I C M I

BULLETIN
OF THE
INTERNATIONAL COMMISSION
ON
MATHEMATICAL INSTRUCTION

No. 12

April 1981

Secretariat

c/o Prof. Peter Hilton
Department of Mathematics and Statistics
Case Western Reserve University
Cleveland, OH 44106
U.S.A.

TABLE OF CONTENTS

ICMI
Executive Committee

President	Prof. Hassler Whitney Institute for Advanced Study Princeton, New Jersey 08540 U.S.A.
Vice Presidents	Prof. B. Christiansen Royal Danish School of Educational Studies Department of Mathematics Emdrupvej 115 B DK-2400 Copenhagen NV Denmark
	Prof. U. D'Ambrosio IMECC Unicamp Caixa Postal 1170 13100 Campinas S.P. Brazil
Secretary	Prof. Peter Hilton Department of Mathematics CWRU Cleveland, Ohio 44106 U.S.A.
Members	Prof. Stanley Erwanger Department of Mathematics Concordia University Montreal, PQ Canada H3G 1M8
	Prof. B.H. Neumann Institute for Advanced Studies Australian National University POB 4, Canberra ACT 2600 Australia
	Prof. Z. Semadeni Institute of Mathematics, Polish Academy of Science Ul. Sniadeckich 8, Warszawa 1 Poland
(ex officio)	Prof. S. Iyanaga (ex-President, ICMI) 12-4 Otsuka 6 Bunkyo-ku, Toyko Japan
(ex officio)	Prof. Jacques-Louis Lions (Secretary of IMU) College de France Chaire d'Analyse Mathematique des Systemes et de leur Controle 11 Place Marcellin-Berthelot 75005 - Paris France

2. REPORT OF THE PRESIDENT

This number of the Bulletin will appear two years after the last one. I am sorry for the great delay. It is due to several causes, including a paucity of material for a long period.

As reported in the last Bulletin, Number 11, ten Members-at-Large of ICMI were chosen at the General Assembly of the International Mathematical Union (IMU) at Otanieni, Finland, in August 1978, with me as President and Peter Hilton as Secretary. Considerable time and effort were then spent to form a new Executive Committee (EC), with due regard to the Members' experience and geographical distribution. I feel greatly honored by being chosen as President, and very glad of the cooperation of my worthy colleagues on the EC. They are all playing a vital role in the work of ICMI.

The most visible functions of ICMI are the International Congresses on Mathematical Education (ICME's). The first was at Lyons, France in 1969; the second at Exeter, England in 1972; the third at Karlsruhe, Federal Republic of Germany in 1976; and the last one at Berkeley, California, USA this past August 10-16.

At Berkeley the final decision was made to accept the fine invitation from the Australian National Committee for Mathematics to hold the next ICME in Adelaide, South Australia, in August 1984.

With the spreading of ICMI's functioning to wider regions, the difficulties, financial and otherwise, of attending congresses, conferences and meetings are steadily increasing in a trying period of history. We were very fortunate to have representation from most regions of the world at Berkeley; but this is likely to be still more difficult at Adelaide. It was also fortunate that the whole EC could be present at Berkeley, and could have a number of meetings, two of them with three of the remaining Members-at-Large present; we were glad to benefit from these Members' wise counsel.

What part can ICMI play in world-wide mathematics education? The Congresses can help the overview of the whole field, and in part can be relevant to particular problems you might be facing. The regional conferences sponsored by ICMI can attack specific or more general problems in fields of direct concern to the countries involved but can also, of course, range more widely.

The work in mathematics education in any particular country may center in a national organization adhering to the IMU. Any such organization may appoint a representative to ICMI, commonly through a subcommission on mathematics education. Our list of representatives is not up to date; most have not been heard from for a period of years. *Would you please write to the Secretary or to me giving the name and address of your present Representative* (if different from the name on the appended list), along with any news on mathematics education that you feel to be of general interest. If your country does not have a national committee or representative, you might inquire locally and with the ICMI Executive Committee about getting one started.

Initiative for regional conferences comes from the people concerned locally. Such concerns are apt to be of wider interest also. If tentative plans are drawn up by a committee from two or more countries, the ICMI EC is likely to welcome this, sponsor the conference, and appoint a member to the Planning Committee. This helps in various ways, including the problem of funding; ICMI can usually make a modest contribution.

