commentator) said that this new affiliate is a good organization with 46 members in Chile. The organization has a total of 35,000 members and a large budget.

No report had been submitted for 1996, but the Committee hoped to

receive one for 1997.

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

Z. Johan (commentator) referred to a very short report, but said that it is a good organization.

The Committee ACCEPTED the AIPEA report.

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

SUMMARY 1996:

Based on the decisions of September, 1995 in Athens, CBGA started new activities. Due to the new statutes, the following scientific commissions now exist:

1. *Commission of Metamorphism*
2. *Commission of Stratigraphy and Palaeontology*
3. *Commission of Engineering Geology*
 - a. *Subcommission of Hydrogeology*
4. *Commission of Sedimentology*
5. *Commission of Geological Map*
6. *Commission of Geochemistry and Isotope Geology (Geochronology)*
7. *Commission of Mineralogy*
8. *Commission of Environmental Geology*
9. *Commission of Geophysics*
10. *Commission of Magmatism*
11. *Commission of Ore Deposits*
12. *Commission of Tectonics*

The Council will evaluate the activities at its next meeting in spring, 1997, and will then decide upon cancellation of old and creation of new Commissions. The next Congress, the 16th, will be held from August 30th to September 2nd, 1998, at the University of Vienna's Geozentrum. Pre-congress and post-congress field trips are planned.

G. Gaál (commentator) gave a brief outline of the activities of the Association, noting it had gone through difficult times since 1990. Profound socio-economical and political changes in the region changed the background and financing of CBGA entirely. Before 1990, member countries (except Austria and Greece) belonged to COMECON, and meetings and activities had abundant financing from the governments of the countries involved. At present, various geological institutions and individuals take care of the financing. The meeting of CBGA in Athens in 1995 was a turning point - now statutes and by-laws have been designed and accepted and now activity has been more realistically paced. Numerous previous commissions which are partly active, partly dormant or extinct, will be reorganized under the Chairmanship of Austria. The President is Dr. W. Janoschek.

The Committee ACCEPTED the CBGA report and was pleased that this Association has been revitalized.

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

Chief Accomplishments in 1996:

Membership: As of mid-November, 1996, 46 (vs. 45 by the end of 1995). Thanks to the efforts of the Geological Survey of South Africa (Council for Geoscience), the Commission gained two new Associate members: Placer Dome Inc. (U.S.A.) and Goldfields of South Africa.

CGMW Bureau Changes: A significant number of changes in the composition of our Bureau Members were voted on during our General Assembly.

Maps Issued in 1996: "Hydrogeological Map of South America at 1:5 M scale" with explanatory notes.

Maps in press:

1. "Geological Map of South America at 1:5 M scale " with explanatory notes.
2. "Mineral Atlas of the World at 1:10 M scale" (1st edition). The digitized sheet No. 9 - Europe (General Coordination: NGU, Norway) was presented in Beijing, along with a list of the mineral deposits (760 occurrences).
3. "Tectonic Map of Europe at 1:5 M scale " (2nd edition).

Cartographic programs in progress:

1. "Tectonic Map of Africa at 1:5 M scale " (2nd edition). Two digitized printouts (sheets 5 and 6, south of equator) were presented in Beijing.
2. "Metamorphic Map of North America at 1:5 M scale² (1st edition). The Geological Survey of Canada was responsible for the general coordination of this map.
3. "Tectonic Map of Asia at 1:75 M scale " (1st edition).
4. "Geological Map of Europe at 1:5 M scale" (2nd edition). Several European geological surveys have been contacted in order to start compilation of the different national areas.
5. "Geological Map of the World at 1:25 M scale " (2nd edition).
6. "Mineral Deposits Map of Africa at 1:5 M scale " (1st edition). Sheet No.1 was published in 1991. Compilation of sheets 2, 3, 5 and 6 is in progress under the coordination of the Council for Geosciences (South Africa).
7. "Mapping of the two last climatic extremums" (CLIMEX Project). This project was launched in 1996 under the direction of Dr. Nicole Petit-Maire and comprises three maps: 1) Last glacial maximum (18 000 y. B.P.); 2) Holocene optimum (6 000 y. B.P.) and 3) Present situation.

Map Marketing: Thanks to agreement between the British Geological Survey and the Council for Geoscience, and the sale of the Tethys Atlas, maps sales have improved during 1996. Besides the distribution of our catalogue (issued in 1995), the Commission printed a flyer for Geoexpo with an update of the available CGMW maps. It was widely distributed in Beijing.

G. Gaál (commentator) reported on the commission's successful performance at the IGC in Beijing. Referring to the CGMW report, he stressed that the bureau had changed. It has 20 members including thematic as well as continental Vice Presidents. He further said that he found it a little bit strange that 30 per cent of the board of an international organization was French. It is, however, one of the leading affiliates of IUGS and has many cartographic products under development, now also in digital format. J. Aaron said that its plans for next year depends heavily on the contribution from UNESCO.

A discussion on time frame and the difficulty of keeping to schedule when entirely dependent on voluntarily work, followed between Nyambok, Aaron and Hervé. Aaron said that CGMW will have a web site within a few months.

The Committed ACCEPTED the CGMW report.

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

Chief Accomplishments in 1996:

1. *Implementation of PANGIS in West Africa*
2. *Starting a research program concerning the comparison of different behaviours between the populations confronted with natural hazards in Latin America and the Far East (Philippines, Peru, Columbia and Caribbean Islands)*
3. *Completion of a regional program concerning natural hazards in Far East*
4. *Starting up of the implementation of a Databases network in the Far East (sort of PANGIS adaptation)*
5. *Publications of PANGEA, Bulletin of African Geology and several occasional synthesis*

A. Boriani (commentator) who is on the Administration Council of CIFEG said that this is an interesting organization for developing - in particular far east - countries.

The Committee ACCEPTED the CIFEG report.

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

I. Speden (commentator) stated that this organization is strongly supported by the petroleum industry. They have basically produced 42 maps. He stated that they have done a very good job with input from many countries. One of their projects has now been completed and they are therefore looking for new tasks.

The Committee REGRETTED that no report had been submitted.

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

Accomplishments in 1996:

1. *Joint workshop held for journal editors with British Medical Journal and Journal of the Norwegian Medical Association at Soria Moria, Oslo, 3-4 October 1996.*
2. *Membership fell slightly to about 890 in some 46 countries. About 25% of members are from countries outside Europe and 33% work in the UK.*
3. *Three issues of EASE's bulletin, European Science Editing, were distributed to members and others.*

4. *Chapters C4 and D6 of the Science Editor's Handbook, edited by Dr. P. H. Enckell (University of Lund), were distributed to members, and further chapters are in preparation (the Handbook replaces the Editerra Editor's Handbook).*
5. *A project for funding courses in scientific writing in Eastern European countries has been started under the care of Mrs. Elisabeth Heseltine. EASE will find suitable presenters, put them in touch with those requesting such courses and pay the necessary expenses, including fees.*
6. *EASE continues to provide sponsors who pay a special subscription rate on behalf of 50-60 members from countries with currency exchange problems. It also provides grants covering accommodation and registration fees for a number of members who could not otherwise attend its General Assemblies.*
7. *An EASE Web site (<http://www.ease.org.uk/>) has been in existence since November 1995.*

V. Zharikov (commentator) referred to the annual report, noting that this is a good organization.

The Committee ACCEPTED the EASE report.

4.c.14. The Geochemical Society

R. Brett (commentator) regretted that no report had been submitted for 1996, probably because of a change of officers.

The Committee REGRETTED that no report had been submitted.

4.c.15. Geological Society of Africa (GSA)_f

I. Nyambok (commentator) said that the Society plans to have an additional meeting in Zimbabwe and also intends to participate in a IGCP meeting in Cameroon. It is applying for support a colloquium in Harare and wants to assist in the UNESCO project on World Heritage. The Society is now more dynamic and also has activities between the conferences. It has 40 members who are paying membership dues. Brett cemented that the Society seems to improve all the time.

