

I M U

BULLETIN

OF THE

INTERNATIONAL MATHEMATICAL UNION

No 10 December 1976

Secretariat

COLLEGE DE FRANCE

11, Place Marcelin Berthelot
75231 PARIS CEDEX 05 - FRANCE

INTERNATIONAL MATHEMATICAL UNION

Executive Committee

(1 January 1975 - 31 December 1978)

President : Professor Deane Montgomery

Vice-Presidents : Professor J.W.S. Cassels
Professor G. Vranceanu^(*)

Secretary : Professor J.L. Lions

Members : Professor E. Bombieri
Professor M. Kneser
Professor O. Lehto
Professor M. Nagata
Professor L.S. Pontryagin

Past President : Professor K. Chandrasekharan

(*) On replacement of Professor Nicolescu.
International postal ballot Sept. 1976.

REPORT OF THE 36TH MEETING OF THE EXECUTIVE COMMITTEE

The 36th. meeting of the Executive Committee was held at the Collège de France, Paris, on May 28-19, 1976.

All the members of the E.C. were present.

The Agenda that had been circulated in advance to the members was approved.

ACTIVITIES OF THE UNION

I. SCIENTIFIC ACTIVITIES.

A. The Secretary gave a report on the four meetings that were held in 1975 :

- . KYOTO Second International Symposium on Mathematical Problems in Theoretical Physics,
- . LUND Nordic Summer School on Partial Differential Equations,
- . PARIS-ORSAY International Colloquium on Analysis and Technology,
- . MARSEILLE Joint IUTAM/IMU Symposium on Applications of Methods of Functional Analysis to Problems of Mechanics.

B. SYMPOSIA SUPPORTED IN 1976 :

1. - COLLOQUIUM ON MODULAR FORMS : Bonn University, July 2-14.
Organizers : Professors F. Hirzebruch and D. Zagier, from Bonn University, Professor J.P. Serre, from the Collège de France.
A support of US Dollars 1,000 - is granted for travel expenses of foreign participants.

2. - IVth INTERNATIONAL SYMPOSIUM ON TOPOLOGY : Prague, Aug. 23 to 26, 1976.

Organizers: Professor J. Novák, chairman of the Organizing Committee, with Professors Z. Frolík, J. Hejzman, M. Hušek,

M. Katetov, V. Koutnik, V. Ptak, M. Sekanina, S. Schwarz, V. Trnkova.

A support of US \$ 1,000 - has been granted for travel expenses of foreign participants.

3. - INTERNATIONAL CONFERENCE ON COMBINATORIAL THEORY :

Canberra, in August. This Congress is postponed till 1977.

Organizers : Dr. J. Wallis, chairman, Professor B.H. Neumann, Dr. Ch. Praeger, Dr. D.A. Holton, Mr. P. O'Halloran, and two IMU representatives, being Professors Bombieri and Erdős.

A support of US \$ 3,000 - has been granted for travel expenses of foreign participants.

4. - INTERNATIONAL CONFERENCE ON COMPLEX ANALYSIS : is proposed for the end of 1976, to be held in Tbilisi, but it is delayed.

Organizers : Professors Lavrentiev and Vladimirov.

The support of the Union was discussed : though some other information is required, the E.C. unanimously recommended the support of this Conference with a financial help of US \$ 1,000 - and asked Professors Lehto and Lions to the the Union nominees. All details must be sent to them.

5. - REGIONAL CONFERENCE :

The First Pan-African Congress of Mathematicians was held in Rabat from July 26 to 31, 1976.

This meeting, co-sponsored by UNESCO and IMU, intended to cover a wide range of subjects, both in mathematical science and mathematical education. Therefore, its general subject was :

"Mathematics and African Development", and its program was divided into two parts :

. first, about 80 lectures were given on general and applied mathematical subjects and most of the lecturers were African mathematicians. Other invited speakers came from Europe, Asia and America.