Finally, what you can accomplish in your own school or region depends primarily on you and the people directly concerned. Help from outside is beneficial to the extent that it relates to the actual local problems. I see, as a major lesson of recent years, that lasting improvement comes mostly from community efforts, involving students, teachers, administrators, parents, and others. If common goals are agreed on, then plenty of open communication and cooperation yields benefits going far beyond anything that might be imported from outside.

With my best wishes to you and all those working for the benefit of the children in schools,

Hassler Whitney, President

3. NATIONAL REPRESENTATIVES

(Please send any corrections to the Secretary)

National Representatives

Argentina: Professor Luis A. Santalo
Cochabamba 780, Dpto 10,
Buenos Aires
Argentina

Australia: Professor B.H. Neumann
Department of Mathematics,
Institute of Advanced Studies,
Australian National University
Box 4, Canberra, ACT 2600
Australia

Austria: Professor E. Hlawka
Mathematisches Institut der Universitat
Strudlhofhasse 4, Wien A-1090
Austria

Belgium: Dr. G. Noel
Université de l'Etat a Mons
Avenue Maistriau 19, B.7000 Mons
Belgium

Brazil: Professor L. Nachbin
Avenida Vieira Souto 144, Apto 100
Rio de Janeiro 95, Ipanema
Brazil

Bulgaria: Professor B.L. Petancin
Sofia 64, Elin-Pelin Str. 20
Bulgaria

Canada: Professor A.L. Dulmage
University of Manitoba
Winnipeg 19, Manitoba
Canada

China-Taiwan: Dr. Shing-Meng Lee
National Central University, College of Science
Chung Li
Taiwan

Czechoslovakia: Dr. J. Vysın
Nad Kralovskou oborou, Praha 6
Czechoslovakia

Denmark: Lektor J. Hoffman-Jørgensen
Matematisk Institut
Universitetsparken - Ny Munkegade
DK-8000 Aarhus
Denmark

Federal Republic of Germany: Professor H. Kunle
75 Karlsruhe, Universitat
West Germany

Professor H.G. Steiner
D-4801 Jollenbeck, Hermann-Lons-str. 16
West Germany

Finland: Dr. L. Kaila
Bernadink 1, Helsinki 13
Finland

France: Madame Jacqueline Lelong-Ferrand
Professor a l'Université Paris VI
95 Boulevard Jourdan - 75014 Paris
France

German Democratic Republic: Professor K. Härtig
1157 Berlin
Horterweg 16
German Democratic Republic

Greece: Professor C. Papaipoannou
Jacouvidou St. 22, Athens
Greece

Hungary: Professor J. Szendrei
Szeged, Aprilis 4, Utja 6
Hungary

India: Dr. P.L. Bhatnagar
Dholpur House, Shahjahan Road
New Delhi 11011
India

Ireland:
Professor Cornelius Lanczos, MRIA
Mathematics Department
University College Dublin
Belfield, Dublin
Ireland

Israel:
Professor M. Maschler
Department of Mathematics
Hebrew University
Jerusalem
Israel

Italy:
Professoressa Emma Castelnuovo
Via S. Angela Merici 48
00162 Roma
Italy

Japan:
Professor Y. Kawada
Department of Mathematics
University of Tokyo
Hongo, Bunkyo-ku, Tokyo, 113
Japan

Luxembourg:
Professor L. Kieffer
College d'Enseignement Moyen
1 rue Jean Jaures
Luxembourg

Malawi:
Dr. Martyn Cundy
Chancellor College
PO Box 5200, Limbe
Malawi

Netherlands:
Dr. P.G.J. Vredenduin
van Wassenaerheuvel 73, Oosterbeek
Netherlands

Nigeria:
Mr. S.A. Dada
African Church Grammar School
PO Box 729, Ibadan
Nigeria

Norway:
Dr. A. Johansen
Karl Flods Vei 5, Oslo 9
Norway

Pakistan:
Dr. M. Raziuddin Siddiqi
University of Islamabad
77 Satellite Town, Rawalpindi
Pakistan

Poland:
Professor Z. Semadeni
Institute of Mathematics
Polish Academy of Science
Ul. Sniadeckich 8, Warszawa 1
Poland

Portugal:
Professor J. Sebastião e Silva
Rue Fernam Gomes 17
Restelo, Lisboa 3
Portugal

Roumania:
Dr. G.C. Moisil
Inst. de Matematica
Str. Mihail Eminescu 47, Bucuresti
Roumania