The Committee ACCEPTED the GSA report.

4.c.16. Geological Society of America (GSA)_m

A. Boriani (commentator) commented on the Society's 1995 report, noting that this is a strong group with 15,000 members. It has updated its constitution and by-laws, runs an international division and is interested in increasing its role in international activity.

R. Brett (commentator) noted that the Society always submits a report from the previous year, so that this time the 1995 report had been received. He reported that the organization is alive and well, and publishes extensively. Its membership has fallen to 12,500.

The Committee ACCEPTED the GSA report for 1995.

4.c.17. International Association of Engineering Geology (IAEG)

Chief Accomplishments in 1996:

Publications: *Two issues of the IAEG scientific Bulletin were published (52 and 53) which included 27 papers from 15 countries (Nigeria 3, Jordan 2, Saudi Arabia 1, Tunisia 1, Switzerland 1, Senegal-France 2, South Africa 4, Turkey 3, India 1, Greece 2, France 3, Poland 1, U.S.A. 1 and UK 1). It is important to point out the efforts made by the Association to publish papers from developing countries, which are interesting, but often lead to extra costs due to the necessity of improving figures and illustrations in general. One Newsletter was also published since our last report to IUGS.*

Meetings: *The IAEG co-sponsored with ISRM and ISSMFE the 7th International Symposium on Landslides, which took place in Trondheim, Norway, in June, 1996. The IAEG convened several symposia during IGC Congress in Beijing: Special Symposia B1, B3, B4, symposia 17.1 to 17.9, 18.7, 18.8 and 18.9.*

Commissions: *Several IAEG Commissions met in 1996 and some published their conclusions on a regular basis in the Bulletin of the IAEG. This is true for instance of Commission No. 2 "Landslides and other mass movements" (Bulletin No. 52 of the IAEG, together with the IUGS Working Group on Landslides), or of Commission No. 14 "Waste D substantial report in Bulletin No. 51 and organized a workshop for young geologists in Budapest, Hungary, at the end of 1995. As far as funding is concerned, the only income of the IAEG consists of member fees, which are kept at a low level in order to enable all countries to join the Association (30 U.S. \$ per year, including the semi-annual Scientific Bulletin and the Newsletter, or 10 U.S. \$ a year for the Newsletter only) - 85% of the expenses are devoted to the publications, and mainly to the Bulletin.*

V.A. Zharikov (commentator) reported on the activity of a very large organization with great activity in 64 national groups. It produces two issues of a bulletin per year. They will have a meeting in Athens, Greece in late June 1997. E. de Mulder, who is now a council member of IAEG, said that COGEOENVIRONMENT was co-sponsoring the Athens meeting and invited Brett to attend the Symposium on the environment. He added that also IAH will be present at the Symposium.

The Committee ACCEPTED the IAEG report.

4.c.18. International Association of Geomorphologists (IAG)

Chief Accomplishments in 1996:

A regional meeting convened in Hungary at the Academy of Sciences, Budapest and Versprem. It was attended by approximately 100 delegates from a variety of countries around the world. A number of books have been published in collaboration with John Wiley & Sons Ltd. Membership stays relatively constant in terms of national affiliations. Individual registrants for our next main conference in Bologna exceed 1000 delegates.

F. Hervé (commentator) reported on a healthy organization, which is preparing a meeting in Italy and preparing several books. It has established links with Cogeo-environment.

The Committee ACCEPTED the IAG report.

4.c.19. International Association of Geochemistry and Cosmochemistry (IAGC)

Chief Accomplishments in 1996:

1. *The final meeting of the 1992-1996 Council was held on 6 August 1996 in Beijing, China, in conjunction with the 30th International Geological Congress.*
2. *The Ingerson Distinguished Lecture was presented at the 30th IGC by Prof. Akimasa Masuda, University of Electric Communication, Chofu, Japan. His lecture was entitled "Progress Expected in REE Geochemistry".*
3. *IAGC accepted the new contract with Elsevier Science Ltd. for IAGC's continued sponsorship of Applied Geochemistry. The contract includes an annual royalty to be paid to IAGC, which will greatly benefit future activities, and a reduction of 25% for students in the annual subscription rate for "Applied Geochemistry".*
4. *The IAGC has seen a steady rise in membership over this four-year period, from about 540 in 1992, to 631 in 1995, an average annual growth of 5%. This is an improvement on the previous four-year period when a decline of 20% was observed. In all, IAGC members are drawn from 45 different countries.*
5. *Recently, Dr. David Long, IAGC Treasurer, developed a home page on the Internet and designed it such that new members may join through the Internet (since no fees are payable initially) and can transmit their application form electronically directly to the Secretary. The address is <http://www.ent.msu.edu/~long/IAGC>.*
6. *Newsletter 29 was published in November 1996 and distributed to members, National members and affiliates.*
7. *"Applied Geochemistry" is thriving and is increasing in size with a projected 850 pages in the current volume. "Applied Geochemistry" has improved its impact factor rating from 0.917 in 1994, to 1.288 in 1995, crossing the "magic" 1.0 threshold for the first time.*

Liu Dun-Yi (commentator) commented on the activities in the annual report, noting that IAGC is doing good work.

The Committee ACCEPTED the IAGC report for 1996.

4.c.20. International Association of the Genesis of Ore Deposits (IAGOD)

Chief Accomplishments in 1996:

1. *The IAGOD Council and General Assembly meetings were held during the 30th IGC, Beijing, China, as well as the business meetings of COFAB and WGTT.*

2. The IGCP 361, 354 and IAGOD WGTT field meeting in Mongolia took place on July 25-August 2, 1996. The field trip, organized by O. Gerel, focused on activation of the crust and its relation to rare-metal granites and associated ore deposits in Mongolia.
3. The IAGOD-EGMOG co-organized the symposium entitled "Coupled Mass and Heat Transport" with the Goldschmidt Conference held in March 1- April 4, in Heidelberg.
4. A 400-page IAGOD monography "Granite-Related Ore Deposits of Central Kazakhstan and Adjacent Areas" was published.
5. The IAGOD-IGCP 336 (intraplate magmatism and metallogeny) meeting was held in Rovaniemi. The conference was entitled "Layered Mafic Complexes and Related Ore Deposits of Northern Fennoscandia" and was organized by Dr. H. Papunen.
6. The organization works of the 10th IAGOD Symposium (Broken Hill, 1998) has continued. The only candidate for the 11th IAGOD Symposium is South Africa (in cooperation with Namibia).

Chief Products in 1996:

1. "IAGOD Monography Granite-Related Ore Deposits of Central Kazakhstan and Adjacent Areas" (1995), eds. V. Shatov, R. Seltsmann, A. Kremenetsky, B. Lehmann, V. Popov & P. Ermolov. Published by Glagol Publishing House, St. Petersburg, 400 p.
2. "Global Tectonics & Metallogeny", vol. 6, No. 1 and vol. 6, No. 2 (submitted in October 96).
3. IAGOD Newsletter 1996 (edited by J. Aichler).
4. IAGOD-WGOM Newsletter No. 6 (edited by P. G. Spry).

Z. Johan (commentator) stated that IAGOD has a large number of members in many countries. Their membership dues are extremely low and has allowed colleagues from the former Eastern Block to be members. The Association is very active, and some of their most important future meetings include one in Broken Hill in 1998, a cosponsored meeting on genetic problems in Moscow, and a field meeting in Magadan in Russia. Finally, he pointed to the publishing of an interesting volume on metallogeny which he strongly recommended to those interested.

F. Hervé expressed the opinion that IAGOD is healthy but he would recommend stronger links with COGEOENVIRONMENT.

The Committee ACCEPTED the IAGOD report.