. A second part was devoted to the teaching of Mathematics in Africa, cooperation in the domain of Mathematics and their applications and lead to the creation of an African Mathematical Union (U.M.A.) on July 31, 1976. Notice of this Union is given below.

23 African countries were represented by 125 participants ;
46 people came from abroad and 5 international and pan-african
organizations were represented too, from which :

UNESCO (Dr. Ak1), U.M.I. (Prof. Lions),
African University Association (A.U.A.), Conference of the Rec-
tors of African Universities (C.R.U.A.) and Inter-American Asso-
ciation for the Teaching of Mathematics (Professor U. d'Ambrosio).

AFRICAN MATHEMATICAL UNION (UNION MATHEMATIQUE AFRICAINE U.M.A.) :

The first Executive Committee of the Union was elected as follows
by the Assembly :

President :	Prof. Hogbe-Nlend	(Cameroon)
Vice-Presidents :	Harzallah	(Tunisia)
	Ashour	(Egypt)
	Saitoti	(Kenya)
	Owuche	(Nigeria)
Secretary :	I. Khalil	(Morocco)
Treasurer :	S. Toure	(Ivory Coast)
Members :	S. Traore	(Congo)
	Owusu-Ansah	(Ghana)
	Mavinga	(Zaire)
	Alemayehu	(Ethiopia)
	M. Elswawi	(Sudan)

The second Pan-African Congress is intended to meet in 1980
and will be located in Cameroon.

A subvention of US \$ 1,000 - was granted for this meeting as
the Union financial support.

The Commission on Exchange was represented by Professor West.
It was able to contribute to the financial support of the meeting.

C. SYMPOSIA TO BE SUPPORTED IN 1977 :

1. INTERNATIONAL SYMPOSIUM ON ALGEBRAIC GEOMETRY : Kyoto, Japan, January 10-14, 1977, Research Institute for Mathematical Science. Organizer : Professor M. Nagata, Kyoto University, chairman of the Organizing Committee.

The support for this important meeting was already discussed at the E.C. meeting of 1975 and a support of US \$ 5,000 - granted for travel expenses to foreign participants. The Union representatives are Professors Bombieri and Seshadri.

2. INTERNATIONAL CONFERENCE ON THE MATHEMATICAL PROBLEMS IN THEORETICAL PHYSICS : Rome, Italy, February 21-27, 1977.

Organizers : Professors G.F. Dell'Antonio, S. Doplicher, G. Jona Lasinio, G. Gallavotti.

This Conference is intended to continue the work done in the Moscow Conference in 1972 and in the Kyoto meeting of January 1975. A support was already decided to be given in 1975, of US \$ 2,000.

3. INTERNATIONAL CONFERENCE ON SPECTRAL THEORY FOR DIFFERENTIAL PROBLEMS : Uppsala, Sweden, April 18-23, 1977.

Organizer : Professor Åke Pleijel.

A support was already granted by decision of the E.C. in May 1975, for an amount of US \$ 2,000.

4. INTERNATIONAL COLLOQUIUM ON UNIVERSAL ALGEBRA : Hungary, during the summer of 1977.

Organizer : Professor Béla Sz. Nagy, chairman of the Organizing Committee.

This Colloquium receives a support from the Union of US \$ 1,000 - decided in the 1975 meeting, to cover travel expenses of foreign visitors.

5. JOINT IMU/IUTAM SYMPOSIUM ON SYMMETRY AND GROUP THEORETIC METHODS IN MECHANICS : Novosibirsk, U.S.S.R.

This Symposium will be postponed till 1978 and ought to have no interference with the I.C.M. 78, being equally supported by IUTAM. Organizer : Professor Ovcyannikov. This Symposium will be eminently suitable as a second joint effort between IMU and IUTAM.

The E.C. members agree and decide that an amount of US \$ 2,000 - be

granted for travel expenses to foreign visitors.

The IMU representatives will be : Professors K.O. Friedrichs, New-York University and J.L.Lions.

