

ICMI

**BULLETIN
OF THE
INTERNATIONAL COMMISSION
ON
MATHEMATICAL INSTRUCTION**

No. 7

April 1976

Secretariat

**c/o Prof. Y. Kawada
Department of Mathematics
University of Tokyo
Hongo, Bunkyo-ku
Tokyo 113, Japan**

I C M I
BULLETIN
OF THE
INTERNATIONAL COMMISSION ON
MATHEMATICAL INSTRUCTION

No.7 April 1976

CONTENTS

	page
I Report by the President	3
II IFIP 2nd World Conference on Computers in Education	4
Sigeiti Moriguti	4
III A Brief Report on Regional Conference on Development of Integrated Curriculum in Mathematics for Developing Countries in Asia	8
P. L. Bhatnagar	8
IV The fourth Interamerican Conference on Mathematical Education	
Saulo Rada Aranda	19
V The Third International Congress on Mathematical Education	22
VI L'Enseignement Mathématique - Revue Internationale et la Commission Internationale de l'Enseignement Mathématique	
G. de Rham	29
VII Invitation to the General Assembly of the ICMI at Karlsruhe	35

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

INTERNATIONAL COMMISSION ON
MATHEMATICAL INSTRUCTION

Executive Committee

(1 January 1975 - 31 December 1978)

President: Professor S. Iyanaga
Vice-Presidents: Professor B. Christiansen
Professor H. G. Steiner
Secretary: Professor Y. Kawada
Members: Professor E. G. Begle
Professor L. D. Kudrjavcev
Professor Sir James Lighthill

I REPORT BY THE PRESIDENT

S. Iyanaga

In the No.5 of this Bulletin, I wrote of our intention, of Professor Kawada, secretary of the ICMI, and of myself, to publish this Bulletin three times a year: in April, August and December. The publication of the No.6 was, however, delayed until October 1975 and this No.7 is now appearing in April 1976. We have learned from our experience of one year, that it is difficult to gather sufficient amount of information from all parts of the world in the interval of four months. Thus we are obliged to change our original plan and to publish this Bulletin biannually as in the preceding period. I should request the reader to forgive me for having made and announced a too optimistic plan which we could not realize.

This issue contains the reports of three international meetings on Mathematical Education which took place during the period of September - December 1975, an article on the Third International Congress on Mathematical Education (3rd ICME) in Karlsruhe, August 16-21, 1976 and an article on "L'Enseignement Mathématique", which Professor de Rham has kindly written for us. I should like to draw attention of the reader to the invitation to the General Assembly of the ICMI at the end of this issue.

II IFIP 2ND WORLD CONFERENCE ON
COMPUTERS IN EDUCATION

1-5, September, 1975, Marseille

Sigeiti Moriguti†

The 2nd World Conference of IFIP (International Federation for Information Processing) on "Computers in Education" was held 1975-09-01 through 05 at the Faculté de Médecine de Marseille, France. It was organized by the Association Française pour la Cybernétique Economique et Technique with the assistance of the Direction Générale de l'Industrie and the Intergovernmental Bureau for Informatics, and its patrons included the President of ICMI.

There were nearly 1000 participants from 50 countries: — including 208 from France, 111 from U.K., 62 from West Germany, 55 from U.S.A., 39 from the Netherlands, 35 from Sweden, 29 from Hungary, 25 from Switzerland, 24 from Denmark, and 21 from Japan.

Invited Papers were: —

- "Learning with Computers — Today and Tomorrow" by A. Bork,
- "Top-down teaching of informatics in secondary school" by F. L. Bauer,
- "The role of SZÁMOK in nationwide and international computing training" by G. Matók,
- "Computing and education in Australia" by A. J. Wearing,
- "Informatics in primary and secondary education in developing countries" by J. J. Scala,
- "A multilevel national approach to computer education" by C. J. Lucena,
- "Policy and planning of computer education" by S. Moriguti,
- "Impact of computers on curriculum in the schools and universities" by P. Suppes,
- "Computer in rural education programs" by E. Caldéron Azalti,
- "Strategies for developing countries in using educational computers: some lessons from experience" by J. G. Krishnaya,

† Department of Mathematical Engineering and Instrumentation Physics, Faculty of Engineering, University of Tokyo

- "The Open University's approach to computer education" by F. B. Lovis,
"Exemple de politique nationale de formation en informatique — l'expérience algérienne" by L. Buras,
"Interactive systems for education — the new look of CAI" by J. Nievergelt,
"Mathematics and informatics" by J. Waligórski,
"Apport de l'informatique à l'enseignement mathématique" by J. Kuntzmann,
"Computer literacy in Israeli high schools — a case study" by Y. Peless,
"L'expérience française d'introduction de l'informatique dans l'enseignement secondaire" by W. Mercouroff, and
"The impact on society of computers in education" by P. Naur.

Titles of the sessions were: —

- Education for Management (I), (II)
Computers in physics education (I), (II)
Reports on CMI projects
Teaching programming (I), (II)
National and international planning for informatics education (I), (II)
Curricula for management education
Computer managed learning — case studies
Computer education in developing countries
Large scale experiences in computer assisted instruction
Computer education for all teachers
Computer aided teaching of programming
Computer education in developing countries: case studies
Financial and quantitative aspects of computer education in developed countries
Informatics in universities (I), (II)
Informatics in secondary schools (I), (II)
Theoretical aspects of CAI (I), (II)
UNESCO involvement in the use of computers in developing countries

Computer aided evaluation of students work

How can we transfer experience in computer education from developed countries to developing countries?

On teaching computer application for commerce, industry and administration

The use of computers in university science teaching

Teaching school mathematics (I), (II)

Making CAI economical

Directions of research in developing countries

Informatics in the learning process

Use of programmable desk calculators in mathematical education

Teaching humanities at school

Special applications of CAI: medical sciences

Financial and quantitative aspects of computer education in developing countries

Teaching operations research

Teaching advanced concepts of informatics

Learning with data bases

Computers in education — Hardware resources

Information systems education for management

Applied mathematics

Science teaching in schools

Special applications of CAI: Language applications

Computer assisted test construction

Trends in university curriculum development

On-going projects on the use of computer in education

Management of education

Computer literacy (I), (II)

Computers and fine arts

Computers in education — Plenary session

Economics teaching

Teaching mathematical concepts

Software resources for computers in education

Informatics for training and jobs opportunities for the handicapped

Computers in the teaching of engineering science (I), (II), (III)

Guidelines for training teachers for secondary schools

Models for CAI

Economics and social sciences

Exchange of material in CAI (I), (II)

Post-secondary and vocational training in EDP

The impact on society of computers in education

Which programming languages for an introductory course on informatics?