4.c.21. International Association of Hydrogeologists (IAH)

Summary 1996:

This year has been a successful one for IAH. We exceeded a membership total of 3500 and are well on our way to our target membership for 1999 of 4000, which will indicate a doubling in membership since the IGC in Washington, in 1989, when we had just passed 2000. One of the reasons for this significant growth is the success of Hydrogeology Journal which has now completed its 4th year of publication. The Journal continues to be supported by the Geological Society of America.

A major part of the IAH mission has remained the promotion of hydrogeology in developing nations, by maintaining a very low membership fee and by running a sponsored membership scheme, by offering financial support through our Burdon Fund, by collaborating with projects in the International Hydrogeological Programme of UNESCO and by support to

congresses and other meetings. Our membership in Latin America has shown strong growth with new and growing Chapters in Argentina, Mexico and Chile.

An IAH web page has been established (<http://www.ngu.no/iah>) which has attracted considerable interest and has help the promotion of the organization and an increase in membership.

I. Nyambok (commentator) referred to the Association's report and said that IAH seemed to have expanded and is approaching 4,000 members. It continues to publish its journal, which is given free of charge to some African institutions. This is an important organization which will play an even more important role in the future because of the growing water shortage. They have established very good relationships both with IAEG and COGEOENVIRONMENT.

R. Brett inquired if there is any communication between IAH and IUGG. Boriani replied that there is some, but that IAH is more geologically oriented.

The Committed ACCEPTED the IAH report.

4.c.22. International Association of Mathematical Geology (IAMG)

Summary 1996:

The organization held its Eighth General Assembly August 8, 1996, at Beijing, China, in conjunction with the 30th IGC. There were 27 attendees.

IAMG sponsored several meetings during 1996:

- Numerical Experiments in Stratigraphy, May 15-17, Lawrence, Kansas*
- Symposium 19, 30th IGC, August 4-14, Beijing, China*
- Workshop on Advances in Quantitative Stratigraphy, August 15-19, Xian China*
- Computerized Modeling of Sedimentary Systems, October 8-11, Gustrow, Germany*
- Data Analysis and Computer Technology and their Application for Geochemistry and Geoenvironmental Research, November, Lviv, Ukraine*

V. Zharikov (commentator) reported that the Association now has about 6,000 members in 49 countries. The chief accomplishment last year was its general assembly in Beijing. Its main products are publications. The membership is growing, but not as much as desired.

The Committee ACCEPTED the IAMG report.

4.c.23. International Association of Sedimentologists (IAS)

Accomplishments in 1996:

- 1. IAS held its annual Regional Meeting in Sfax, Tunisia, March 26 to 28. Some 300 sedimentologists, mainly from Europe and North Africa, attended. There were field trips to*

the very attractive Tunisian outcrops before and after the meeting. Special sessions for IGCP and GSGP programs were held.

2. *IAS sponsored two meetings in 1996: Tidalites 96' (Savannah, Georgia, May 13-16) and Carbonates and Global Change (Wildhaus, Switzerland, June 22-27).*
3. *Prof. E. Mutti completed his lecture tour. He visited 14 institutes in Canada, the USA, the UK, Finland, Germany, the Czech Republic, Slovenia, Romania, Hungary and Namibia. The response of the people who attended has been very positive.*
4. *IAS published 6 issues of its journal "Sedimentology", comprising over 1000 pages. Four new special publications are in preparation.*
5. *IAS continues to sponsor the journal "Basin Research".*
6. *Sedimentology is accompanied by a newsletter where the IAS National Correspondents report on sedimentological activities in their country, reports on past meetings are given and coming meetings are announced. The newsletter gives the opportunity to publish IAS Bureau reports and announcements. IAS also has a homepage on the WWW: (<http://www.blacksci.co.uk/uk/society/ias>).*
7. *The IAS friendship scheme for scientists and libraries in less developed countries continues. In 1996, 150 individuals and 31 libraries benefited from it.*
8. *Unfortunately, IAS membership has dropped from 2060, in 1995, to 1970 this year. However, this seems to be global trend.*

W. Al-Hashimi (commentator) referred to the annual report which indicated that the Association had been particularly active during 1996, holding a successful regional meeting in Tunisia and sponsoring two thematic meetings. He commented that IAS is planning to cooperate with SEPM to hold a meeting on environmental Sedimentology in Italy in 1997. In spite of decreasing membership, the Association seems to be a healthy organization.

The Committee ACCEPTED the IAS report.

4.c.24. Int. Association of Structural/Tectonic Geologists (IASTG)

F. Hervé (commentator) said that the Association had organized many international meetings and has bases on most continents. They have now a home page and have produced a booklet. They seem to be a high-level group.

The Committed ACCEPTED the IASTG report.

4.c.25. International Federation of Palynological Societies (IFPS)

Chief Accomplishments of 1996:

1. *The Ninth International Palynological Congress, June 22-29, 1996, Houston, Texas.*
2. *PALYNOS Volumes 19.1 and 19.2.*
3. *Second World Directory of Palynologists (ISSN1087-8726), 196 pp.*
4. *IFPS web page (<http://geo.arizona.edu/palynology/ifps.html>).*

I. Speden (commentator) reported on the IFPS activities in 1996, stating that the organization seems to be well and healthy.

The Committee ACCEPTED the IFPS report.

4.c.26. International Mineralogical Association (IMA)

SUMMARY 1996:

The IMA Commission on Applied Mineralogy (CAM) co-sponsored "The 5th International Congress on Applied Mineralogy ICAM96" in Warsaw, Poland, June 2-5, 1996, including a two-day workshop and a five-day field trip. The IMA Commissions on "New Minerals and Mineral Names, Museums, Classification of Minerals", and "History and Teaching" sponsored "The 3rd International Conference on Mineralogy and Museums, M&M 3", in Budapest, Hungary, June 9-13, 1996. Two workshops and 8 field trips to localities in the Czech Republic, Hungary, Romania, and Slovakia were carried out. IMA co-sponsored 9 symposia on "Mineralogy of the 30th International Geological Congress" in Beijing, China, August 4 - 14, 1996. The 1st Circular of the 17th IMA General Meeting in Toronto, Canada, 1998, was distributed. The "Asociacion Mineralogica Argentina" joined IMA as a new member.

Z. Johan (commentator) referred to the report and commented that mineralogical societies or mineralogical sections of the geological societies of 34 countries are members of the Association. Since 1991, individual mineralogists have been eligible to join IMA. He also mentioned that IMA had co-sponsored a successful congress in Warsaw and a meeting in Budapest with more than 200 scientists from 32 countries, and had also co-sponsored nine symposia during the Beijing IGC. He reported on extensive plans for next year, but said also that, as in so many organizations, there were communication problems related to lack of travelling funds and lack of ability for some to pay their membership dues.

The Committee ACCEPTED the IMA report.

4.c.27. International Palaeontological Association (IPA)

W.S. Al-Hashimi (commentator) regretted that no 1996 report had been submit-ted. It was, however, noted that an annual report for 1994-1995 had been received by IUGS during the Beijing Congress. G. Caldwell remarked that a cooperation with the Commission on Stratigraphy had been tried, but without success.

The Committee REGRETTED the lack of annual reports during the last years and hoped that the Association was now aware of the necessity of annual reports.

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

Chief Accomplishments in 1996:

The year's activities were highlighted by participation in the 28th International Geographical Congress at the Hague and the 30th IGC in Beijing; in meetings in Lanzhou, China;

Almaty, Kazakhstan; Pushchino, Russia; a field trip to the Canadian Arctic and several data workshops in Boulder, Colorado. A joint IPA-IGU cooperative agreement was approved. A report and maps on the paleo-permafrost distribution of Eurasia was presented at the IGC as part of the global CLIMEX project. Following the IGC conference, members of the IPA Executive Committee participated in the 5th Chinese Conference on Glaciology and Geocryology in Lanzhou, China, and visited Almaty, Kazakhstan for a site review of research activities and permafrost conditions in the mountains of central Asia.