Senegal:
Professor S. Niang
Université de Dakar, Fac. des Sciences
Dakar
Senegal

South Africa:
Professor J.H. van der Merwe
Department of Mathematics
University of South Africa
Pretoria
South Africa

Spain:
Professor Pedro Abellanas
Isaac Peral 3, Madrid 15
Spain

Swaziland:
Dr. R.J. Waterson
Department of Mathematics
University of Botswana, Lesotho and Swaziland
PO Luyengo
Swaziland

Sweden:
Professor Hans Wallin
Department of Mathematics
University of Umeå
Sweden

Switzerland:
Professor A. Delessert
1099 Servion, Vaud
Switzerland

Tunisia:
Dr. M. Bougila
11 rue Dugueselin, Tunis
Tunisia

United Kingdom:
Professor J.V. Armitage
The Shell Centre for Mathematical Education
University Park, Nottingham
NG7 2RD
England, U.K.

USA:
Professor Leon Henkin,
Department of Mathematics,
University of California,
Berkeley, CA 94720
USA

USSR:
Professor I.M. Yaglom
Grousinski Val. 26, Kv. 97
Moscow D5
USSR

Yugoslavia:
Professor D. Kurepa
Matematicki Zavod PMF
Boite 550, Beograd
Yugoslavia

Zambia:
Dr. S.M. Bayat
Secretary
Mathematical Association of Zambia
POB RW204, Ridgeway, Lusaka
Zambia

4. REPORT OF THE SECRETARY

First, let me join the President in expressing regret at the delay in the appearance of this Bulletin. He has explained some of the reasons. In addition, the two years preceding ICME IV constituted a period of very intensive activity for those members of the EC of ICMI who served on the International Program Committee, and even the Core Committee, for the Berkeley Congress. Thus it was felt that the main effort during that period of those members (who included the President and Secretary) should be devoted to ensuring the success of the Congress. For the Secretary there was the additional burden - welcome though it was! - of disbursing equitably the funds made available by IMU to help needy would-be participants to attend the Congress. It is a pleasure to acknowledge our indebtedness to IMU for their munificence, and to express my own personal appreciation to Professor Donald Hill for the fine work he did in the distribution of the available monies.

The content of this Bulletin should constitute an adequate account of ICMI activities - future, current and in the immediate past. I would only like to add that I was honored and delighted to be invited, in my capacity of Secretary of ICMI, to visit Southeast Asia in the summer of 1980. I participated in the meeting of the Southeast Asia Mathematical Society in Hong Kong and in a conference held the following week in Singapore. I also gave invited lectures in Manila, Kuala Lumpur and Bangkok. Everywhere I found great kindness - and great interest in mathematics and the teaching of mathematics. It was an intensely interesting and, indeed, wonderful experience for me, and I am delighted to take this opportunity to express my deep appreciation to all those who contributed so much to making my tour enjoyable and productive.

ICMI functions on a very small budget but this seems a good opportunity to give an accounting of the present state of its finances. So let me put on my Treasurer's hat!

REPORT OF THE TREASURER

INCOME		EXPENDITURE	
From Professor Kawada (previous secretary)	$ 5125.36	Mailing	$ 208.09
		Sundries	76.00
From IMU (1979)	800.00		
		Letterhead stationary	69.50
From IMU (1980)	1000.00		
		Reimbursement	15.00
From IMU (for ICME IV)	6000.00		
		Prof. Hill*	4500.00
Royalties (New Directions)	176.00		
		Disbursements to ICME IV participants	2025.00
	$13101.36		
		Secretary's expense in SE Asia	1550.39
		EC expenses at ICME IV	1144.41
		Contribution to SEAMS conference (April, 1981)	1500.00
Balance (2/28/81)	$2012.97		$11088.39

*It is understood that Professor Hill may be able to return some of these funds when a subvention is received from UNESCO.

Appointment of Assistant Secretary and Associate Editor of the Bulletin

The Secretary takes pleasure in reporting that Professor Ellen Stenson, of Case Western Reserve University, has agreed to act in the joint capacities of Assistant Secretary and Associate Editor of the Bulletin during the remainder of his term of office.