Change of the role and behaviour of teachers and students when involved in CAI

Informatics and mind pollution

In total, 216 papers were presented at the 70 sessions.

There were usually five parallel sessions. Official languages were English and French, with excellent simultaneous translation all the time.

In exhibition hall, eight manufacturers presented education-oriented hardware and software.

"Conference edition" of 1011 pages, edited by O. Lecarme and R. Lewis, were available in two volumes. Proceedings will be published by North-Holland Publishing Company.

III A BRIEF REPORT ON
REGIONAL CONFERENCE ON
DEVELOPMENT OF INTEGRATED CURRICULUM IN MATHEMATICS
FOR DEVELOPING COUNTRIES IN ASIA

P. L. Bhatnagar †

1. The Regional Conference was held from December 15 to 20 (both days inclusive), 1975 at V. S. Mehta College of Science, Bharwari (District Allahabad, U.P.), India, a small town situated in a calm and quiet rural setting. The newly started Mehta Research Institute of Mathematics and Mathematical Physics was the local host. Bharwari provided an ideal location for the Conference as all the participants could be lodged at one place which enabled them to meet at a moment's notice for any formal or informal discussions.

2. As is well-known by now, the conference was sponsored by ICMI with the Indian National Science Academy (INSA) as its counterpart in India. The Organizing Committee gratefully acknowledges the financial support from IMU, UNESCO, INSA, University Grants Commission (India) and National Council of Educational Research and Training (India) without which the conference would not have been possible.

3. The Conference was inaugurated by Prof. Sir James Lighthill, Prof. D. S. Kothari, Past-President of INSA and Ex-Chairman of UGC, was in chair. Prof. P. L. Bhatnagar, Convener of the Organizing Committee and Conference Chairman, while welcoming the participants, gave an introductory address on "Integrated Curriculum in Mathematics" to set the pace of the Conference.

The Closing Function was addressed by Prof. S. Nurul Hasan, Minister of Education, Culture and Social Welfare, Government of India, Prof. Hasan, among other things, assured the Conference that its recommendations will receive due consideration by the Government of India.

4. Besides India, the following countries participated in the Conference:- Afghanistan, Bangladesh, Iran (3 delegates), Iraq (4 delegates), Malaysia (2 delegates), Singapore and Sri Lanka.

One official representative of each of the following Indian States participated

† Convener, Organizing Committee and Conference Chairman.

in the Conference:-

Andhra Pradesh, Assam, Gujarat, Madhya Pradesh, Meghalaya, Punjab, Rajasthan, Uttar Pradesh and West Bengal in addition to the twelve members of the Organizing Committee, and some twenty teachers and Mathematics Educators who, either individually or through the medium of some institution, had taken active part in the reformation of mathematics education in the country.

Prof. Sir J. J. Lighthill, F. R. S., Past-President of ICMI, Prof. S. Iyanaga, President of ICMI and Prof. B. Chirstiansen, Vice-President of ICMI acted as advisers to the Conference. The Organizing Committee acknowledges with gratitude the important role played by them during the Conference. The Conference drew very heavily on their vast experience in reforming mathematics education in a number of countries.

The idea of holding this Regional Conference was initiated at the Exeter Conference of ICMI which was presided by Sir James Lighthill. It has taken place during the presidency of Prof. Iyanaga.

Dr. Bryan J. Wilson participated in the Conference as a representative of British Council. The Organizing Committee acknowledges the important role that he played in the Conference through discussions and a half-hour address.

Dr. M. Vannucci, Programme Specialist, UNESCO Office in New Dehli, attended the Conference on the last two days and addressed the Conference at the Closing Function.

5. On the very first day of the Conference, the participants were divided into five panels covering the following recognized levels of education according to their own choice:-

(i) PRIMARY

Leaders: (1) Fr. Richard A. Pereira (Bombay)
(2) Dr. Manmohan Singh Arora (Delhi)

Recorder: Mr. V. K. Raman (Hyderabad)

(ii) LOWER SECONDARY

Leaders: (1) Mr. Wahidullah Khan (Kuala Lumpur)
(2) Dr. P. C. Vaidya (Gujarat)

Recorder: Mr. Charanjit Singh (Punjab)

(iii) UPPER SECONDARY

Leaders: (1) Prof. Abdul Gaffar Kakar (Kabul)

(2) Prof. J. N. Kapur (Kanpur)

Recorder: Dr. (Mrs.) Asha Rani Singal (Meerut)

(iv) COLLEGE

Leaders: (1) Prof. S. M. Sharafuddin (Dacca)

(2) Prof. M. K. Singal (Meerut)

Recorder: Dr. (Miss) Shashi Arya (Delhi)

(v) TEACHER'S TRAINING

Leaders: (1) Dr. B. R. Asrabadi (Tehran)

(2) Prof. Shantinakaran (Delhi)

Recorder: Mr. S. N. Giri (Calcutta)

The discussions in the panels were generally directed towards finding the answers to the questions of the following type:-

- (a) What are the major goals and objectives of teaching mathematics at a particular level?
- (b) What constitutes an integrated approach at that level?
- (c) How do these integrated approaches help in achieving the goals and objectives?
- (d) How to implement in the class-room an approach which is found to be helpful?
- (e) What are the strategies that have to be adopted for achieving the goals and objectives?

The findings of the panels were discussed next day in the plenary session with which the Conference started every day. This provided full opportunity to all the participants to express their opinion on these findings and to further suggest points for discussion in a panel, if necessary.

Apart from the panel discussions and preparing reports on them, following one-hour and half-hour addresses were arranged.

ONE-HOUR ADDRESSES

(1) Prof. Sir James Lighthill: 'Integrated Curriculum in Mathematics'.
(Key-note address)

(2) Prof. S. Iyanaga: 'Tokyo Conference and its recommendations'.

- (3) Prof. B. Christiansen : 'Integrated Approach in context of the Third International Congress on Mathematics Education and Nairobi Conference'.

HALF-HOUR ADDRESSES

- (1) Dr. Bryan J. Wilson : 'Curriculum Development: Continuous or Discrete'.
- (2) Prof. D. K. Sinha : 'Mathematics Education in Vocational Instruction'.
- (3) Prof. U. N. Singh : 'Problems of Undergraduate Mathematics Education in India'.