The Data and Information Working Group (WG) convened a meeting in Boulder, Colorado, in July to review progress on the Global Geocryological Database (GGD) and to develop plans for the preparation of a related CD-ROM. Members of the Cryosol Working Group met in Pushchino in April to review progress on terminology, mapping and correlation and to plan for the international soils conferences in 1997 and 1998. The Periglacial Processes and Environment Working Group conducted a field trip in the Canadian Arctic Archipelago focusing on the effects of climate change and variability on geomorphic processes. A global network of active layer-permafrost monitoring sites was formalizing in cooperation with International Tundra Experiment (ITEX); a total of 25 sites are reporting under the program Circumpolar Active Layer Monitoring (CALM). Revisions to the Northern Hemisphere map and multi-language glossary of permafrost and ground ice terms continued. Romanian and Icelandic language equivalents are being added to the current eight language glossary. The digitized version of the map, initially prepared at UNEP-GRID, Arendal, Norway, was also revised.

Canadian planning continued for the Seventh International Conference on Permafrost to be held in Yellowknife, Canada, 23-27 June, 1998. The second circular was mailed in November 1996. Two issues of "Frozen Ground" were prepared. The IPA Home Page on the World Wide Web was further developed and contains information on past, present and future activities.

V.A. Zharikov (commentator) referred to the report and said that IAP was well represented at the Beijing IGC as well as other meetings.

The Committee ACCEPTED the IAP report.

4.c.29. International Society for Rock Mechanics (ISRM)

Chief Accomplishments in 1996:

1. ISRM International Symposium EUROCK 96', Turin, Italy, September, 1996.
2. Annual meeting in Turin, Italy (Board, Council and Commissions)
3. Award of the Rocha Medal 1996
4. Publication of three issues of the "ISRM News Journal"
5. Publication of Commission Reports
6. Publication of the 1996 ISRM Directory

I. Nyambok (commentator) said that when reading its objective, one could see that ISRM was working up to its goals. It has issued a directory and co-operates closely with IAEG. In 1996, it continued to publish news journals. It has demonstrated its intention to improve contact with eastern European countries, and to this end requests USD 6,000 to be able to distribute educational material to Eastern Europe.

Brett replied that such distribution would be commendable but that ISRM is a relatively affluent organization and should therefore be able to take care of these expenses itself. IUGS cannot afford such distribution of its own material.

The Committee Accepted ISRM report.

4.c.30. International Society of Soil Mechanics and Foundation Engineering (ISSMFE)

SUMMARY 1996:

The ISSMFE Board Meeting for 1996 was held in Santiago, Chile on 14 October, immediately before the International Symposium on Tailing Dams. ISSMFE was co-organizer along with the Chilean Geotechnical Society and the Chilean ICOLD Committee.

1996 Conferences:

1. *International Symposium on Geotechnical Aspects of Underground Construction in Soft Ground, London, April 15-17.*
2. *12th Southeast Asian Geotechnical Conference and 4th International Conference on Tropical Soils, Kuala Lumpur, May 6-10.*
3. *2nd International Conference on Ground Improvement Geosystems, Tokyo, May 14-17.*
4. *7th International Symposium on Landslides, Trondheim, June 17.*
5. *7th NAZ Geomechanics Conference, Adelaide, July 1-7.*
6. *5th International Conference on Application of Stress Wave Theory to Piles, Orlando, USA, Sept. 11-13.*
7. *International Symposium on the Influence of Professional Practice of Eurocode 7, Geotechnical Design, London, Sept. 30-Oct. 2.*
8. *International Symposium on Geotechnical Engineering for the Preservation of Monuments and Historic Sites, Naples, October 3-4.*
9. *2nd International Congress on Environmental Geotechnics, Osaka, Nov. 5-8.*
10. *International Symposium on Earth Reinforcement, Fukuoka, Japan, Nov. 12-14.*
11. *10th European Young Geotechnical Engineers Conference, Çesme, Turkey, 20-25 October.*

Francophone Meeting:

A Francophone conference was held in Marrakech, Morocco, 17-18 September, on the subject "Damages and Remedies of Foundations". It was resolved at this meeting to set up a Transcontinental Geotechnical Society for the African Francophone countries. This Society will be applying for membership to ISSMFE.

Model Libraries:

A new English Language Model Library scheme was initiated in 1996, during which a set of eight geotechnical texts were sent free of charge to undergraduate teaching institutions in thirteen developing countries. A Francophone Model Library, consisting of five geotechnical books, was presented to thirteen African recipients during the meeting in Morocco.

I. Nyambok (commentator) reported on a very active group in 1996, which had organized eleven conferences in different parts of the world. For 1997, it plans two major meetings, one in Hamburg in September and one in Melbourne.

F. Hervé reported on a very nice book on dams in Chile and was pleased that geology is now penetrating into this group's work.

The Committee Accepted the ISSMFE report.

4.c.31. International Union for Quaternary Research (INQUA)

Chief Accomplishments in 1996:

1. **Scientific Commissions and Committees:** *INQUA has eleven scientific commissions and two scientific inter-congress committees. The main INQUA activities are connected to these thirteen scientific bodies. It was decided at the INQUA congress, in Berlin, in August 1995, that the activities of these bodies should be project oriented. Guidelines for submitting project proposals were distributed in January, and in April around 30 projects were approved. The project activities will be evaluated by the INQUA Executive Committee's vice-presidents after two years.*
2. **Meetings and workshops:** *Several of the scientific commissions and committees have held arranged workshops and meetings in 1996. Some of the meetings have been held in cooperation with other organizations.*
3. **Newsletter and journal:** *One issue of "Quaternary Perspectives", the INQUA Newsletter, was issued in the spring. It has a new and improved layout. The second issue will go to press at the end of 1996. The newsletter is distributed to all national committees and to scientific commissions and committee members. Numbers 33-7 of "Quaternary International", the INQUA Journal, were published in 1996 and covered, among other subjects, South African Quaternary science.*
4. **Establishment of an INQUA Home Page:** *The INQUA Internet Home Page was established in January 1996. It contains a full directory of all INQUA leaders (Executive Committee, commission and committee leaders, sub-commission and working group leaders, national committees and editors of newsletters and journals). An overview of the commission and committee activities, and INQUA projects, is included. It also contains information about INQUA meetings. The statutes and by-laws are included, as well as the guidelines for submitting INQUA project proposals. There are links to many INQUA commission homepages that contain commission newsletters. The page is kept strictly informative in order to remain a useful tool for all scientists that work within the different INQUA bodies.*
5. **Membership:** *INQUA has 34 national members, the majority of them being European countries.*

I. Speden (commentator) was disappointed that INQUA did not mention its affiliation with IUGS in its report but said it was very promising that they had now established their own home page. It will be distributing a circular in the near future seeking more members in Asia and South Africa. Its funding comes mainly from the Netherlands and Norway. He further informed the Committee that INQUA plans nine workshops in 1997, and had made a request for economic support. Brett said that INQUA is doing a good job. It has eleven commissions and is increasingly project-oriented.

De Mulder, who is the INQUA treasurer, said the national members are paying their dues every year.

The Committed ACCEPTED the INQUA report.

4.c.32. The Meteoritical Society

R. Brett (commentator) referred to an interesting and informative report and mentioned that the Society publishes its own journal which has improved very much during the last few years.

The Committee ACCEPTED the Meteoritical Society report.

4.c.33 Society of Economic Geologists Inc. (SEG)

Summary 1996:

In addition to presenting symposia, theme sessions and field trips at annual meetings of the Geological Society of America, Society for Mining, Metallurgy and Exploration and the Northwest Mining Association, SEG sponsored a variety of international symposia and field conferences from mid-1995 to mid-1996. At the Third Biennial SGA (Société Géologique Appliquée aux Gites Minéraux) meeting held in Prague, in August, 1995, SEG sponsored a technical session on mineralization in black shales and co-sponsored, with SGA, a field trip to the Kupferschiefer district in Poland. In November, 1995, SEG co-sponsored, with the Mineral Deposits Division of the Geological Association of Canada, an extensive field trip to mines and mining districts in South Africa. SEG was one of the co-sponsors of the Mesozoic '96 Conference held in September, 1996, in Brisbane, Australia, and the 36th Brazilian Geocongress, also in September, 1996, where SEG sponsored a keynote speaker (Richard W. Hutchinson) and a technical session, "Gold Deposits of South America: New Discoveries, Mineralization Styles and Metallogeny".