6. INTERNATIONAL CONFERENCE ON OPERATORS ALGEBRAS, IDEALS AND THEIR APPLICATIONS : Leipzig, .D.D.R.September 20-30, 1977.
Organizer : Professor C. Grote, with the help of the Zentralinstitut für Mathematik und Mechanik der Akademie der Wissenschaften der D.D.R., the Sections of Mathematics of the Universities of Leipzig and of Iena.

A support is asked to ensure the international character of the meeting. About 50 participants are waited from abroad. The members of the E.C. give their formal approval for supporting this Conference and grant it with an amount of US \$ 1,000 -. The representatives of the Union will be Professors Kastler and B. Sz.-Nagy.

7. INTERNATIONAL COLLOQUIUM ON TOPOLOGY AND ALGEBRA, Zürich, Switzerland, April 12-16, 1977.

Organizer : Professor E. Specker, from E.T.H.

This Colloquium will be dedicated to Professor B. Eckmann who will be sixty years old. Twelve invited speakers are expected and about 40 foreign participants are invited. The support of the Union is asked. After consulting in a postal ballot, the members of the E.C. give their formal approval and grant an amount of US \$ 1,000 - for travel expenses to invited participants.

8. INTERNATIONAL CONFERENCE ON DIFFERENTIAL EQUATIONS AND THEIR APPLICATIONS "EQUADIFF IV" : Prague, Aug. 22-26, 1977.

Organizer : Professor J. Novák.

The purpose of this Conference is to bring to notice new trends in differential equations and their applications, including the numerical methods for solving differential equations, and to stimulate various directions of research in these domains.

More than 100 mathematicians from abroad and 150 from inside Czechoslovakia are expected.

The E.C. members give their approval for such a support to the Conference and decide to grant an amount of US \$ 1,000 - for that purpose.

9. INTERNATIONAL SYMPOSIUM ON APPROXIMATION THEORY : Campinas, Brasil, August 1-6, 1977.

Organizers : Pr. L. Nachbin, chairman, J.B.Prolla, S. Machado, G.I. Zapata.

More than thirty invited speakers are expected and will give to this meeting a high international level.

After consulting in a postal ballot, the members of the E.C. agreed on granting the support of the Union to this Symposium and decided to allow a financial help of US. \$ 1,000.

D. IMU LECTURES

After Professor Mumford gave his set of lectures at the I.H.E.S. near Paris, Professor V.I. Arnold, of the Mathematical Institute of the Moscow University, has been invited by Professor M.F. Atiyah to deliver a series of lectures at the University of Oxford, England, during the year 1976.

The visit could not materialize in 1976 and the E.C., in its meeting of May 1976, unanimously decided to transfer Professor Arnold's invitation to 1977.

E. FELLOWSHIPS AND EXCHANGES

Dr. Swarup ended his stay in Europe in 1975 at the ETH in Zürich. No other fellowship has been awarded, due, last year, to the necessity of being very cautious on the financial side.

The Italian grant has been cashed in 1975 ; it has been given under strict conditions of exchange for long periods. Thus, through the Commission on Exchange new candidates could be helped, most of them among young mathematicians from developing countries.

THE UNION COMMISSIONS AND COMMITTEES

A. EXCHANGE COMMISSION.

Nine members were elected in Vancouver to promote the work of the Exchange Commission under Professor Coleman's chairmanship ; this work was intended to be somewhat decentralized, because of the six new Regional Advisory Groups and their Coordinators, (see Bulletin No.8, December 1974).

Professor Lions reported about the exchange of correspondence with Professor Coleman and told the Executive Committee that a rather large amount of money had already been raised with the help of C.I.D.A. in Canada.

The question of the responsibility of handling this budget and, in general, of the structure of the re-organized Exchange Commission was raised.

Referring to the records of the Seventh General Assembly of I.M.U., the activities of the Exchange Commission are intended to help the growth of mathematics in developing countries :

- by encouraging and promoting scientific exchanges,
- by co-operating with the Regional Groups,
- in relation with International Agencies, through I.M.U.

According to the Statutes, the Exchange Commission may accept any gifts, legacies, and subventions, subject to the approval of the Executive Committee of IMU, with due regard to the non governmental and non political nature of the Union.