In order to ensure the fullest participation of the foreign delegates, the leader of the delegation was requested to present a paper on the status of Mathematics Education in his country. The corresponding paper on 'Mathematics Education in India' was presented by Prof. J. N. Kapur. These papers were generally prepared embodying the following points which were circulated among the delegates much before the Conference:-

- (a) Present status of mathematics education in the country
- (b) Needs, goals and objectives of mathematics education at various levels
- (c) Efforts made to obtain these goals and objectives
- (d) Contemplated reforms in curriculum and strategies for implementing them in the class-room
- (e) Pre-service and In-service training for teachers
- (f) Teaching aids used and intended to be used.
- (g) Significant investigations and researches undertaken regarding development and implementation of mathematics curriculum.

These papers were very informative and provided a basis for learning from each other's experience.

Another significant programme worth mentioning is the two-hour discussion on "The Concept of Integrated Curriculum" held under the chairmanship of Prof. Lighthill just after the inaugural function in which the entire conference participated. This programme cleared the ground for fruitful discussions in the panels.

6. An exhibition of books and teaching aids was also arranged which was

inaugurated by ICMI President, Prof. Iyanaga. To the book exhibition, apart from a number of Indian Publishers, UNESCO, British Council, Malaysia, Iran contributed. The exhibition of Teaching Aids was primarily arranged by Dr. (Mrs.) Asha Rani Singal, who exhibited charts, models, games and pamphlets prepared under the University Leadership Programme sanctioned by the University Grants Commission at the Department of Mathematics, Meerut University. Two commercial firms, Kala Kunj (Bombay) and Gene-Sys Models (Calcutta) also exhibited the models and a number of teaching aids. On the whole, this exhibition proved to be very useful and informative. Everyday students and teachers from nearby schools and Allahabad visited the exhibition. On two evenings films on mathematics education were screened. These films were primarily supplied by National Education and Information Films Ltd. (Bombay) and British Council. Some of the films screened are:

- (i) Thinking in Sets, (ii) Intersection of Sets, (iii) Sets and Numbers,
- (iv) Mean, Median and Mode, (v) A way of Looking (introduced by Dr. Bryan Wilson).

7. In this section, the findings of the various panels are briefly described level-wise:-

(I) PRIMARY LEVEL

At the primary level the goals are:-

- (i) To develop numeracy and its application to daily life-situations,
- (ii) To acquire manipulative skills in mathematics especially basic arithmetic,
- (iii) To acquire ability to translate simple real life-situations into mathematical terms,
- (iv) To develop intuitive geometrical notions, and
- (v) To acquire ability to draw appropriate inferences.

The integrated approach at this level means:

- (i) Development of the subject matter from year to year of schooling as also with the stage of intellectual growth of the child.
- (ii) Exposure to problem situations in the environment of the child and encouraging an attitude of looking at things mathematically.
- (iii) Relating mathematics to other subjects and
- (iv) Relating mathematics to society through examples drawn from day-to-day life.

Some of the strategies for implementing the integrated approach are:

- (i) Syllabi should not merely enlist topics but should also indicate how to introduce them

- (ii) Compilation of resource material
- (iii) Preparation of bank of problems drawn from child's environment, from applications to other subjects and from day-to-day life
- (iv) Preparation of textual materials, teacher's guides especially highlighting the technique of teaching.

II. LOWER SECONDARY LEVEL

At this level the major goals are recognized to be:

- (i) To acquire ability to apply mathematical knowledge to problems of daily life
- (ii) To acquire ability to create and discover new mathematical ideas, to see new relationships and to generalize from them so as to recognize mathematical pattern and structure
- (iii) To develop manipulative skill and other components of mathematical competence
- (iv) To acquire ability to collect, classify and interpret data
- (v) To develop geometrical thinking, i.e., to gain familiarity with space and spatial relations
- (vi) To develop a critical attitude necessary for comparing different possibilities and analysing available alternatives to justify choices
- (vii) To acquire ability to think-logically and
- (viii) To cultivate appreciation for beauty and power of mathematics.

At this level integrated approach means

- (i) Vertical integration with primary and upper secondary education
- (ii) Integration within various branches of mathematics
- (iii) Integration with other subject of study of the learner and
- (iv) Integration with applications.

Following strategies for implementation are suggested:

- (i) To entrust the teaching of mathematics and science subject to one teacher and
- (ii) To illustrate mathematical principles by examples drawn from the environment of the learner.

Since this level is usually a terminal course for a large number of students in the developing countries, the panel has suggested that it will be utmost necessary to equip the learner with basic mathematical requirements of an average citizen.

III. UPPER SECONDARY LEVEL

At this level the major goals are:

- (i) To prepare students for further studies in mathematics, physics, chemistry, biology, economics, engineering and other subjects which depend for their systematic development on the use of mathematics
- (ii) To prepare students (for whom this course is a terminal course) for professions like banking, farming etc.
- (iii) To acquire ability to think logically, quantitatively, and precisely and to develop habit of thinking mathematically
- (iv) To develop proper understanding of mathematical concepts and ability to apply them through mathematical modelling and
- (v) To develop appreciation for power, limitation and cultural importance of mathematics in human and national development.

Integrated approach at this level means

- (i) Integration with mathematics and with applications in various sciences and in daily life.
- (ii) Coordination with other subjects of study of the learner and
- (iii) Vertical integration.

The following strategies are suggested:

- (i) Use of unifying concepts of set, function, transformation, invariance and group.
- (ii) Use of transformation approach for bringing coordination between algebra, geometry, trigonometry and applications.
- (iii) Emphasis on understanding of nature of mathematics and its historical and cultural aspects.
- (iv) Emphasis on realistic applications.
- (v) Emphasis on acquiring rudimentary knowledge of working of desk calculator and electronic computers, flow charts, algorithms, numerical methods and on understanding of the significance of approximate solution of a problem.

- (vi) Preparation of book-lets, each covering roughly 50-100 pages, for use by the teachers on topics like: Integrated Curriculum in Mathematics, Graphs and their applications, Affine Transformations, Symmetry, Topological Transformations, Matrices and their applications, Boolean Algebra and its application to switching circuits, Operations Research for Schools, combinatorics for schools, Induction, and so on.

Preparation of similar book-lets indicating through problems on the application of mathematics in each of the following: Agriculture, Architecture, Banking, Carpentry and Plumbing, Biology, Chemistry, Economics and so on.