Support of students studying economic geology is an important part of SEG's overall program. SEG provides strong financial support to students in the form of student research grants, travel subsidies to attend professional meetings and a program implemented in 1996 that provides subsidies to SEG student chapters (eleven) to enable them to organize and conduct international economic geology field trips to classic mining districts and newly discovered mineral deposits.

The Society is continuing and expanding its sponsorship of International Exchange Lectureships, its Regional Vice-President Lecturer program, as well as its traditional Thayer Lindsley Visiting Lectureship (two per year, both in the US and elsewhere) and its annual Distinguished Lecturer.

Publications of the Society include Reviews in "Economic Geology, Field Trip Guidebook" series, "Special Publications" series and the quarterly "SEG Newsletter". Within the last year, three new "Field Trip Guidebooks" were published, one "Special Publication" was reprinted (due to demand), a second edition of another was published, and preparation for two new "Special Publications" have been completed (one is in press at this time). The preparation of several new volumes in the "Reviews" series is nearing completion, with publication dates projected in 1997. The journal, "Economic Geology" and "Economic Geology Monographs" are published by SEG's sister organization the Economic Geology Publishing Company. The latest volume in the "Monograph" series will be released sometime during the first quarter of 1997.

G. Gaál (commentator) reported on a wide range of meetings and said that SEG is widely known and respected. He said that it has submitted a report for the first time in some years.

The Committed ACCEPTED the SEG report.

4.c.34. Society for Geology Applied to Mineral Deposits (SGA)

Chief Accomplishments in 1996:

1. *The SGA has 430 members in 50 countries, 86 new members during the last twelve months.*
2. *A homepage on the Internet: <http://www.immr.tu-clausthal.de/sga.html>*
3. *"SGA News", a biannual bulletin (Number 1 in June 1996 and number 2 in November)*
4. *Council Meeting, Paris, April 19, 1996*
5. *Council Meeting, Heidelberg, November 4-5, 1996*
6. *International Conference on Cathodoluminescence and Related Techniques in Geosciences and Geomaterials, Nancy, France, September 2-4, 1996.*
7. *"Mineralium Deposita." The volume 31 was regularly dispatched (600 p.). One thematic issue on "Zeolite Deposits" was published.*

Z. Johan (commentator) said that this is a sister society of the SEG which had originally been oriented towards Europe. It now has 500 members from 50 countries, having acquired 86 new members during the past year. It is oriented towards economic geology and has a remarkably high number of young people among its new members. It also has a strong connection to industry, and organizes biannual meetings.

The Committed ACCEPTED the SGA report.

4.c.35. Society of Sedimentary Geology (SEPM)

The Committee REGRETTED that no report was received for 1996.

4.d. WORKING GROUPS

4.d.1. IUGS Working Group on Geoscience Education and Training

W. Fyfe, the Working Group Chairman, reported on the activities in the Working Group. It was established five months ago during the Council meeting in Beijing, in order to replace the Commission on Geoscience Education and Training. At the Council meeting, the importance of giving priority to science education was stressed. The Working Group had now several members.

He further stressed the importance of wide distribution of good educational material and mentioned that the best book in

existence on global change for young people has been published by ICSU. However, only 5,000 copies were printed and ICSU has no money to distribute it. Fyfe said that a terrific challenge is in front of us and geologists have to learn how to take advantage of the new electronic media like the World Wide Web.

He stated that, as earlier mentioned under ABP, the first poster on water for *Episodes* will be ready to be included in the first Chinese issue of *Episodes*. It describes the water cycle. Later posters will deal with iron, soil, etc.

4.d.2. IUGS Working Group on World Landslide Inventory

R. Brett noted that the World Landslide Inventory is the only direct IUGS contribution to the International Decade for Natural Disaster Reduction (IDNDR). He stated that the group is doing a good job and is becoming known.

I. Nyambok would like to see more demonstration projects in terms of contribution of geological science. Geologists cannot pass the message on to politicians if no demonstration project exists. Brett replied that IAVCEI has this under control and also the US and other countries.

4.d.3. UNESCO-IUGS Working Group on Global Geosites

General Outline:

The plan laid out in Paris, 1995, was to first establish and test a project in Europe (3 year programme). This has been pursued, following the aim of regionalization, in terms of organization of contributors, geology and ultimately site selection for the inventory/ database. The Chairman visited Beijing, Sofia, Athens, Hannover, Stockholm and Rome to further recruitment and dissemination of information. IGC participation was an ideal opportunity for making contacts, in particular with Chinese colleagues (attendance at the IGCP was kindly funded in part by UNESCO). The year has been used to build contact networks, sign up serious contributors and get them to agree to run their country's activities. The GG Working Group will be formed from key regional collaborators and specialists. Membership will be formalized in May '97, at the time of the biannual progress assessment. By then, the flow of sites should have started in Europe and Africa, and contacts in other continents will have matured further. During the first year, it was necessary for network formation to precede selection of sites and augmentation of the Trondheim database. Similarly, the matter of criteria has received priority over all other work, as until this matter and selection methods were settled, the Trondheim database would remain frozen.

I. Speden reported that the group had been very active and that quite promising guidelines for how to choose the geosites had been set.

A discussion followed, however, on the role of IUGS in the Global Geosite work, and the importance for the Union to define

a strategy was stressed. IUGS could offer geological advice. The educational element in this work was also pointed out.

The Committee further agreed that the International Georeserve Programme suggested by UNESCO should not go under the IGCP.

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

R. Brett mentioned that this Working Group is a continuation of the IGCP project 360. The book on a global geochemical database was sold during the Beijing Congress.

5. REPORTS ON COOPERATIVE ENTERPRISES

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

R. Brett (commentator) reported on the Programme, noting that it comprised 49 active projects in 1996 and seven on extended term (without funding). Out of 18 project proposals received in 1995 and assessed by the IGCP Scientific Board, 10 were accepted. About 180 nominations had been received for three new members of the Board who are selected by joint decision of the Director-General of UNESCO and the President of IUGS.

Brett emphasized that IUGS regards IGCP as a very important programme. He expressed concern about the U.K. withdrawal of its funds for IGCP and said the possibility of restoring the U.K. money would be discussed by the IUGS Bureau.

Brett further mentioned that UNESCO has selected its earth science programme for evaluation and the part focusing on IGCP will be distributed to participants at the February 1998 session of the Scientific Board.

5.b. IUGS/IUGG/ICSU Inter-Union Comm. on the Lithosphere (ICL)

Chief Accomplishments in 1996:

- 1. Co-sponsored the International workshop on the HIBISCUS Project, Munich, Germany, February 14-16, 1996.*
- 2. Co-sponsored the 8th International Symposium on the Observation of the Earth's Crust Through Drilling, February 26-28, Tsukuba, Japan.*

3. *Co-sponsored the Meeting of the International Heat Flow Commission, "The Lithosphere", Trest Chateau, Czech Republic, June 9-15, 1996.*
4. *Co-sponsored the 13th Workshop on Electromagnetic Induction in the Earth, Onuma, Hokkaido, Japan, July, 1996.*
5. *Co-sponsored the International meeting "Geodynamics of Lithosphere and Earth's Mantle", Trest Chateau, Czech Republic, July 8-13, 1996.*
6. *Co-sponsored 14 symposia and two workshops at the 30th IGC, Beijing, China, August 4 - 14, 1996.*
7. *Bureau and Commission meetings held in Beijing, August 10-12, 1996.*
8. *Sponsored the 7th workshop of the ILP Task Force "Origin of Sedimentary Basins", Faroe Islands, August 31-September 6, 1996.*
9. *Co-sponsored the 7th International Symposium on Deep Seismic Reflection Profiling, Monterey, California, Sept. 15-20, 1996.*

A. Boriani (commentator) referred to his written report on ICL under the Secretary General's report. He stated that International Lithosphere Programme (ILP), developed by the ICL, is a most successful programme, with the objective of serving as a bridge between scientists working in the disciplines served by IUGS and those served by the International Union of Geodesy and Geophysics (IUGG). Its projects, all multidisciplinary in nature and with attainable goals, have a finite duration. They are grouped under four broad themes:

1. The Geoscience of Global Change
 2. Contemporary Dynamics and Deep Processes
 3. Continental Lithosphere
 4. Oceanic Lithosphere.

