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# COMMISSION INTERNATIONALE DE L'ENSEIGNEMENT MATHÉMATIQUE

## REPORT ON THE PERIOD 1971-1974

# by Sir James LIGHTHILL

- 1. During this period the International Commission on Mathematical Instruction (ICMI) was composed of the members-at-large: J. Lighthill, M. Barner, F. Châtelet, A. Gleason, L. Lombardo-Radice, Y. Mimura, J. Novák, H. Pollak, S. L. Sobolev, J. Surányi and 38 nominees of National Subcommissions. The Secretary was E. A. Maxwell. Vice Presidents were S. Iyanaga and J. Surányi. The Executive Committee consisted of: J. Lighthill (President), S. Iyanaga, J. Surányi, E. A. Maxwell, H. Freudenthal, J. Pollak, S. L. Sobolev.
- 2. The 2nd International Congress of Mathematical Education was held in Exeter, England from 29 August to 2 September 1972 with an attendance of 1400 full members from 70 different countries. Apart from 7 plenary sessions at which addresses were given to the whole Congress, the work of the Congress took place in 38 Working Groups, in which different topics in mathematical education were actively discussed by those principally interested, and in 17 National Presentations of current developments in mathematical education from many different countries. The Proceedings were published by the Cambridge University Press (1973) under the general title "Developments in Mathematical Education".
- 3. An ICMI Seminar was held at Echternach, Luxembourg from 4 to 9 June 1973 on "New Aspects of Mathematical Applications at School Level", under the sponsorship of the Luxembourg Government, with participants from 20 countries. Opening addresses were given by the chairman, L. Kieffer, by the President of ICMI, and by the Prime Minister of Luxembourg, and 18 lectures were given. An ICMI Symposium was held at Eger, Hungary from 18 to 22 June, 1973 on "Theoretical Problems of Teaching Mathematics in Primary Schools", under the sponsorship of the

Hungarian Government, with participants from 18 countries. There were 18 main lectures and 20 sectional lectures.

- 4. ICMI adopted a new policy of holding Regional Symposia to facilitate wider discussion of mathematical education outside those areas of Europe and America where international meetings on the subject have mainly been held hitherto. The first such Regional Symposium, sponsored jointly between ICMI, UNESCO and CEDO (Centre for Educational Development Overseas), is being held in Nairobi, Kenya from 2 to 11 September, 1974 on "The Interaction between Linguistics and Education in Mathematics". The second such Regional Symposium, sponsored jointly between ICMI and JSME (Japan Society of Mathematical Education), is being held in Tokyo, Japan from 5 to 9 November, 1974 on "Curriculum and Teacher Training for Mathematical Education".
- 5. In 1974, ICMI will meet also in Vancouver, Canada during the International Congress of Mathematicians in August. The Executive Committee has specified the general theme of the Mathematical Education discussions at Vancouver as "Evaluation of Modern Mathematics Curricula".
- 6. Plans for 1975 include a third Regional Symposium in India, a second symposium on mathematics in primary schools in Poland, and a symposium on aspects of geometry teaching. ICMI is, in addition, a co-sponsor of the 2nd World Conference on Computer Education to be held in 1975 in Marseille, France by IFIP (International Federation of Information Processing).
- 7. ICMI initiated in 1972 the regular issue of a series of Bulletins including information on ICMI activities and plans and other relevant material (for example, in ICMI Bulletin No. 2 an extensive list of Journals in Mathematical Education from all countries published with the kind permission of the US National Council of Teachers of Mathematics). At the same time the official journal of ICMI continued to be "L'Enseignement Mathématique".
- 8. The Executive Committee of ICMI accepted the invitation of the National Sub-Commission of the Federal Republic of Germany to hold the 3rd International Congress of Mathematical Education in Karlsruhe, Germany from 16 to 21 August 1976. A Local Committee for the Congress is being formed under the chairmanship of Professor H. Kunle, together with an international Programme Committee. Careful study aimed at ensuring a Congress Programme of outstanding interest has already begun.