The President asked each member to express his opinion and to set up an agreement to be proposed to the members of the Exchange Commission and, if approved by postal ballot by the members of the Union, to be published in the present issue of the IMU Bulletin. After considerable consultation and discussion within the Executive Committee, the following terms of reference of the Commission on Exchange were drafted :

"1. The Commission shall consist of a Chairman, and nine other members (including the Secretary of IMU, ex-officio), elected by the General Assembly of the Union (G.A.) on the nomination of the President of I.M.U.

2. The Commission shall elect, from among its members, a Secretary who shall act also as its Treasurer, unless the Commission appoints another member for that purpose.

The Chairman, the Secretary (if any) and the Treasurer (if any) shall be designated as "Officers of the Commission".

The Commission may, in exceptional circumstances, elect the Chairman as Secretary or Treasurer, as the case may be, provided that the Commission has at least two different (elected) officers.

The Commission shall make its own financial arrangements, subject to By-law 10 of I.M.U.

3. The Commission shall be charged with the work of *promoting* and *facilitating* the international exchange of mathematicians and students of Mathematics for scientific purposes, in accordance with the Statutes and By-laws of the Union, and the administrative policies of the Union, as determined by the Executive Committee of I.M.U.

To that end, the Commission shall :

- a) support, as hitherto, the exchange of visits with member countries of the Union, in which, for one reason or another (e.g. non convertible currencies), such exchanges are not especially easy to arrange by other means ;
- b) cooperate with the Regional Groups established in the General Assembly of the Union in 1974 for the encouragement of the growth of Mathematics in developing countries ;

- c) advise and assist existing international agencies working toward the same objectives - such as UNESCO and ICSU - to the extent the Commission considers desirable, through the intermediary of the Executive Committee of IMU, with due regard to the non-governmental and non-political nature of IMU and of its administrative policies, and without duplicating or prejudicing the work of the Commissions and Committees of IMU at points of common interest.
4. The Commission may accept gifts, legacies and subventions, subject to Statutes of IMU, Section 16. The Commission shall make its own arrangements for the utilization of such funds for the activities mentioned in (3), subject to approval of the Executive Committee of the Union.
5. The annual budget of the Commission shall be submitted to the Executive Committee of IMU for approval.
6. The Commission shall file an annual report of its activities to the Executive Committee of IMU and shall file a quadriennial report at each regular meeting of the General Assembly".

At the E.C. meeting Professor Montgomery asked for formal approval of these terms, which was given.

The E.C. decided to submit the text of the "Terms of Reference of the Commission on Exchange" to the members of the Union by postal ballot. The officers of the E.C. (that is, the President, two Vice-Presidents, and Secretary) were authorized to act on behalf of the E.C. in relation to the work of the Commission on Exchange, when urgent action was called for.

The result of the postal ballot up to November 15, 1976 are 67 positive votes out of 104 voting strength, thus giving a majority for the approval of this text which is inserted in the By-laws of the Union. No negative vote was received.

B. JOINT IMU/IUTAM COMMITTEE.

Professor Lions read the correspondence he received from Professor Koiter, Vice-President of the IUTAM (International Union of Theoretical and Applied Mechanics), who proposes to create a joint Committee for the interaction between the two Unions.

News came in of an attempt to start a new International Mathematics and Mechanics Union and this is the reason why the officers of IUTAM thought of some "standing" Committee between the two Unions. An extensive discussion arose among the E.C. members on the scope of this kind of collaboration.

Many positive arguments were developed, giving, for instance, the example of the collaboration which exists between Physics and Mathematics, Mechanics and Chemistry, and taking into account the fact of the Mathematics universality.

The question of ICSU cooperation and agreement has also been raised. This kind of collaboration has been effective with the Joint IMU-IUTAM Symposium held last September in Marseille which had a great success, with the help of ICSU grants on both sides.