ICL co-operates with many international initiatives, such as the International Decade of Natural Disasters Reduction (IDNDR) and the UNESCO projects "Development of Institutional Networks for Disaster Reduction" and IGCP. ICL is presently developing new programmes like "Earthquake Recurrence Trough Time", which is to be launched in 1997 as part of Theme 2. Boriani said ICL had been very active in 1996. One example is the 16 symposia co-sponsored at the 30th IGC in Beijing.

R. Brett mentioned that ICL deserves special attention and IUGS is selecting the new representatives on the Bureau. It has been a successful program, IUGS only regretting that the funding to this project is stabilized on a small budget from IUGS, which has not increased in spite of the inflation. But IUGS cannot afford any greater financial support.

The Committee APPROVED the ICL report and commended the Programme for its achievements.

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

SUMMARY 1996:

In 1996 The GARS Asia Project, aimed at demonstrating the utility of Remote Sensing - especially new SAR radar data - in the mitigation of volcanic hazards, was mainly devoted to the acquisition of data. GARS has been approved as a principal investigator for ERS1, JERS1 and RADARSAT.

The interpretation of the SPOT couple on Pinatubo has allowed for mapping of the distribution of successive lahar deposits on the western flank. Modeling of lahars and erosion process is being prepared as a PhD project.

In the framework of the GARS training program, a Filipino volcanologist has been associated with the Remote Sensing interpretation.

An important new program related to GARS has been accepted by the German Space Agency, funded in cooperation with the German Geological Survey (BGR). This funding, associated with the Belgian contribution, increases the IUGS-Unesco allocation tenfold. However, the latter is absolutely necessary to carry out the 1997 program.

F. Hervé (commentator) reported that this programme performs good practical science. A comprehensive annual report had been submitted, demonstrating that its project in Colombia had been completed and the Philippines project will be continued. He noted that there had been a change in chairmanship, and that D. Bannert from BGR in Germany had taken over. The Programme's overall objectives are to demonstrate the use of advanced remote sensing techniques for the resolution of key geological questions; to ensure the transfer of information and technology through cooperative research in the field, in combination with educational programmes; and to ensure wide dissemination of the results. A. Boriani stressed the importance of collaboration between geophysics and geology.

Most of the Programme's expenses are used for travelling costs (for officers and one PhD student). A new association with the German Space Agency will provide funding from Germany this year.

R. Brett noted that he had some negative feelings about this programme compared to the Deposit Modelling Programme because, apart from the annual report, IUGS receives little information or involvement. He stressed that at first the IUGS representative to GARS had not been invited to its meeting and later, the notice given had been too short.

The Committee APPROVED the comprehensive GARS report, but would like to see more IUGS involvement in the Programme.

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

Achievements in 1996:

The IUGS-UNESCO Deposit Modeling Program Steering Committee met in Paris on February 5, 1996. A number of issues were discussed, including: the reconnaissance visit made by Barthel and Gaal to Kazakhstan and Kirghizia for the purpose of planning a workshop to be held there in 1997; progress on the Hungary-Slovakia resource assessment project; planning for the K-10, IUGS-UNESCO Deposit Modeling Program Symposium at the 30th International Geological Congress; new membership; and plans beyond 1997.

G. Gaál (commentator and former DPM Chairman) stated that the programme gained a number of new members in 1996. He explained that the programme arranges a workshop every year, mostly in developing countries, with modelling of genetic types of regional assessment. He also reported of a number of meetings last year, in Hungary, Slovakia, Albania and Brazil. Special symposia had also been held at the Beijing IGC. Gaál also raised the question of whether COGEOENVIRONMENT should be involved in the programme. The Steering Committee will meet again in Paris on Friday, January 31, 1997 after the IGCP meeting. The main event for 1997 is the workshop in Kazakhstan, dealing with gold deposits.

R. Brett suggested that the programme should undergo some external examination, because the programme has been at a turning point for years. He added, however, that the programme was one of the better IUGS programmes, and some of the best people in the world had been giving the workshops in the developing countries.

A short discussion on the activities in different countries followed. I. Nyambok asked what the procedures were for the dissemination of the results. Gaál replied that an excursion guide is printed before the meeting. The general policy is that the host country compiles and distributes the report, but sometimes the country cannot afford it and the DMP does it. A. Boriani said that there is a large request for environmental impact studies in Africa, but that he did not see very much of that. Z. Johan replied that it is difficult to introduce environmental impact studies in these workshops. For example, Albania had refused to study the pollution caused by its mining practices.

Boriani asked who would select the Chairman. Gaál replied that this is done by the Steering Committee, but the IUGS Secretary General is an ex-officio member and UNESCO is also strongly involved. The opinions of these bodies are always taken into account.

Caldwell asked whether IUGS receives conference reports from these workshops. He thought that an article in EPISODES would have great interest and suggested that this should be done as a routine for both DMP and GARS. Gaál replied that there usually is an article in EPISODES after each workshop - as for instance after the one in Albania.

A lengthy discussion followed where Johan mentioned that the reason for the selection of Albania was the world-wide importance of Albanian chromate ore production. The discussion also focused on standard guidelines for deposit modelling and the question of whether the programme has any plans to incorporate energy in their workshops.

The Committee APPROVED the DMP report.

5.e. IUGS/UNESCO Program in Earth Processes in Global Change (CLIP)

Chief Accomplishments in 1996:

The 5th Annual Meeting was held on the Paragon Peninsula in northern Venezuela in collaboration with the INQUA-PAGES programme. Twenty-four scientists from 8 countries attended. A book of Abstracts and Guide book (57 pages) were published. Three field excursions followed the Symposium.

New collaborative research was initiated at this meeting and important prospective work has been planned between and The University of Orleans (France), FUNNIES and, FUNVISIS and The University of Aix-Marseille II, The University Francisco de Miranda in Coro (UFMC) and The University of Bordeaux, IVIC (Venezuela) and The University of Concepcion (Chile), FUNVISIS and The University of Miami, The University of Köln and UFMC, and CNRS Marseille and FUNVISS.

The meeting was extremely successful and was attended by CLIP members, PALEOMONSOONS members and scientists from ORSTOM and IGCP 367.

I. Speden (commentator) reported that this is a good international project which has made an effort to improve relations with IGBP (ICSU). It is working on the history of the last 3 000 years, producing paleomaps and indicating other very clear activities for the future. The project has extended its membership and is trying, together with IGBP, to produce a history of key areas of the climate of the last 1 000 years.

The Vice Presidents thought that the project should be continued with a smaller contribution than before. It would be a shame to

terminate it, which could instead be associated with other outstanding programmes.

The Committee APPROVED the CLIP report, noting the value of this project. Since UNESCO is withdrawing from the project, the Committee AGREED to keep it as an IUGS Working Group.