- (vii) The panel has also suggested that due emphasis be laid on work-experience.

IV. COLLEGE LEVEL

At College Level the major goals of mathematics teaching are:

- (i) To acquire logical thinking and to develop mathematical maturity
- (ii) To prepare students for study of advanced mathematics
- (iii) To impart mathematical training for advanced studies in disciplines like engineering and technology and physical, biological, social, behavioural and environmental sciences, etc.
- (iv) To prepare persons for teaching profession and
- (v) To prepare persons for jobs in industry.

Integrated approach, at college level, means:

- (i) Vertical integration
- (ii) Integration within mathematics and
- (iii) Integration with other branches of knowledge.

The following strategies are suggested for implementing the integrated approach:

- (i) Full exploitation of the principle of induction
- (ii) Emphasis on sketching of graphs
- (iii) Integration of teaching of geometry with the teaching of vectors, matrices and linear algebra
- (iv) Integration of real and complex analysis to the extent it is possible
- (v) Teaching of difference equations along with differential equations and their applications

- (vi) Teaching of Boolean algebra along with its application in switching circuits and
- (vii) Emphasis on numerical methods.

Panel was of the opinion that for ensuring good teaching, the following is necessary:

- (a) Wherever possible the class-room lectures should be preceded by graph-work or project-work and followed by tutorials
- (b) There should be an intense interaction between the teacher and the taught and
- (c) Students may be encouraged to explore (and discover, if possible) for themselves.

V. TEACHERS' TRAINING

The overall goal of education of mathematics teachers for any given level is to provide teachers with appropriate knowledge, skill and attitude for teaching mathematics at that level under changing curriculum and conditions.

Derived goals and objectives pertaining to knowledge, skill and attitude are:-

- (i) To acquire back-ground knowledge in mathematics pertaining to:
 - (a) The role and nature of mathematics
 - (b) Basic mathematical concepts and structures
 - (c) Mathematical methods and principles
 - (d) Foundation of mathematics
 - (e) Specific mathematical topics and
 - (f) History of development of mathematics.
- (ii) To acquire relevant knowledge about planning and organizing teaching material
- (iii) To acquire thorough knowledge of pedagogical approaches, methods and strategies, for example, of concept formation, psychology of learning and teaching mathematics, of comparative and critical appraisal of materials (activities) text-books, projects, etc. and of comparative analysis of class-room approaches
- (iv) To acquire skills pertaining to content of school mathematics, techniques used in school teaching, development of teaching materials and aids and evaluation of student's learning
- (v) To develop attitudes of the type:

- (a) Alertness to individual difficulties, needs, interest, and potentiality
 - (b) Openness towards the learner and subject matter
 - (c) Flexibility (innovations and alternatives...)
 - (d) Appreciation of mathematics and its applications
 - (e) Appreciation of aesthetics of mathematics and
- (vi) To acquire experience in practice teaching, for example, relating to class-teaching, inductive approaches, out-of-class activities, group-work in class room, etc.

At this level, the integrated approach means interaction of two or more subjects (disciplines, domains) in learning or teaching situations or coordination and cooperation between such factors.

At the pre-school and early primary levels (where learning takes place in a 'non-segregated' situation in which the child acquires experiences) teachers must be prepared to motivate the learner to 'draw out' the various subject matter aspects from his experiences so that a gradual development of mathematics is furthered.

The following strategies for attainment of the goals are suggested:

- (i) To relate the teaching of mathematics to the work of the teacher in schools
- (ii) To use pedagogical approaches in teaching of prospective teachers similar to those which they are supposed to use while teaching
- (iii) To encourage the participation of the prospective teachers in workshops and project approaches and
- (iv) To integrate the teaching of teachers with teaching practices.

The panel has recommended strong inservice training programmes and periodic workshops, seminars, summer schools, correspondence courses, etc. for effective implementation of the integrated curriculum.

8. To sum up, we may say that the Bharwari Conference tried to look at mathematics education from the point of view of the learner. Accordingly, the emphasis was on learner's learning mathematics and not on teacher's teaching it. It was brought out clearly that an integrated approach to learning is one of the most effective strategies of attaining the goals and objectives of mathematics education.

In a broad sense, an integrated approach may be looked upon as an approach which relates the teaching of mathematics to other areas of learner's

experience both 'in' and 'out' of the school. It involves the 'vertical' integration of mathematics education from primary level to college level through the lower and upper secondary levels. In the 'horizontal' integration, a number of components have been recognized, for example, integration within mathematics, integration with day-to-day applications, integration with the needs of the society, etc. In essence, an integrated approach envisages effective imbedding of mathematics education in the total education of the learner to make it systematic, unified, realistic, purposeful and useful.

IV THE FOURTH INTERAMERICAN CONFERENCE ON MATHEMATICAL EDUCATION

Saulo Rada Aranda[†]

The Fourth Interamerican Conference on Mathematical Education was held from 1 to 6 December 1975 at the Casa Andrés Bello de Caracas, Venezuela. It was attended by 282 participants, of whom 178 from Venezuela and 104 from 22 foreign countries.

Objectives of the Conference

1. Take up the themes concerning mathematical education of all levels; analyze the methods to obtain most efficient results; discuss the problems thereby raised and propose their possible solutions.
2. Strengthen the relations between organizations of mathematical education in different countries, and also between different institutions and persons in each country engaged in mathematical education of all levels to bring about better mutual personal acquaintance and better coordination between their work and effort.
3. Gather information about the progress of mathematical education and the difficulties met in different countries in America since the last Conference, i.e. the Third Conference in Bahfa Blanca in 1972.

Principal themes

1. Applications of mathematics in mathematical education.
2. Mathematical education in different levels.
3. Excurricular educational activities (Olympiads, Science museums, Science festivals, Mathematics center, etc.)
4. Mathematics and development. Formation of teachers.

Sponsoring organizations

National Organizations: Ministry of Education, National Council of Scientific and Technological Researches (CONICIT), National Center for Improvement of Science Education (CENAMEC), Central University of Venezuela, the Pedagogical Institute of Caracas, Simón Bolívar University, University of Oriente,

[†] Vice-President of the Local Organizing Committee.

Teachers' College of Venezuela, Electricity of Caracas.

International Organizations: Organization of American States (OEA), UNESCO.

Organizers of the Conference

On international level: Inter-American Commission on Mathematical Education (IACME) affiliated to ICMJ.