Another proposal for a second IMU-IUTAM Symposium to be held in Novosibirsk in 1977 on Symmetry and Group Theoretic Methods in Mechanics has just been approved by the Executive Committee for 1977. Therefore, a Joint Committee between the two Unions could reinforce this collaboration.

The members of the Executive Committee then proposed that this could be done in two steps :

- first, at the E.C. level, nominating three members from each Union to form a Joint Committee for the Interaction between Mathematics and Mechanics (JSCIMM), as hitherto,
- afterwards, if a broader arrangement is needed, an Inter-Union Committee (within ICSU) could be considered and then ICSU support would be asked for.

The Secretary then read the terms of the draft proposed by the Secretary of IUTAM :

"Having observed with satisfaction the success of their joint symposium on applications of methods of functional analysis to problems of mechanics, held in Marseille in September 1975,

Recognizing the need widely felt among mathematicians and mechanical scientists alike for a more permanent collaboration in the domain of overlap of both Unions,

Hereby establish, subject to the approval of their next General Assemblies, a

JOINT STANDING COMMITTEE FOR THE INTERACTION
BETWEEN MATHEMATICS AND MECHANICS,

to be called J.S.C.I.M.M. hereafter, with the following terms of reference :

1. JSCIMM will be responsible for a permanent review of topics of common interest to both Unions.
2. JSCIMM will consider proposals to both Unions for joint symposia on topics of common interest, if possible, to be held at regular intervals of two years, preferably in the odd-numbered years between the Congresses of the Unions.
3. Each Union will appoint four representatives on JSCIMM with staggered terms of office of four calendar years. At the end of their term of office, representatives may be re-appointed by their Union for a second term of office of four calendar years.
4. Each Union will designate one of its representatives as co-chairman of JSCIMM.
5. JSCIMM will submit in February of each year to both Unions a report on its activities in the preceding year".

The E.C. members agree on the substance of this proposal except that the word "standing" be dropped, and that only three members for the Joint Committee be nominated.

The following names are proposed :

Professor P.D. Lax, Courant Institute, N.Y.U.

Professor J.L. Lions, co-chairman,

Professor G.I. Marchuk, Computing Center of Novosibirsk.

The Executive Committee asks the Secretary to forward this positive answer to Professor Koiter and to ask to the proposed members if they agree to serve on this Joint Committee.

The work of the Joint Committee could take place by correspondence.

C. I.C.M.I.

The Secretary read to the Executive Committee a letter he received from Professor Iyanaga, President of ICMI, telling him about the applications of MALAYA and BANGLADESH to become members of ICMI. These two countries are not members of the Union.

This is subject to the approval of the Executive Committee of IMU, referring to item (g) of the terms of reference of ICMI who can coopt members on an "individual basis".

The members of the E.C. gave their approval, and asked to be informed on the names of the representatives.

Another application for joining ICMI came from NEW-ZEALAND, but this country is already a member of the Union, thus no formal approval is needed and only the names of the representatives must be given.

A letter was received from Professor P.L. Bhatnagar, from the Mehta Research Institute of Mathematics and Mathematical Physics, in New Katra, India.

Some of the members of the Institute wanted to attend the ICMI General Conference in Karlsruhe in Germany during August. They found out that, "though fully associated with IMU, ICMI does not figure among the approved list of conferences by ICSU, with the result that some of us who wanted to attend the ICMI Conference shall not get permission to attend it".

The Secretary must inquire about the ICSU official list of Congresses. If the ICMI Congress is not listed, permission must be asked to ICSU to include this Conference on the list of the approved meetings.

Then a review of the activities OF ICMI was done, including the publication of the ICMI Bulletin Nos. 6 and 7.

The Third International Congress on Mathematical Education will be held in Karlsruhe from August 16 to 21, 1976.

The International Program Committee consists of :

Professors H.G.Steiner (chairman), U.D'Ambrosio, A. Bergman, P.L. Bhatnagar, B. Christiansen, T.J. Fletcher, H. Freudenthal, C. Gaulin, M. Glaymann, S. Iyanaga, A.K. Krygowska, J.Lighthill, G. Matteews, B.H. Neumann, G. Pickert, H. Pollack, A. Revuz, S.L. Sobolev, J. Suranyi, C.O. Taiwo, B. Traore.