6. INTERNATIONAL GEOLOGICAL CONGRESS - IGC

6.a. 31st IGC - Status of Planning

U. Cordani reported that a Preparatory Commission for the 31st IGC had started in 1996 when Brazil was given the responsibility for the 31st IGC to be held in Rio de Janeiro. Several Brazilian representatives had been present at the 30th IGC in Beijing, promoting the congress and distributing a brochure. The initial expenses had been covered by the Geological Survey of Brazil and other, smaller organizations. The preparatory commission had met 2-3 times, with the primary goals of keeping up the momentum from Beijing and building up an organizational structure. Prof. Hernani Chaves (Brazil) is President of the Preparatory Commission and Cordani will act as Associate Secretary General for International Relations. The final organizing committee will be in place by the end of 1997 and . His presence at this meeting was therefore to provide contact with the IUGS Executive Committee and the Chileans. Cordani further related that the Organizing Committee of the 31st IGC would like to have a few suggestions from the Executive Committee, particularly about the scientific programme. The first circular was scheduled to be published in March 1998.

Cordani went on to comment on the budget and the importance of having the Brazilian government give the green light for the Congress and of obtaining support from Ministries of Mines, Environment, Foreign Affairs and Science and Technology. The Congress had been requested also to celebrate 500 years of Portuguese in Brazil. The main themes of the Congress should be the challenges of the third millennium and sustainable development.

The Congress will not be organized by Brazil alone. Other South American countries, primarily Chile, will contribute by organizing field trips and symposia. A Chilean committee will also be set up, and similar contacts will be made with the other countries. The dates of the Congress will most likely be August 6 to 16 and the Rio Center, a short distance outside Rio de Janeiro, provides good conditions for a large congress.

There will be a meeting of the Steering Committee in mid 1998, which, according to the IGC statutes, will also have to produce recommendation for the place of the 32nd IGC, either Austria or Italy. Concerning the IGC Statutes, Cordani noted that some advice from IUGS was needed. A discussion on reactivating the IUGS Committee on Statutes followed, but since the IGC is a separate body, IUGS would need an invitation to be involved in this work. Cordani stressed the need to have the proposed changes prepared before mid 1998.

U. Cordani stated that the scientific programme should be similar to previous congresses with colloquia, special symposia, thematic sessions, poster sessions, short courses, workshops and field trips. The Congress will focus on "Geology and Sustainable Development: Challenges for the Third Millennium." A preliminary programme was distributed in Beijing asking for suggestions from commissions and affiliates and the opinion of the Executive Committee. Cordani further stressed that only Commissions and affiliated organizations may be listed as co-sponsors. It is necessary to keep the IGC within the IUGS family. Local and regional organizations that are listed together with IUGS Commissions need some revision.

Cordani proposed that a letter should be sent from the organizing committee to the Commissions and affiliated organizations and ask if they have suggestions for special topics and proposals for symposia. He presented a partial list. Cordani also noted that all of South America is co-operating in the preparation and that this event is an unique opportunity for the whole continent. W. Fyfe noted that there must be a niche for everybody in the world but of course it is natural to emphasize topics related to South America. I. Speden pointed out that in Beijing, some of the sessions on China were very good but there was no time for questions. He suggested that it would be good to have larger symposia split into smaller groups.

A. Boriani then went on to report on a letter he had received from the promotion committee for Italy and reconfirmed the Italian invitation asking for an early answer from the Steering Committee. The Italian invitation stresses that the congress would focus on Mediterranean geology. It would be supported by several countries in the Mediterranean region and would mainly be dedicated to young scientists. Some scepticism about holding a meeting in Florence in August has been expressed, but the invitation stresses that August is the best time to hold it because of the reduced impact of tourists.

The Committee THANKED U. Cordani for his report on the 31st

IGC, noting that the final organizing committee will be set up in 1997.

7. INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS (ICSU)

7.a. Relations with ICSU

R. Brett reported that he is now the IUGS representative to the ICSU General Committee, but that earth science is not represented on the Executive Board of ICSU.

7.b. General Assembly of ICSU

R. Brett reported that he had attended the 25th General Assembly of ICSU held in Washington DC from 24 to 27 September 1996, hosted by the U.S. National Academy of Sciences. The assembly was preceded by a "Symposium on Science and Human Goals in the 21st Century". Geological sciences were almost ignored at the assembly. The World Meteorological Organization (WMO) organized a high-level meeting on the topic of "Earth Science within the United Nations". A booklet of ten pages was produced which did not even mention geology. Brett used these and other examples to demonstrate the apparent lack of regard for the geological sciences within circles like ICSU and WMO. He said that IUGG is also concerned about this problem.

W. Fyfe added that in the 25th General Assembly of ICSU, food security was discussed, again neglecting geological disciplines, and no geochemists were included. In the Energy Committee there was not a single geologist.

7.c. Other proposed programmes with IUGS

7.c.1. Science and Technology for Earth Management (STEM)

A. Boriani recalled that this programme was initiated by W. Fyfe on the observation that huge engineering constructions like dams, roads etc. would be more efficient if an interdisciplinary and international group was involved in the planning, including not only engineers and economists, but also geologists and other professionals who can add their knowledge. ICSU seemed to be the organization under which such work could be carried out and it has approved. The responsibility of the development of this initiative is, however, left with IUGS.

Boriani noted that he had received a call for proposals for STEM. He summarized what ICSU indicates as possible topics for programme proposals and proposed that it would be advisable to focus on energy.

7.c.2. Committee on Energy

It appears that this ICSU Committee is responsible for the call for papers in STEM (7.c.1.).

7.c.3. Committee on Nuclear Waste Disposal

W. Fyfe reported on a meeting of the Committee in Paris where five experts from the French nuclear organization ANDRA were present. He stressed that the nuclear waste problem is of an international, not national, nature and that incredible sums of money will be used to get rid of nuclear waste in the next years. The final report will be written after a whole day symposium on nuclear waste during the EUG in Strasbourg in March 1997.

7.c.4. Capacity Building Committee

A. Boriani noted that some years ago, ICSU cancelled its programme of science education and changed its name to Capacity Building Committee. Primary science education, public understanding and isolation of scientists are topics of interest to the committee but it seems that the budget available for the achievement of these targets is too small. The committee has very noble but impossible goals.

7.d. IUGS Representatives on ICSU Committees

A. Boriani reported that there were some new IUGS representative on ICSU Committees but that two vacancies are still pending and will be fixed by the Bureau as soon as possible. A special problem was presented by the need to select an IUGS representative to the ICSU Scientific Committee on Oceanic Research (SCOR). It was decided that careful consideration must be given to finding a person who could better represent the developing countries.

The following are the IUGS representatives:

International Council of Scientific Unions (ICSU)
Robin Brett

Committee on Data for Science and Technology (CODATA)	Andrea Fabbri
Committee on Space Research (COSPAR)	V. Singhroy
Committee on Capacity Building in Science (CCBS)	W.S. Fyfe
Scientific Committee on Water Research (SCOWAR)	J. Margat
Coordinating Committee for the Moon and Planets (CCMP)	J.W. Head III
Scientific Committee on Antarctic Research (SCAR)	I.W.D. Dalziel
Scientific Committee on Oceanic Research (SCOR)	Enrico Bonatti
Scientific Com. on Problems of the Environment (SCOPE)	A. Cendrero
Scientific Committee for the International Geosphere-Biosphere Programme (SC-IGBP)	N. Petit-Maire
Com. on Science & Technology in Developing Countries (COSTED/IBN)	V. Babuska
Standing Committee on the Free Circulation of Scientists	vacant

The Committee APPROVED the new list of representatives referring to the Bureau to find persons for the vacant positions. (*The list is updated in June 1997.*)

8. IUGS POLICY AND ADMINISTRATIVE MATTERS

8.a. History of IUGS

R. Brett informed that some years ago Prof. C. Schmeer, New Hampshire, US, had visited the Trondheim Secretariat, to go through the archives, and had met with people necessary for writing the history of IUGS in other places in Europe. The booklet "Geologists at Prague", describing the Prague congress in 1968, has been advertised in *Episodes* and may be obtained from the IUGS Secretariat for USD 7. Another four chapters are to be published.