On national level: Local Organizing Committee constituted by the members of Venezuelan Committee of Mathematical Education (CVEM) and delegates from all the official sponsoring organizations.

Activities of the Conference

At the Opening Session, speeches were delivered by Dr. Luis Manuel Penalver, Minister of Education of the Republic of Venezuela, by Dr. Howard F. Fehr, who presided the Conference in place of Dr. Luis A. Santaló, President of the IACME, who was unable to come, and by Dr. Mauricio Orellana Chacón, President of the Local Organizing Committee.

One hour talks

Mathematics and ideology, Daniel Crespín (Venezuela),
Mathematics and development, Paul Dedecker (Belgium),
The applications of mathematics at lower secondary level, Emma Castelnuovo (Italy),
Objectives and tendencies of mathematical education in developing countries, Ubiratán D'Ambrosio (Brazil),
Mathematical Education in Venezuela in different levels, Ennodio Torres, Néctor Pantoja and José Sarabia (Venezuela),
Secondary education and its relation with higher education, Jean Dieudonné (France),
The role of the teacher organization in the improvement of mathematical education, E. Glenadine Gibb (U.S.A.),
Education of mathematics and statistics for social sciences and economics, Colette Andrieu-Bui and Bui-Trong-Luie (France),
Program of formation of teachers of mathematics in developing countries, Mauricio Orellana Chacón and Saulo Rada Aranda (Venezuela),
Equipping the teacher to play a dominant role in improving mathematical education, Howard F. Fehr (U.S.A.),
An experiment at the Simón Bolívar University of the education at distance, J. Jiménez Romero and E. Lima de Sá (Venezuela),
Mathematics at different levels, Willy Servais (Belgium),

Mathematics at different levels in Columbia, Carlos E. Vasco Uribe (Columbia), Construction of computers in the secondary education, Jaime Michelow (Chile).

There were also round-table discussions. One of them concerning the problem of mathematics and development was attended by Professors Ubiratán D'Ambrosio (Brazil), Paul Dedecker (Belgium), Daniel Crespín (Venezuela), Hernando Mateus (Columbia), Carlos Imaz (Mexico), Moderator: Jesús Andonegui (Venezuela). Another round-table discussion, concerned with the problems on the reform of mathematical education was attended by Professors Howard F. Fehr (U.S.A.), Willy Servais (Belgium), Jean Dieudonné (France), Artibano Micali (France), Emma Castelnuovo (Italy), Luis Roberto Dante (Brazil), Saulo Rada Aranda (Venezuela), Ricardo Losada (Columbia), Moderator: Tania Calderín de Guédez (Venezuela).

Working languages: Spanish, English, French and Portuguese.

The large majority of American countries represented in the Conference, gave information on the actual situation of mathematics and mathematical education in their respective countries, as well as of the progress made since the last Conference in Bahfa Blanca, Argentine, in 1972.

During the Conference, an exhibition of teaching materials for mathematics was organized by the National Center for the Improvement of Science Education (CENAMEC).

The Conference was closed by Dr. Ubiratán D'Ambrosio, who was elected Vice-President of the IACME.

The Proceedings and the Recommendations of the Conference will be published in the near future by UNESCO, whose office for Science Education in Latin America is located in Montevideo, Uruguay.

V THE THIRD INTERNATIONAL CONGRESS
ON MATHEMATICAL EDUCATION

Karlsruhe 16-21 August 1976

SECOND ANNOUNCEMENT

The Third International Congress on Mathematical Education will be held in Karlsruhe (Federal Republic of Germany) from August 16 to 21, 1976. The Congress is organised by the International Commission on Mathematical Instruction (ICMI) and the West-German Sub-Committee of ICMI. Congress Languages are English, French, Russian and German.

Opening: Monday, August 16, 1976, 4⁰⁰ p.m.

Closing: Saturday, August 21, 1976, 12⁰⁰ noon.

The International Programme Committee

H.-G. Steiner (FRG, Chairman), U. d'Ambrosio (Brasil), A. Bergmann (FRG), P. L. Bhatnagar (India), B. Christiansen (Denmark), T. J. Fletcher (Great Britain), H. Freudenthal (Netherlands), C. Gaulin (Canada), M. Glaymann (France), S. Iyanaga (Japan), A. Z. Krygowska (Poland), J. Lighthill (Great Britain), G. Matthews (Great Britain), B. H. Neumann (Australia), G. Pickert (FRG), H. Pollak (USA), A. Revuz (France), S. L. Sobolev (USSR), J. Suranyi (Hungary), C. O. Taiwo (Nigeria), Bakary Traore (Mali).

The Local Organising Committee in Karlsruhe

Professor Dr. H. Kunle

Secretary: (E. F. an Huef. †) J. Mohrhardt

Postal Address

3rd International Congress on Mathematical Education 1976

Kaiserstrasse 12, University of Karlsruhe

D7500 Karlsruhe

(Federal Republic of Germany)

Application

Participants should make their final application on the application form as sent to every national representative and obtainable from the Office of the Congress. They are requested to return the application form by April 30, 1976, at the latest.

Participation Fee

The participation fee for Full Members will be DM 120,- for applications received by April 30. (Owing to increased costs and reduced grants, the fee had to be raised slightly above the amount mentioned in the First Announcement.) The fee for Associate Members not wishing to take part in the scientific programme of the Congress but only in the social programme will be DM 40,-. Travel, accommodation and board are not included in this fee. The Local Organising Committee is not able to grant any subsidies. Participants are seriously recommended to apply in time for grants from institutions and authorities in their own countries.

Payment of Participation Fee

The participation fee is payable when the application form is returned. The fee is to be marked "3rd ICME" and transferred to the Deutsche Bank, D 7500 Karlsruhe, account no. 352732. An additional fee of DM 20,- for Full Members and of DM 10,- for Associate Members is required for applications arriving later than April 30, 1976. Applications arriving later than August 1, 1976 cannot be acknowledged by mail, but only at the beginning of the Congress in the Congress Bureau. In case the application is cancelled prior to August 1, 80 percent of the participation fee will be refunded.

Accommodation

Karlsruhe and its vicinity (e.g. Baden-Baden, Bad Herrenalb) offer ample hotel accommodation. The local tourist bureau in Karlsruhe will arrange hotel reservations. For hotel reservations, please apply directly to the tourist bureau by using the reservation form as also sent to every national representative and obtainable from the Office of the Congress, if possible by April 30, 1976. Should you have any further questions, please feel free to contact the tourist bureau which will also acknowledge your hotel reservation.