# INFORMATION FOR THE PERIOD 1975-1978

by Professor Yukiyosi Kawada (Secretary of ICMI)

- 1. Terms of Reference of ICMI (as adopted at the Paris Meeting of the Executive Committee of IMU in April 1960—Reminder).
- (a) The Commission shall consist of ten members-at-large elected by the General Assembly of IMU on nomination of the President of IMU, and of one national delegate from each member nation, as specified below.
- (b) The officers of the Commission shall consist of a President, a Secretary, and two Vice-Presidents. The President shall be elected by the General Assembly on the nomination of the President of IMU from the members-at-large of the Commission.
- (c) The Executive Committee of the Commission shall consist of the officers of the Commission together with three additional members elected by the membership of the Commission.
- (d) In all other respects the Commission shall make its own decisions as to its internal organization and rules of procedure.
- (e) Any National Adhering Organization wishing to support or encourage the work of the Commission may create, or recognize, in agreement with its National Committee, a National Sub-Commission for ICMI to maintain liaison with the Commission in all matters pertinent to its affairs. The National Adhering Organization in question shall designate one member of the said Sub-Commission, if created, to serve as a delegated member of ICMI as mentioned in (a).
- (f) The Commission shall be charged with the conduct of the activities of IMU, bearing on mathematical or scientific education and shall take the initiative in inaugurating appropriate programmes designed to further the sound development of mathematical education at all levels, and to secure public appreciation of its importance. In the pursuit of this objective, the Commission shall cooperate, to the extent it considers desirable with effective regional groups which may be formed spontaneously, within, or outside, its own structure.
- (g) The Commission may, with the approval of the Executive Committee of IMU, coopt, as members of ICMI, suitably chosen representatives of non-IMU countries, on an individual basis.
- (h) The budget of the Commission shall be submitted to the Executive Committee of IMU and the General Assembly, for approval, at such times as may be determined by agreement between the Commission and the Executive Committee of IMU.
- (i) The Commission shall file an annual report of its activities with the Executive Committee of IMU, and shall file a quadrennial report at each regular meeting of the General Assembly.
- 2. The Executive Committee of ICMI for the Period 1975-1978.

President:

Professor S. Iyanaga, 12-4 Otsuka 6, Bunkyo-tu, Tokyo 112, Japan.

### Vice-Presidents:

- Professor B. Christiansen, Royal Danish School of Education Studies, Department of Mathematics, Emdrupvej 115B, DK-2400, Copenhagen NV, Denmark.
- Professor H. G. Steiner, Institut für Didaktik der Mathematik, Universität Bielefeld, 4800 Bielefeld 15, Heidsieker Heide 94, Federal Republic of Germany.

# Secretary:

Professor Y. KAWADA, Department of Mathematics, Faculty of Science, University of Tokyo, Hongo, Bunkyo-ku, Tokyo, Japan.

#### Members:

- Professor E. G. Begle, School of Education, Stanford University, Stanford, California 94305, U.S.A.
- Professor L. D. Kudrjavcev, Steklov Mathematical Institute, Vavilova 42, Moscow, V-333, USSR.
- Professor Sir James LIGHTHILL, Department of Applied Mathematics and Theoretical Physics, Cambridge University, Silver Street, Cambridge, CB3 9EW, England, U.K.

### 3. List of Members of ICMI.

#### Ex-Officio Members:

Professor Sir James LIGHTHILL (Past President of ICMI).

Professor D. Montgomery (President of IMU), The Institute for Advanced Study, Princeton, New Jersey 08540, U.S.A.

Professor J.-L. Lions (Secretary of IMU), Collège de France, 11 Place Marcellin-Berthelot, 75005 Paris, France.

Professor H. Freudenthal (Representative of IMU on the ICSU Committee on Science Teaching), Institut Ontwikkeling Wiskunde Onderwijs, Tiberdreef 4, Utrecht/Overvecht, The Netherlands.

# Members-at-Large:

Professor E. G. Begle.

Dr. P. L. BHATNAGAR, New Dehli, India.

Professoressa E. Castelnuovo, Roma Italy.

Professor B. CHRISTIANSEN.

Professor S. IYANAGA.

Professor L. D. KUDRJAVCEV.

Professor J. Lelong-Ferrand, University of Paris VI, France.

Professor B. H. NEUMANN, Australian National University, Canberra, Australia.

Professor Z. Semadeni, Polish Academy of Sciences, Warszawa, Poland.

Professor J. Surányi, The University, Budapest, Hungary.

# National Representatives:

Professor L. A. SANTALO (Argentina).

Professor B. H. NEUMANN (Australia).

Professor E. HLAWKA (Austria).

Dr. G. Noel (Belgium).

Professor L. NACHBIN (Brazil).

Professor B. L. PETANČIN (Bulgaria).

Professor A. L. DULMAGE (Canada).

Dr. Shing-Meng Lee (China-Taiwan).

Dr. J. Vyšín (Czechoslovakia).

Lektor J. Hoffmann-Jørgensen (Denmark).

Professor H. Kunle (Federal Republic of Germany).

Professor H. G. Steiner (Federal Republic of Germany).

Dr. L. KAILA (Finland).

Professor J. Lelong-Ferrand (France).

Professor K. Härtig (German Democratic Republic).