5. REPORTS ON ICME IV

1. Report by Dr. Henry Pollak, Chairman of the International Program Committee

The Fourth International Congress on Mathematics Education was held at Berkeley, California, USA, August 10-16, 1980. Previous Congresses were held in Lyons in 1969, Exeter in 1972, and Karlsruhe in 1976. Attendance at Berkeley was about 1800 full and 500 associate members, from about 80 countries; at least half of these came from outside of North America. About 450 persons participated in the program either as speakers or as presiders; approximately 40 percent of these came from the U.S. or Canada.

There were four plenary addresses; they were delivered by Hans Freudenthal on major problems of mathematics education, Hermina Sinclair on the relationship between the learning of language and of mathematics, Seymour Papert on the computer as carrier of mathematical culture, and Hua Loo-Keng on popularizing and applying mathematical methods. George Pólya was the honorary president of the Congress; illness prevented his planned attendance, but he sent a brief presentation entitled, "Mathematics Improves the Mind."

There was a very full program of speakers, panelists, debates, miniconferences, and meetings of working and study groups. In addition, 18 major projects from around the world were invited to make presentations, and various groups representing special areas of concern had the opportunity to meet and to plan their future activities.

Innovations relative to previous Congresses included the following:

1) A series of miniconferences, in memory of Edward G. Begle, devoted to critical variables in mathematical education;
2) A series of miniconferences on topics in the mathematical sciences which deserve serious consideration, in all countries, for inclusion in the curriculum: algorithms, operations research, combinatorics, data analysis, algebraic coding theory, extrema without calculus;
3) Simultaneous translation, among English, French, and Spanish, of one session at all times;
4) Daily informal gatherings with coffee and pastry in the morning, wine and cheese in the late afternoon;
5) A serious attempt to evaluate the Congress. Results from the latter should be available this year.

When one considers the richness of the program, the attendance was smaller than had been hoped. Reasons for this which were most often heard involved the state of the American economy, and the fact that the full program was not available until the Congress itself. May the next Congress, scheduled for Adelaide, Australia in 1984, build on the success, and avoid the weaknesses, of Berkeley!

2. The General Assembly of ICMI*

The General Assembly took place on Thursday, August 14. It was scheduled to begin at 5:30 p.m., but the opening was delayed due to other simultaneous arrangements. The number of participants (100-150) varied during the session which was scheduled to close at 7:00, but was prolonged until 7:35. The Agenda was as follows:

(1) Report by the President
  1.1 The ICMI/IMU relationship
  1.2 The history of ICMI, its purpose and working methods
  1.3 ICMI and the developing countries
  1.4 Finances
  1.5 The ICMI Bulletin
  1.6 The International Mathematical Olympiads

(2) ICME V

(3) Other meetings

(4) Any other business

(1) *Report by the President*

1.1 Hassler Whitney, who presided at the meeting, was on the platform together with Bent Christiansen, Ubi D'Ambrosio and Peter Hilton. The Assembly was opened by Hassler Whitney who informed the audience that the floor would be open for questions and proposals after the presentation of point (1). He then gave a brief description of developments in the relationship between the International Mathematical Union and ICMI. Hassler Whitney then called upon various members of the EC in office requesting that they deal with the further parts of the report of the President.

1.2 Bent Christiansen referred briefly to the history of ICMI (dating back to 1908). In the early fifties, after the establishing of the International Mathematical Union, ICMI became a Commission of IMU. The present stage of work began in 1969 when the first ICME was convened under the presidency of Hans Freudenthal. The Commission, pursuing its purposes (". . .to conduct such activities of IMU which relate to mathematical and scientific education at all levels. . ."), has functioned in this period against the background of world wide development of mathematical education, which Christiansen described under three headings: broadening of the field; growing professionalization; and increasing international cooperation. He next commented upon means by which ICMI seeks to support its purposes (the ICMEs; regional (often specialized) meetings; the affiliation of

*In view of the relatively small attendance at the General Assembly, we include a fairly detailed account of the proceedings.

international study groups to ICMI). The work of ICMI takes place as part of a continuous process, so that results in one period build upon earlier results and serve to prepare future actions. Powerful resources for use in this working process are available within the international mathematics education community. Christiansen suggested that future successful work of ICMI depends on relevant use of these resources. He finally expressed the great appreciation of ICMI for the support obtained over the years from Unesco.

Dr. Edward Jacobsen, Programme Specialist in Mathematics education at Unesco Headquarters, Paris, commented - on invitation by Christiansen in his final remarks - upon the fact that Unesco and ICMI often worked for the same purposes. He gave examples of common tasks and efforts and expressed the hope that the valuable cooperation between ICMI and Unesco would continue in the future.