The Local Organising Committee recommends making travel arrangements in time. Karlsruhe's position at the junction of the lines Paris - Munich and Frankfurt - Basle makes it easily accessible. Airports in the vicinity are located in Frankfurt (120 km), Stuttgart (80 km), Strasbourg (80 km), and Basle (190 km), all of which have good express rail connections to Karlsruhe.

Third Announcement

The 3rd (last) Announcement is scheduled for May 1976. With the 3rd Announcement the participants will receive their membership card confirming their registration and payment as well as further Congress materials. The membership card entitles the participant to receive the Congress materials at the Congress Bureau and to participate in Congress activities.

PROGRAMME

Plenary Sessions

There will be 6 main papers by invited speakers devoted to matters of general interest in mathematics and the didactics of mathematics. During Plenary Sessions these papers will be simultaneously interpreted into English, French and German.

So far, the following invited speakers have accepted an invitation to present a main paper:

- G. Th. Guilbaud (Ecole Pratique des Hautes Etudes, Paris, France),
- P. J. Hilton (University of Washington, Seattle, USA),
- A. Kirsch (Gesamthochschule Kassel, Germany),
- Sir J. Lighthill (University of Cambridge, Great Britain).

Survey Reports in the Sections

Particular emphasis of the Congress activities will be on the 13 sections. At the opening of each section an invited speaker will present a survey-trend report which is being prepared in collaboration with an appointed Advisory Group.

Themes and invited reporters of the various sections are:

- A 1. Mathematics education at pre-school and primary level (ages 4-12)
F. Colmez, France
2. Mathematics education at upper primary and junior high school level (ages 10-16)
A. Z. Krygovska, Poland
3. Mathematics education at senior high school, college and university transition (ages 15-20)
D. A. Quadling, Great Britain
4. Mathematics education at university level (excluding teacher training)
J. H. van Lint, Netherlands

5. Adult and continuing education in mathematics (with reference to correspondence studies)
R. M. Pengelly, Great Britain
 6. The training and the professional life of mathematics teachers
M. Otte, Germany
- B
1. A critical analysis of curriculum development in mathematics education
A. G. Howson, Great Britain
 2. Methods and results of evaluation with respect to mathematics teaching
J. Kilpatrick, USA
 3. Overall goals and objectives for mathematics teaching (Why do we teach mathematics?)
U. d'Ambrosio, Brasil
 4. Research related to the mathematical learning process
H. Bauersfeld, Germany
 5. A critical analysis of the use of educational technology in mathematics teaching
R. Heimer, USA
 6. The interaction between mathematics and other school subjects (including integrated courses)
H. O. Pollak, USA
 7. The role of algorithms and computers in teaching mathematics at school
A. Engel, Germany.

The A-sections will run parallel to each other, on Tuesday (August 17) and Friday (August 20) in the morning, the B-sections on Tuesday and Friday in the afternoon so that each participant can join the work of an A-section and a B-section.

The work in the sections will proceed as follows: The introductory survey report will be followed by a panel discussion with the International Advisory Group and a general discussion in the full body of the section. Further procedures of the work of the section - in particular for the meeting on Friday - will then be determined by the full body and the chairman. In the sections some short communications which can be submitted by Congress participants and will be selected in advance by the Programme Committee will also be presented (see the subsequent paragraph "Short Communications in the Sections and Poster-Sessions").

Abstracts of the survey reports will be available in English, French, German, and Spanish versions. They will contain the essentials of the respective subjects as well as questions and suggestions for the discussion and thus form a background material for the work in the sections.

Abstracts of the survey reports and accounts of the work in the various sections will be printed in the Congress Proceedings. The survey reports will be revised by the reporters after the Congress and published by UNESCO as volume 4 of the series "New Trends in Mathematics Teaching".

Extensive international cooperation has taken place in preparation for the survey trend reports and the work of the sections, and ICMI wishes to acknowledge its great appreciation for the support received from UNESCO which has facilitated and improved the conditions for this cooperation.

Short Communications in the Sections and Poster-Sessions.

Congress participants are invited to submit short communications. Participants wishing to present such a short communication are requested to notify this on the application form and send an abstract of their short communication suitable for reproduction - one page of the format DIN A 4 (21 by 30 cm) with approx. 30 typewritten lines of length 17 cm - to the Local Organising Committee not later than April 30, 1976.

During the Congress "Poster-Sessions" will be organised where the authors will be given the opportunity to display their abstracts together with additional material (up to 4 pages of the format DIN A 4) and to discuss it with interested participants. The final programme will provide suitable hours and rooms for these discussions.

In addition, selected short communications will also be presented in the sections by the authors in the form of 5 to 10 minute summaries.

Panel Discussions

Panel discussions will take place to discuss particularly topical or controversial themes. Some suggestions from participants have already been submitted.

Practical Involvement

Opportunities for practical involvement will be arranged, during which work can take place in small groups or in association with pupils. Here problems concerning the use of technical media in mathematics teaching (computer

assisted instruction etc.) or related topics can be dealt with.

Projects

Selected projects and study groups working on research and development in mathematics education will be invited for presentations.

Working Groups

The desire for continuation of work was voiced by some working groups during the 2nd International Congress in Exeter. Those working groups will be given an opportunity to meet again in Karlsruhe. Upon request and if possible, rooms as well as technical equipment will be made available by the Local Organising Committee.

During the course of the Congress in Karlsruhe new working groups (study groups) will form in order to discuss problems concerning the didactics of mathematics, either in connection with a section or independent thereof.

Exhibitions

Publishers and firms producing teaching aids will exhibit their books and materials. Inquiries and applications are to be submitted to the Local Organising Committee. Deadline for applications is May 1, 1976.

SOCIAL ACTIVITIES PROGRAMME

The scientific programme of the Congress is supplemented by some social events and excursions.

Congress Reception

On Tuesday, August 17, 1976, an informal reception will be held for all Congress participants.

Concert

On Thursday evening, August 19, 1976, there will be a concert of the Radio Symphony Orchestra of Stuttgart at the Grosses Haus des Badischen Staatstheaters as a special performance for Congress participants.

Excursions

The afternoon of August 18, 1976 is free for excursions. Scheduled are excursions to the outskirts and the environs of Karlsruhe, e.g. to Heidelberg (50 km), Baden-Baden (30 km) or to the Black Forest. For some more extensive excursions an additional fee will probably have to be paid.