Two other World Conferences have been held in 1975 :

Second IFIP World Conference on Computers in Education, in Marseille, September 1975 and

Fourth Interamerican Conference on Mathematical Education that was held from December 1 to 6 in Venezuela.

A Regional Conference on Development of Integrated Curriculum in Mathematics for Developing Countries in Asia was held under the chairmanship of Professor P.L. Bhatnagar from December 15 to 20, in India.



INTERNATIONAL CONGRESS OF MATHEMATICIANS
CONGRÈS INTERNATIONAL DES MATHÉMATIENS
INTERNATIONALER MATHEMATIKERKONGRESS
МЕЖДУНАРОДНЫЙ КОНГРЕСС МАТЕМАТИКОВ

UNIVERSITY OF HELSINKI DEPARTMENT OF MATHEMATICS
HALLITUSKATU 15 SF-00100 HELSINKI 10 FINLAND

The next ICM is going to take place in Helsinki (Finland) from August 15 to 22, 1978.

Consultative Committee. The members have been in extensive correspondence in preparing the first meeting in Helsinki on June 2-3, 1976. The Organizing Committee has provided information about the facilities and made suggestions of their use. Division into sections has been under long discussion and has led to a rough preliminary plan, with some details still open. Proposals have been made for panel chairmen and members, and here also considerable unanimity seems to prevail. The goal of the Helsinki meeting is to make final decisions about the facilities, the number of invited lectures, the sections, the panel chairmen and the cores of the panels.

Organizing Committee. Financial aspects have largely guided activities. Fund raising from private companies has been relatively successful. - Estimates can now be made about the costs of the Proceedings. The O.C. has received 11 offers for printing (and publishing). These fall into two groups: the copyright either remains with the O.C. or is sold to the publisher. Price variation is large, but in both groups some offers look quite acceptable. The O.C. tries to make the final decision in the autumn 1976. - The University of Helsinki will contribute to the costs caused by the use of their facilities. - The City of Helsinki will have a reception for 3000 guests. - Various possibilities for the social program have been under consideration.

I.C.M. (continued)

Following Professor Lehto's report on the preparation of the next ICM 78, the financial aspects of this manifestation were raised up. A provision is scheduled in the IMU budget of about US \$ 7,000/year thus allowing a total income of US \$ 28,000 - for this Congress. Professor Lehto tells the E.C. that the whole IMU allocation will be used for scientific purposes, i.e. invited speakers, travel grants to developing countries.

GENERAL ASSEMBLY.

In order to prepare the General Assembly of the Union which takes place a few days before the ICM, in Finland, the Executive Committee is now going to ask to all the National Adhering Organizations to make recommendations for members of the next Executive Committee to be received before the end of 1977.

On the other hand, the E.C. prepares its slate and agrees on the name of Professor Olech to be proposed as a member of the next E.C. The E.C., in its first meeting in 1978 will make final decisions for proposal of the next E.C. to the General Assembly in Finland.

WORLD DIRECTORY OF MATHEMATICIANS.

As agreed upon in the last General Assembly in Vancouver, a separate account is sent for W.D.M. by Professor O. Frostman who is in charge for this publication.

All orders for the W.D.M. should be sent to :

Professor Otto Frostman
Baltzar von Platens Gata 1
112 42 STOCKHOLM SWEDEN

and payments to the :

Postal Giro Account 07 01 03-3995.

Net price, including packing and postage, from 1.1.1975 :

Swedish Crowns 55.00

THE MEMBERS OF THE UNION

After agreement given by international postal ballot, the new members of the Union are, starting on January 1.1976 :

ARAB REPUBLIC OF EGYPT : N.A.O. : Academy of Scientific Research
Group of Adherence : I and Technology
101, Kasr El Eini Street
CAIRO
Pr. A.A.Ashour, Secretary.