1.3 Ubi D'Ambrosio emphasized the important role of ICMI as a sponsor of regional meetings, and the Commission's overall support for the creation and work of new regional bodies for mathematics education and mathematics. He gave examples of activities of IACME (the Inter-American Committee on Mathematical Education) and of AMU (the African Mathematical Union), and he mentioned the very encouraging fact that the Second Southeast Asian Conference on Mathematical Education would take place in April 1981.

1.4-5 Peter Hilton reported on the financial status of ICMI. In this connection, he thanked IMU for a special grant of $6,000 to support participation in the Berkeley Congress of mathematics educators from developing countries. He asked for approval of travel costs incurred recently in establishing professional contacts and cooperation between ICMI and Southeast Asian mathematicians and mathematics educators. Peter Hilton next described the difficulties involved in the publication of the ICMI Bulletin. No issue had appeared since 1978, but it now seemed that the problems would be solved in the near future with the help of an expected -and greatly appreciated - financial grant from Unesco. The Bulletin would include news and information of specific importance for international cooperation in the field of mathematics education.

1.6 Bernhard Neumann informed the Assembly that the Finnish National Committee on Mathematical Education had proposed that ICMI should assume some responsibility for international mathematical competitions among high school students by setting up a Site Committee for the International Mathematical Olympiad. This proposal had in principle been adopted by the Executive Committee of ICMI.

The discussion The above concluded the reports relating to point (1) of the agenda. The debate - expected to take place at this time - had however already been opened

after Christiansen's presentation, when it was requested by many members of the audience that the proceedings of the General Assembly be conducted with translation between the three languages English, French, and Spanish. In that connection, the general handling of the language problem at the Congress was severely criticized by several speakers on the floor. The officers of ICMI acknowledged the importance of this whole matter and expressed regret that it had not been possible to hold the meeting in a room where simultaneous translation would be available. It was agreed that, as far as possible, résumés should be given in French and Spanish of Christiansen's presentation as well as of the following proceedings, and such résumés were from then on provided by Ubi D'Ambrosio and Peter Hilton.

There were no questions from the audience on the reports presented as part of point (1) of the Agenda.

(2) *ICME V*

Hassler Whitney announced that the Australian Academy of Sciences, by letter to ICMI of April 1980, had submitted an invitation from the Australian Subcommission of ICMI to hold the Fifth ICME in Adelaide, Australia, in August 1984. The Executive Committee of ICMI had gratefully accepted this invitation.

Dr. M.F. Newman, Canberra, who had been appointed Chairman of the International Programme Committee of ICME V expressed - on the invitation of Hassler Whitney - his hopes of substantial cooperation in the preparation of ICME V; and, on behalf of the Australian Subcommission of ICMI, extended a hearty welcome to Adelaide in 1984.

Bernhard Neumann strongly recommended that countries having an interest in becoming host country of ICME VI in 1988 might begin their preliminary inquiries without delay. It is very important to move towards a situation where a full four-year period of preparation can serve to make the planning of the Congresses as good as possible.

(3) *Other meetings*

Peter Hilton mentioned meetings at preliminary stages of planning, and announced three future meetings sponsored by ICMI.

(i) The Second Southeast Asian Conference on Mathematical Education, April 21-24, 1981, in Kuala Lumpur, Malaysia. This conference is organized by the Department of Mathematics, University of Malaya; the Southeast Asian Mathematical Society; and the Malaysian Mathematical Society.

(ii) A Symposium on Heuristics to be held at Seminar für Didaktik der Mathematik, University of Dortmund, West Germany, in the latter part of 1982.

(iii) A Symposium to be held during the International Congress of Mathematicians in Warsaw, August, 1982. This Symposium would continue the line of ICMI Symposia convened during the ICMs at Vancouver and Helsinki - but not as a part of their regular programmes. It would deal with the mathematical content of universal compulsory education at secondary level, concentrating probably on the appropriate mathematical content of a general education.

(4) *Any other business*

Peter Hilton reported that the EC of ICMI had received a proposal from Professor Burkhardt of Nottingham, U.K., suggesting a change in the election of members of the EC, so that ICMI itself would be more closely involved in the IMU procedure of establishing the new EC of ICMI.