Sight-Seeing Tours

Throughout the period of the Congress, there will be opportunities daily to take part in sight-seeing tours and visits (to castles, museums, research institutes, industrial plants, etc.).

Details on the Social Activities Programme will follow in the 3rd Announcement and the Congress materials.

VI L'ENSEIGNEMENT MATHÉMATIQUE - REVUE INTERNATIONALE
ET LA
COMMISSION INTERNATIONALE DE L'ENSEIGNEMENT MATHÉMATIQUE (CIEM)

Notice historique

G. de Rham†

On indiquera ici les principales dates concernant l'organisation de la Revue et de la Commission, les noms des directeurs de la Revue et des membres des Comités central ou exécutifs de la Commission. Les listes complètes des membres et des publications peuvent être trouvées dans la revue, aux références indiquées par le numéro du tome, précédé de I ou II selon qu'il est dans la première ou la deuxième série, suivi de la désignation des pages correspondantes.

— * — * — * —

La revue a été fondée en 1899 par Henri Fehr (Genève) et Charles Ange Laisant (Paris), sous le patronage d'un comité comprenant les mathématiciens les plus éminents des principaux pays. Fehr a dirigé la revue jusqu'à la fin de sa vie en 1954, publiant les 40 volumes qui forment la première série. Il avait encore préparé le tome 40 et dernier qui parut en 1955 peu après sa mort. Après Laisant, décédé en 1920, il fut assisté pendant quelques années par Adolphe Buhl et Henri Lebesgue comme co-directeurs. Jusque peu avant la seconde guerre mondiale, un volume paraissait régulièrement chaque année. Puis des difficultés liées à la situation internationale ralentirent la publication.

En 1955, Jean Karamata, soutenu par l'Université de Genève et avec l'aide de quelques collègues, reprend la direction de la revue et inaugure la deuxième série, qui paraît régulièrement à raison de quatre fascicules formant un volume chaque année. Il s'adjoint comme co-directeurs Albert Châtelet (Paris) et J. Favard (Grenoble). Malheureusement, le premier décède en 1960, le second en 1965 et Karamata lui-même en 1967. Mais Albert Châtelet avait été remplacé par son fils François Châtelet qui s'adjoignit d'autres collaborateurs

† Institut de Mathématiques, Université de Lausanne.

et grâce à qui la revue a continué et continue encore de paraître sans aucune interruption.

Aujourd'hui, en 1975, le tome 21 de la deuxième série est en cours de publication et la revue est dirigée par F. Châtelet (Besançon), P. Jeanquartier (Genève), R. Narasimhan (Chicago) et G. de Rham (Lausanne et Genève). Le secrétariat est à l'Institut de mathématiques de l'Université de Genève (Case postale 124, 1211 Genève 24 - Suisse).

A côté de la revue, Karamata a fondé la série des Monographies de l'Enseignement mathématique, brochures qui sont en vente séparément. La 22-ième (A. Weil: Essais historiques sur la théorie des nombres) vient de paraître en 1975. Il avait aussi projeté la publication des Oeuvres scientifiques d'Henri Lebesgue, qui a été réalisée grâce à F. Châtelet et G. Choquet et achevée en 1973; elles forment 5 volumes qui, comme les monographies, sont distribuées par le secrétariat de la revue.

Pour chacun des directeurs ou co-directeurs de la revue qui sont décédés, on trouvera une Notice biographique dans les volumes suivants:

- C. A. Laisant (1841-1920) : I 21, pp. 57 et 73-80.
- H. Lebesgue (1875-1941) : I 38, pp. 330-332 et II 3, pp. 1-18.
- A. Buhl (1878-1949) : I 39, pp. 7-8.
- H. Fehr (1870-1954) : II 1, pp. 5-17.
- A. Châtelet (1883-1960) : II 6, pp. 1-3.
- J. Favard (1902-1965) : II 11, pp. 101-102.
- J. Karamata (1902-1967) : II 15, pp. 1-9.

La Commission internationale de l'enseignement mathématique (CIEM ou ICMI) a été fondée en 1908. A la suite d'une résolution adoptée par le quatrième Congrès international des mathématiciens à Rome en avril 1908, un Comité central fut constitué par F. Klein (Göttingen), président, G. Greenhill (Londres), vice-président, et H. Fehr (Genève), secrétaire-général. Il se mit immédiatement au travail et invita tous les pays possédant des établissements d'instruction publique à faire partie de la Commission. En 1912, ce Comité central fut complété par l'adjonction de Dav. Eug. Smith (USA), vice-président, G. Castelnuovo (Italie), E. Czuber (Autriche) et J. Hadamard (France). Avant 1914, 28 pays avaient adhéré à la Commission désignant des délégations et formant des Sous-commissions nationales. La Commission organisa des Conférences internationales, qui eurent lieu à Bruxelles en août 1910, à Milan en septembre 1911, à Cambridge en août 1912 et à Paris en avril 1914. Ce furent de véritables Congrès internationaux de l'enseignement mathématique.

La Commission avait prévu de se réunir à nouveau en 1916, mais par suite de la première guerre mondiale, elle ne put le faire avant 1928. Cependant, les travaux ont pu être continués par les Sous-commissions nationales, la plupart des délégués ayant gardé le contact avec le secrétaire général à Genève. En 1928, la Commission se réunit en Assemblée Générale au Congrès de Bologne. F. Klein étant décédé en 1925, le Comité central fut reconstitué pour la période 1928-1932 par:

David-Eugène Smith (New-York), président;
G. Castelnuovo (Rome) et J. Hadamard (Paris) vice-présidents;
H. Fehr (Genève), secrétaire général;
W. Lietzmann (Göttingen). [voir I 30, pp.289-296].

Des Assemblées générales de la Commission eurent encore lieu à l'occasion des Congrès internationaux de mathématiciens à Zürich en 1932 et à Oslo en 1936. Depuis 1932 jusqu'après la seconde guerre mondiale, le Comité central fut composé de MM.