8.b. Episodes

See Agenda Item 4.a.2.

8.c. IUGS Field Workshops

W. Fyfe reported that he had been involved in three Field Workshops, including a very successful workshop in Brazil and another in Japan, which concerned urban problems. These self-funded workshops encourage common solutions for various problems such as water supplies, etc. New workshops will be held next year, focusing on nuclear waste disposal.

8.d. IUGS Statutes

R. Brett reported that, for bureaucratic reasons, it was preferable to have the head office of IUGS transferred from Switzerland to Reston, USA. This should be changed in the Statutes.

The Committee APPROVED the change of IUGS head office from Switzerland to Reston, USA, pending ratification by the IUGS Council in Rio 2000.

8.e. IUGS Nominating Committee

R. Brett remarked that the number of meetings of previous Nominating Committees has been high, in terms of money and time. The general opinion is that one meeting during each period would be sufficient and that the first exchange of opinions could be done by fax and e-mail. The Chairman, W. Fyfe, agreed entirely.

8.f. IUGS Strategic Planning Committee

R. Brett indicated that during the IUGS Council meeting in Beijing the previous year, a suggestion to initiate an IUGS Strategic Planning Committee in order to review IUGS was made. The Bureau had discussed the idea and proposed to organize a meeting of the Committee during the EUG in Strasbourg in March 1997, because many people would come to this meeting with no funding from IUGS. A list of possible members of the Committee had been prepared by the Bureau. The necessity to have a person outside IUGS to chair the meeting was stressed and Peter Cook (BGS, UK) had been asked. Cook had accepted and would select members from the list prepared, preferably the widest and wisest possible group, keeping the number to no more than ten. The committee gathering in Strasbourg will consist of people who know IUGS well enough to prepare a preliminary draft. The meeting should take two days. A second meeting will definitely be needed.

I. Speden referred to his letter to the Bureau of September 6, 1996, proposing to call on the assistance of professionals in

management and planning, and possibly also industry, to finalise a document for discussion. He suggested using the strategic plan to influence the political world. A questionnaire with leading questions about IUGS should be circulated. Guidelines for the committee must also be worked out indicating also the scale and scope of the work.

A discussion followed on funding of the Committee. Sources would be sought by some National Committees. A suggestion was made to organize an ad hoc meeting to prepare for the Strategic Plan Committee meeting. This meeting should decide when and where to hold the meeting and how long the Committee should exist. Guidelines should be proposed and the strategic plans of other organizations examined. One-page proposals from IUGS bodies, apart from the affiliated organizations, on the strategic plan should be asked for and taken into consideration.

During the Executive Committee meeting, I. Speden, M. Schmidt-Thomé and G. Caldwell prepared a document on the issue that was read and discussed on the last day of the meeting. I. Nyambok suggested that advice on future development of science within IUGS should be made in close relation with Commissions and Working Groups. Brett and Boriani emphasized the important role of the National Committees in this matter.

The Committee REFERRED the further work of establishing the Strategic Planning Committee to the Bureau, noting that funding will have to be raised from outside IUGS.

8.g. IUGS Finance Committee

A. Boriani explained that to help the Secretary General and the Bureau in financial affairs, it is necessary to find people who have experience in managing money. It is therefore decided to revitalize the IUGS Finance Committee, which is listed in the Statutes but has been dormant for some years. The starting point will be to identify the ideas, tasks and aims of the committee, and the names of possible members. Several names were proposed by the Executive Committee. Boriani noted that the Bureau has appointed M. Schmidt-Thomé as Chairman of the committee and that he has accepted.

R. Brett reported that he and Schmidt-Thomé had on their own initiative written to companies to ask for funding. The response was, however, nil for both, so clearly the right strategy was not used. IUGS certainly needs advice for a strategy to raise money. Companies may be interested in special products from

IUGS. Proposals from the IUGS bodies on how to proceed may be sent to the Secretary General at the earliest possible convenience, also by E-mail. In addition to financially skilled people, IUGS certainly needs people with enough geological knowledge to understand the geological network and where the science is going. A largely international based group of people is needed. The Vice Presidents can give regional advice. G. Gaál proposed a database of possible funding foundations or associations.

The example of EUG was also proposed as a possible model, where part of the registration fees of the meeting goes back to EUG. This possibility may be proposed to U. Cordani for the Brazilian Congress, with perhaps 20 USD taken from the registration fee for the 31st IGC.

8.h. IUGS Working Group on Public Affairs

R. Brett reported on the proposed establishment of a Public Affairs group with the primary goal of polishing IUGS' image. He referred to the American Geological Institute (AGI), which has a PhD geologist working full time on public affairs and the American Geophysical Union (AGU), which has a slightly different but similar organization. For IUGS, the Working Group need to know how other groups are proceeding in this matter and then come out with statements that can be useful for regional problems, which can be handled better by IUGS than by a local organization.

The Committee suggested names for the Working Group on Public Affairs, but due to financial constraints this year and probably next year, the contacts will have to be made by e-mail. Brett stated that he would write up the terms of reference.

9. EXTERNAL RELATIONS

9.a. United Nations - IDNDR

IUGS's only direct contribution to IDNDR is through the Working Group of World Landslide inventory.

10. REQUESTS FOR FUNDS AND BUDGET FOR 1997

Z. Johan explained the estimated budget for 1997, stressing the complications it causes that Overseas Development Aid (ODA) has withdrawn its funds for IGCP and that IUGS now also has been informed that the US contribution to IGCP will be reduced from

USD 80,000 to USD 35,000. Johan suggested that the Finance Committee and the Strategic Planning Committee should in the future give advice on the size of the contribution to IGCP. A suggestion was to reduce the number of projects and also lump some projects together.

The list of allocations to IUGS bodies, agreed upon by the Committee, is included in the minutes as Appendix 3.

The rouble account

The account allows successful meetings in Russia and allows Russians to attend meetings in other countries. The program has been a success.

11. UPDATE

11.a. Directory

A. Boriani stated that an updated IUGS Directory will be printed in 1997. The Directory will also appear on the IUGS home page at <http://www.iugs.org>.

11.b. Brochure

A. Boriani informed the Committee that the brochure "What is IUGS" will be revised during the spring of 1997. The minutes from the Executive Committee meeting in Adelaide in 1995 must be checked because they contain suggestions for changes.

11.c. Internet Home Pages

J. Aaron gave a brief description of the history of Internet's tremendous development world wide, mentioning the fact that this is completely changing the world of communication. The motivation to start building an IUGS home page was mainly to answer the need for visibility and also to improve communication. A brief description of the structure of the pages was given, and the importance of ensuring that all e-mail addresses are current and correct was stressed. Twenty-one Commissions and Affiliated Organizations now have a home page on WWW and are linked. Requests for collaboration in terms of supply of data concerning all aspects of IUGS should be forwarded to John Aaron, who will implement them on the IUGS page.

The Committee CONGRATULATED J. Aaron on his achievements with the IUGS home page.

12. VENUE AND DATE OF THE 44th EXECUTIVE COMMITTEE MEETING

A. Boriani reported that the Austrian National Committee has generously offered to host the Executive Committee meeting in Vienna in January 1998. There will be no field trips because of the season, but there will be one day for tours of the city and a visit to the Natural History Museum. The Executive Committee has not met in Europe for quite a while. The meeting will start on 26 January, thus being held the week prior to the IGCP meetings in Paris, which will take place from 2 to 5 February 1998.

13. OTHER BUSINESS

Dr. Colin Brooks (observer from Chile) reported on Nuclear Waste Disposal. Brooks provided also a written report. Brooks remarked that the general comment about IUGS is that it is too academic with little contact with the industrial world, but he said he was pleased to hear that IUGS was open to collaboration with companies. He proposed introducing a larger number of representatives from major world industries.

The 43rd Session closed at 1:00 p.m. on Saturday, January 18, 1997.

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

NOTES