A Conference on Geometry in Belgium in 1982 was announced by Dr. G. Noel.

A question of principle, namely whether the General Assembly of ICMI could discuss and pass a resolution demanding freedom for the Uruguayan mathematician Jose Luis Massera, had already been raised from the floor during point (1) of the Agenda. The question had been postponed to point (4), and the debate now took place - at times in a rather disorganized way! - between members of the audience and members of the Executive Committee. Hassler Whitney maintained that this matter could not be accepted as part of the business of ICMI or of the General Assembly, and he was strongly supported in this view by D'Ambrosio and Christiansen. The discussion was terminated after a proposal from the floor, which was met by general acclamation from the audience, that a resolution in support of the demand for Massera's freedom would properly be a matter for the decision of the members of the Congress at its final session.

Hassler Whitney
Bent Christiansen
Peter Hilton

3. The Closing Session

Following the pattern adopted at ICME III in Karlsruhe, the programme of the closing session was left to the judgment of the EC of ICMI. The President, Hassler Whitney, presided at this session, which took place on Saturday, August 16, from 11 a.m. to 12 noon, and which was announced in the Congress programme under the heading "A report on ICMI activities, past, present, and future."

Hassler Whitney mentioned the relationship between the International Mathematical Union and its Educational Commission, ICMI, and described in a general way how the process, by which the Commission and its Executive Committee are established by IMU, might be changed in the near future so that mathematicians and mathematics educators in individual countries could have more influence on the Commission and on the election of its officers. Next, he announced that the Executive Committee of ICMI had, with deep appreciation, accepted the invitation to convene ICME V (1984) in Adelaide, Australia. He then called upon Bent Christiansen (Vice-President of ICMI) to give a report on the activities of ICMI.

Bent Christiansen mentioned in his opening remarks that, four years ago, at the closing session of the Karlsruhe Congress, Professor Hans-Georg Steiner (Chairman of the International Programme Committee of ICME III and then Vice-President of ICMI) had briefly described the history of ICMI. Christiansen proposed that it would be a good tradition to give such brief historical reviews at the closing sessions of the ICMEs, and at the same time look at the working procedures of the Commission. He apologized for the fact that he had dealt with the same issues at the General Assembly of ICMI. However, there would certainly be many Congress participants present who had not been at the General Assembly. Christiansen then made some remarks similar to those described above, in point 1.2 of the report of the General Assembly. He went into more detail, placing special emphasis on the importance of developing close links between the mathematics education communities of the individual countries and the work of ICMI. Especially, he insisted on the danger of accepting the views of a few centrally placed individuals of a given country as an accurate expression of the views on mathematics education of that country. It would, therefore, be an important task for ICMI to ensure that a national subcommission on mathematical education of each member state be established which would be truly representative of mathematics education at all levels and types in the country in question.

Christiansen mentioned that a statement of strong regret had been sent, on behalf of ICMI, to the Ministry of Education in Holland (joining similar statements from colleagues and institutions around the world) when, in late 1979, the working conditions of IOWO (Instituut Ontwikkeling Wiskunde Ondervijs, Utrecht) were endangered. These statements had been based on a world-wide interest in, and admiration for, the work of IOWO, and Christiansen added that the work of the French IREM's (Institut de Recherche sur l'Enseignement des Mathematiques) was regarded with

similar respect. "We are now, in the EC of ICMI, aware of the fact that also the working conditions of the IREM's are in danger, and ICMI will - in close consultation with our French colleagues-take appropriate action in this matter." The Congress showed its clear support of these words by acclamation, and Christiansen promised that this would be mentioned in the forthcoming action.

As at the General Assembly, the support of the work of ICMI obtained from colleagues around the world was emphasized. In this connection Christiansen concluded: "We gratefully remember demised friends and colleagues for their special roles and efforts in our field of interest. It will not be misunderstood when I single out the names of two distinguished colleagues who died in the latter part of the period on which I report: Heinrich Behnke of the Federal Republic of Germany and Willy Servais of Belgium."

Hassler Whitney expressed the great appreciation of ICMI for the successful planning of the Berkeley Congress. A tremendous amount of work had been done and many had given their time in the most generous way in support of this important event. He addressed the thanks of the Commission and the participants to the Chairman of the Program Committee, Dr. Henry Pollak.

Dr. Pollak, in reply, mentioned some special aspects of the long (but not long enough) planning period. He had greatly appreciated the world-wide cooperation and thanked all colleagues involved in the planning and execution of the programme of the Congress.