J. Hadamard (Paris)	président;
P. Heegaard (Oslo)	} vice-présidents;
W. Lietzmann (Göttingen)	
G. Scorza (Naples)	
H. Fehr (Genève)	secrétaire général;

E. H. Neville (Reading, Angleterre) [voir I 39, pp.122-123].

Par suite de la seconde guerre mondiale, les travaux de la Commission furent interrompus pendant plusieurs années. Mais en 1952, sur la demande de son Comité central, la CIEM a été rattachée à l'Union Mathématique Internationale (UMI) nouvellement créée. Dans sa première Assemblée générale, le 9 mars 1952 à Rome, celle-ci a reconstitué la CIEM en faisant appel à MM. H. Behnke, A. Châtelet, H. Fehr, R. L. Jeffery et G. Kurepa. Ce comité s'est réuni à Genève les 21 et 22 octobre 1952 et à Paris le 21 février 1953 et le 15 janvier 1954. Il a préparé le plan des travaux à présenter au Congrès d'Amsterdam en 1954 et s'est élargi par cooptation pour former le Comité exécutif de la Commission.

Président d'honneur : H. Fehr

Membre d'office : M. H. Stone président de l'UMI

Président : A. Châtelet (France)

Vice-Présidents	: G. Kurepa (Yougoslavie) S. MacLane (USA)
Secrétaire	: H. Behnke (Allemagne)
Trésorier	: G. Ascoli (Italie)
Membres	: A. F. Andersen (Danemark) R. L. Jeffery (Canada) E. A. Maxwell (Angleterre) E. W. Beth (Pays-Bas)

[Voir I 40, pp.72-93 (article de Behnke)].

Selon une décision de l'UMI prise à son Assemblée générale à La Haye le 1er septembre 1954, le Comité exécutif de la CIME se compose du président, de deux vice-présidents, du secrétaire, qui forment le bureau, et de trois membres supplémentaires.

Pour le mode d'élection et la composition de la commission, voir l'article de Behnke cité ci-dessus.

Indiquons encore la composition des comités exécutifs qui se sont succédé depuis 1954, en mentionnant dans l'ordre le président, les deux vice-présidents, le secrétaire et les membres supplémentaires, avec une référence où l'on trouvera la composition de toute la Commission.

1955-1958: [II 1, pp.195-202 et 262-270 et II 4, pp.74-76]

Behnke (Allemagne), G. Kurepa (Yougoslavie), M. H. Stone (USA), Desforge (France), Ram Behari (Inde), Maxwell (Angleterre), Pierre (Norvège).

1959-1962: [II 5, pp.151-152 et 290-292]

M. H. Stone (USA), Behnke (Allemagne), G. Kurepa (Yougoslavie), Walusinski (France), Y. Akizuki (Japon), A. D. Alexandrov (URSS), Frostman (Suède)

1963-1966: [II 10, pp.294-299]

A. Lichnerowicz (France), S. Straszewicz (Pologne), E. Moïse (USA)
A. Delessert (Suisse), Y. Akizuki (Japon), Behnke (Allemagne),
A. Freudenthal (Hollande).

1967-1970: [II 13, pp.243-246]

A. Freudenthal (Hollande), E. Moïse (USA), Sobolev (URSS),
Delessert (Suisse), Behnke (Allemagne), Thwaites (Angleterre),
A. Revuz (France).

1971-1974: [voir: Bulletin of the International Commission on Mathematical
Instruction No.5, April 1975].

J. Lighthill (Angleterre), S. Iyanaga (Japon), J. Suranyi (Hongrie),
E. A. Maxwell (Angleterre), Freudenthal (Hollande), Pollak (USA),
Sobolev (URSS).

1975-1978: [même référence que ci-dessus]

S. Iyanaga (Japon), Christiansen (Danemark), H. G. Steiner (Allemagne),
Y. Kawada (Japon), E. G. Begle (USA), L. D. Kudrjavcev (URSS),
Lighthill (Angleterre).

La revue l'Enseignement mathématique a été l'organe de la CIEM dès le début. Jusqu'en 1954, elle a publié six séries de travaux de la Commission. Les quatre premières ont été réunies en volumes qui contiennent respectivement 200, 361, 140 et 190 pages. La cinquième est contenue dans le tome I 36. On trouvera la liste de ces travaux dans [I 21, pp.319-339] et [I 39, pp.166-168]. La sixième série contient des travaux parus dans [II 1], réunis en un volume de 130 pages (publié avec l'aide financière de l'Unesco).

En 1955, le Comité exécutif, réuni le 2 juillet à Genève, confirme la décision de conserver la revue comme organe officiel de la CIEM. De plus, à la demande de Karamata, les propositions suivantes sont adoptées: le Bureau du Comité exécutif fera partie, à qualité, du Comité de rédaction de la revue, et le secrétaire sera chargé de la rédaction de la rubrique concernant la CIEM [voir I 1, p.201].

Pendant les huit années qui suivirent, la Commission étant présidée par Behnke puis Stone, la revue a publié un grand nombre de travaux de la CIEM et toutes les circulaires du Comité exécutif. Le directeur de la revue, J. Karamata, assistait aux séances du Comité dont il fut nommé membre, par cooptation, en 1959. On trouve la liste de ces publications dans les tables des matières des volumes de la revue et dans l'Index relatif aux 15 premiers tomes de la série II.

Ensuite, on trouve encore, dans [II 12, pp.131-138], un rapport du président Lichnerowicz pour la période 1963-1966, des rapports du secrétaire Delessert

sur la séance du 26 août 1967 à Utrecht [II 13, pp.243-246] et sur "Le Premier Congrès International de l'Enseignement mathématique" à Lyon en 1969. Enfin, pour la période 1971 à 1974, nous avons pu obtenir du Président Sir Lighthill le "Summary of the Second International Congress of Mathematical Education" à Exeter en 1972 [II 19, pp.167-172].

La direction de la revue sera heureuse de resserrer ses liens avec la CIEM, notamment en publiant chaque année un rapport comme nous le proposons aimablement M. Kawada. Rappelons que la revue s'intéresse à l'enseignement des mathématiques à tous les niveaux, y compris le niveau universitaire, et publie aussi des travaux mathématiques de valeur, des synthèses et des articles d'exposition qui, sans apporter nécessairement des résultats nouveaux, rendent plus accessibles des progrès récents maintenant ainsi un lien entre Recherche et Enseignement.

VII INVITATION TO THE GENERAL ASSEMBLY OF THE
ICMI AT KARLSRUHE

A General Assembly of the ICMI will be held at the occasion of the Third International Congress on Mathematical Education (3rd ICME) at Karlsruhe in the latter half of the period of the session. The exact place and time of the meeting will be announced at Karlsruhe. All members of the ICMI are cordially invited and we welcome any proposals for the activities of our Commission, in particular proposals to host the Fourth ICME.

Professor Kawada, Secretary of the ICMI, would be happy to receive these proposals in written form until July 31, 1976.

President of the ICMI