Professor C. Papaipoannou (Greece).

Professor J. SZENDREI (Hungary).

Dr. P. L. BHATNAGAR (India).

Professor C. L. MRIA (Ireland)

Professor M. Maschler (Israel).

Professor E. Castelnuovo (Italy).

Professor Y. KAWADA (Japan).

Professor L. Kieffer (Luxembourg).

Dr. M. CUNDY (Malawi).

Dr. P. G. J. VREDENDUIN (Netherlands).

Mr. S. A. DADA (Nigeria).

Dr. A. Johansen (Norway).

Dr. M. Raziuddin Siddioi (Pakistan).

Professor Z. Semadeni (Poland).

Professor J. Sebastiĝo e Silva (Portugal).

Dr. G. C. Moisil (Roumania).

Professor S. NIANG (Senegal).

Professor J. H. VAN DER MERWE (South Africa).

Professor P. ABELLANAS (Spain).

Dr. R. J. WATERSTON (Swaziland).

Professor H. WALLIN (Sweden).

Professor A. Delessert (Switzerland).

Dr. M. BOUGILA (Tunisia).

Professor J. V. Armitage (United Kingdom).

Professor P. J. HILTON (USA).

Professor I. M. YAGLOM (USSR).

Professor D. KUREPA (Yugoslavia).

Dr. S. M. BAYAT (Zambia).

### 4. ICMI Bulletin.

ICMI on this period will continue to publish regularly ICMI Bulletin initiated on the preceding period. Bulletin No. 5 was issued in April 1975. It is planned that it will appear three times annually: in April, August and December.

5. The following international meetings on mathematical education took place in 1974:

ICMI Symposium at Vancouver (Canada), 22-24 August 1974.

Theme: Evaluation of Modern Mathematics Curricula.

The Nairobi Symposium (Kenya), 1-11 September 1974.

Theme: Interactions between Linguistics and Mathematical Education.

ICMI-IDM Symposium at Bielefeld (West Germany), 16-20 September 1974.

Theme: Teaching of Geometry.

ICMI-JSME Regional Conference in Tokyo (Japan), 5-9 November 1974.

Theme: Curriculum and Teacher Training for Mathematical Education.

6. Preparations for the Third ICME.

The third ICME will be held at Karlsruhe, Federal Republic of Germany, 16-21 August 1976. Under the chairmanship of Professor H. Kunle, President of the FRG subcommission of ICMI and Pro-rector of Karlsruhe University, the preparations for the congress are well under way. The first announcement was sent out in April 1975. The congress will include the following events:

Plenary Sessions: Six main papers by invited speakers devoted to matters of general interest in mathematics and the didactics of mathematics.

Survey Reports in the Sections on the following themes:

- A. 1. Mathematics education at pre-school and primary level (ages 4-12).
  - 2. Mathematics education at upper primary and junior high school (ages 10-16).
  - 3. Mathematics education at senior high school, college and university transition (ages 15-20).

- 4. Mathematics education at university level (excluding teacher training).
- 5. Adult- and continuing education in mathematics (with reference to correspondence studies).
- 6. The training and the professional life of mathematics teachers.
- B. 1. A critical analysis of curriculum development in mathematics education.
  - 2. Methods and results of evaluation with respect to mathematics teaching.
  - 3. Overall goals and objectives for mathematics teaching (Why do we teach Mathematics?).
  - 4. Research related to the mathematical learning process.
  - 5. A critical analysis of the use of educational technology in mathematics teaching.
  - 6. The interaction between mathematics and other school subjects (including integrated courses).
  - 7. The role of algorithms and computers in teaching mathematics at school.

Sections and Short Communications.

Panel Discussions.

Practical Involvement.

The mailing address for the third ICME:

The Third ICME, University, Keiserstrasse 12 D-75 Karlsruhe (Federal Republic of Germany).

## 7. Affiliation of IACME to ICMI.

The ICMI Executive Committee, meeting in Vancouver in August 1974, resolved to adopt an arrangement for affiliation of IACME (Inter-American Committee on Mathematical Education) to ICMI in the spirit of section (f) of the Terms of Reference, according to which ICMI and IACME will, in particular, continuously exchange information regarding all their proposed activities.

8. At the last General Assembly of IMU at Harrison Hotsprings (Canada) in August 1974 the following Resolution 5 was adopted concerning IMU: "The General Assembly received a report by Professor Sir James Lighthill on the work of the ICMI. The General Assembly expresses its great appreciation of the activities of ICMI in every aspect of mathematical education, particularly in developing countries, and it hopes that this work will continue to grow, and that the mathematical needs of other scientific disciplines will be taken into consideration."