A resolution on Professor Massera (see Item (4) of the General Assembly) brought forward by congress participants, was read by the president and adopted by the Congress. It was also agreed to send a telegram to President Brezhnev relating to Anatoly Shcharansky. Hassler Whitney then gave the chair to Dr. M.F. Newman, Chairman of ICME V.

Dr. Newman hoped to see all the present participants again in Adelaide, South Australia, and gave a first impression of the beautiful setting for the next ICME by means of selected colour slides from the Campus of the University of Adelaide, from the Adelaide Festival Centre, and from the City of Adelaide and its surroundings.

On this encouraging note about coming contacts and cooperation, the President of ICMI, Dr. Hassler Whitney, declared ICME IV closed.

Hassler Whitney
Bent Christiansen
Peter Hilton

6. ICME V

The General Assembly of ICMI has agreed to accept the invitation from the Australian Subcommission to hold the fifth ICME in Adelaide, Australia, from Wednesday, August 22 to Wednesday, August 29, 1984. The Secretary of the Local Organising Committee will be Mr. J. Gaffney whose address is Wattle Park Teachers Centre, 424 Kensington Road, Wattle Park, South Australia 5066, Australia. I would want to stress that the organization of an international congress which meets the needs of all members of the mathematical education community will need the work of many people. This work needs to begin now. Suggestions about all aspects of the program are needed at once and should be sent to me at the address below. I would also welcome suggestions about people or groups of people who could be expected to make useful contributions to the Congress. At another level I would welcome offers of help with such matters as translation of documents into appropriate languages.

Dr. M.F. Newman, Chairman, ASICMI
Chairman, International Program Committee, ICME V
Department of Mathematics
Australian National University - IAS,
PO Box 4, Canberra, ACT 2600
Australia

7. IACME

IACME, the Interamerican Committee on Mathematical Education, was formed, as a nongovernmental body, during the First Interamerican Conference on Mathematical Education, held in Bogota, Colombia, in 1966. The Committee resulted from the general concern of mathematics educators in Latin America that a body serving as a resource mechanism for all the countries in the region, providing support to ministries of education, universities, school systems and individuals, was needed. This view was shared by some U.S. educators who had been cooperating for many years with Latin American countries, in particular Marshall Stone and Howard Fehr, who played an important role in the establishment of IACME, with the United States and Canada as member countries. Marshall Stone was elected the first President of IACME. In 1972, Luis Santaló was elected President of the Committee, with Howard Fehr as Vice-President. In 1979 there were elected Ubiratan D'Ambrosio from Brazil as President, Emilio Lluis from Mexico and Claude Gaulin from Canada as Vice Presidents, Luis R. Dante from Brazil as Secretary, and Enrique Gongora from Costa Rica, Freddy Lemmer from Surinam, Luis Santaló from Argentina and Saulo Rada from Venezuela as members of the Executive Committee of IACME. In 1976 IACME was recognized by the International Commission on Mathematical Instruction as one of the regional affiliates.

The committee operates through national delegates, and, in the various home countries, through National Committes on Mathematical Education recognized by IACME. These National Committees are representative of the various categories of professionals and entities which relate to the activities of IACME.

The efforts of IACME are basically to provide a channel of communication for all mathematical educators in Latin America, the U.S., Canada and the Caribbean, and to serve as a resource for the various countries of the region. Its relations with UNESCO and the Organization of American States provide easy access to governmental authorities in the member countries, as well as to national and regional associations and societies. The principal activities of IACME are the organization, every four years, of the Interamerican Conference on Mathematical Education, the publication biannually of the BOLETIN INFORMATIVO DEL CIAEM (no. 9 is now in print), which is distributed free of charge to all those interested, and the realization and support of local or regional seminars, workshops and special conferences.

A major event, the 6th Interamerican Conference on Mathematical Education, will take place in Mexico at the beginning of 1983. Previous conferences took place in Bogota, Lima, Bahia Blanca, Caracas and Campinas, and the Proceedings of the conferences constitute the series "Educación Matemática en las Américas", published by the regional office of UNESCO in Montevideo. Volume 5, relating to the 5th Interamerican Conference on Mathematical Education held in Campinas, Brazil in February 1979 is available through the UNESCO office.

IACME headquarters are now located in Brazil; the mailing address is

C.I.A.E.M.
Caixa Postal 1524
13100 Campinas SP Brazil

Ubiratan D'Ambrosio

8. SEAMS

The Second Southeast Asian Conference on Mathematical Education will be held in Kuala Lumpur, Malaysia, from 21st to 24th April, 1981. It is organized by the Department of Mathematics, University of Malaya, the Southeast Asian Mathematical Society (SEAMS), and the Malaysian Mathematical Society, with the support of the International Commission on Mathematical Instruction and UNESCO.

The first such conference was held from 29th May to 3rd June 1978 in Manila, the Philippines, and was a great success. It also was sponsored by ICMI and UNESCO, and was organized by the Mathematical Society of the Philippines. It has stimulated a great deal of activity in the region, particularly in the Philippines. The second conference is to review the work of the first and to look into other new areas. The programme will examine a broad spectrum of problems in mathematical education at the levels of sixteen-year-olds and above.

The invited speakers are: J. Dieudonné (France), H.B. Griffiths (Britain), Tadasu Kawaguchi (Japan), Ubiratan D'Ambrosio (Brazil), B.H. Neumann (Australia), Hua Lo-Keng (China), Bent Christiansen (Denmark), Achmad Arifin (Indonesia), Teh Hoon-Heng (Singapore) and Lim Chong-Keang (Malaysia). In addition, there will be a few more, yet to be confirmed. There will be short communications and workshops on relevant topics in mathematical education. There will also be films shown, displays and exhibitions.

Mailing address for the conference: Dr. C.K. Lim, SEACME 2,
Department of Mathematics
University of Malaya
Kuala Lumpur 22-11
Malaysia

Other conferences organized by the Southeast Asian Mathematical Society in 1981 and 1982 are:

International Mathematical Conference June 1-13, 1981, Singapore. Topics: ring theory and homological algebra, probability theory, combinatorics, number theory.

Second Franco-Southeast Asian Conference May-June, 1982, Manila, Philippines, Topics: Computer programming and algorithms, probability, combinatorics, analysis.

Workshop on teaching graduate and undergraduate mathematics November 1982, Chiengmai, Thailand.

Those interested in any of these conferences should contact, respectively,

Dr. Louis Chen,
Department of Mathematics
National University of Singapore
Bukit Timah Road
Singapore 1025

Dr. Honesto Nuqui
Department of Mathematics
University of the Philippines
Diliman, Quezon City
Philippines

Dr. Mark Tamthai
Department of Mathematics
Chulalongkorn University
Bangkok 5
Thailand

Lee Peng Yee
President, SEAMS
Department of Mathematics
National University of Singapore
Bukit Timah Road
Singapore 1025

9. ICM SYMPOSIUM

The next International Congress of Mathematicians (ICM) will be held in Warsaw, Poland from August 11 to August 19, 1982. As in the two previous congresses, an ICMI session is being planned, centering on a topic of broad interest to a large number of mathematicians. The topic chosen is "The mathematical content of a general education".

Two aspects of this topic are of particular importance and will be emphasized at the Symposium:

1. What should be the mathematical content of a general education for students in the advanced countries who do not propose to go on to a university, and in what way should that content differ from what would be appropriate for the university-bound student?
2. What should be the mathematical content of a general education for students in the developing countries?

For further information, please contact me at the address given below.

Professor Z. Semadeni
Institute of Mathematics, PAN
P.O. Box 137
00950 Warsaw
Poland

10. ICOTS PRELIMINARY ANNOUNCEMENT

The International Statistical Institute is pleased to announce that the First International Conference on Teaching Statistics will be held in Sheffield, England, from 8-13 August 1982. For a copy of the first announcement write to:

The Conference Secretary,
International Conference on the Teaching of Statistics
Department of Probability and Statistics
The University,
Sheffield S3 7RH,
England

The objective of the conference is to improve the quality of statistics teaching on a world wide basis. Key goals include fostering international co-operation among teachers of statistics and promoting the interchange of ideas about teaching materials, methods and content. Speakers of international repute will address the plenary meeting and present invited lectures. There will also be many workshops, discussion groups and contributed paper sessions. Teaching from the school to the college level as well as other forms of teaching will be included. There will also be sessions on teaching statistics to government and industrial practitioners. The conference is sponsored by the International Statistical Institute.

Secretary's note: We are pleased to insert this announcement as a fraternal gesture.
Peter Hilton