N.C. : Prof. Dr. M.Moursi, President,
Prof. Dr. A.A.Ashour, Secretary
Prof. Dr. M.H.Makkar
Prof. Dr. A. Anis
Prof. Dr. A.N. El-Siad
Prof. Dr. F.M. Ragab
Prof. Dr. SH. Geda.

CAMEROON : N.A.O. : Société Mathématique du Cameroon
Group of Adherence : I University of Cameroon
Faculty of Sciences
Department of Mathematics
B.P. 812 YAOUNDE
Pr. H. Hogbe-Nlend, Coordinator.

IRAN : N.A.O. : Iranian Mathematical Society
Group of Adherence : II P.O.Box 14-1248
TEHRAN
Dr. V. Davarpanah, Secretary.

REPUBLIC OF SINGAPORE : N.A.O. : Singapore Mathematical Society
Group of Adherence : I Mathematics Department
University of Singapore
SINGAPORE 10
Pr. Dr. L.M.Y.Chen, Hon.Secretary

Change in the Group of Adherence :

IRELAND, from Group I to II, after positive replies giving a majority by international postal ballot.

FINANCIAL MATTERS

The 1975 financial statements that had been sent in advance to the members of the Executive Committee were examined at the meeting of the E.C. in May.

The following comments were made by the Secretary :

A. i) Dues : there has been in 1975 some confusion in the payment of the dues, taking into account the fact that :

- a) the currency changed from US Dollars into Swiss Francs, the unit contribution being increased to Sw. Frs. 600.00.
- b) the corresponding units of contribution increased for the groups of adherence III, IV and V.

Thus some of the contributions were not entirely paid and three countries were in arrears with their dues.

ii) ISCU-UNESCO contribution : the amount which ICSU contributed for was US \$ 13,000 in 1975, but it has been lessened by US \$ 1,000- for 1976. Prospects are that the lessening of UNESCO contribution will continue in the coming years.

The Secretary tells the E.C. that it must be cautious, trying to make provision for more than a year-UNESCO's grant.

iii) Accounting : has been very expensive, due to the fact that two presentations had to be prepared, one detailed for the members of the Union, drawn in Swiss Francs, according to the budget, the other in standard UNESCO forms, drawn in US Dollars : this makes the job more complicated than previously.

B. Savings in 1975.

The Secretary said that all the sums provided in Schedule B for scientific activities had been paid, except to Professor Mumford whose manuscript was not yet received by Professor de Rham for publication in "L'Enseignement Mathématique".

A sum of Swiss Francs 10.000,00 has been put anew in the Union's reserves in 1975.

The provision for ICM 78 (travel grants for young mathematicians) appeared in the accounts.

The E.C. authorizes the Secretary to credit each year the ICM 78

Account in "K.O.P.", Helsinki with the corresponding amount provided in the budget.

C. 1 9 7 6.

The estimates for 1976 are as follows :

Schedule A : invariant in 1976.

Schedule B : equivalent to the one of 1975, except for the expenses related to the C.C. meeting that will gather for the first time in 1976.

Due to the increase in air-fares these expenses have been grossly underestimated in Vancouver.

A particular request has been made to all the members of the Union committees (E.C. and C.C.) to spare as far as possible their travel expenses.

D. 1 9 7 7 .

For 1977 IMU can spend, on scientific activities, a little more than in 1975 and 1976, since some savings have been made. The estimation for Symposia seems to be allright.

At the same meeting of May 1976, the members of the Executive Committee discussed on the expenses of the Union, pointing out to the very large amount spent in audit fees. The Secretary explained that these expenses were quite great because of starting conditions and he informed the E.C. that several services were not charged to IMU (postage expenses, long-distance telephone talks, stationery, etc..). After discussion, the financial report for 1975 was approved. The detailed figures are shown below, in Appendix I.

The E.C. adopts the two following resolutions :

Resolution 1 : Taking into account the increasing number of members in the Union, the E.C. wishes that an increased annual subvention be asked of ICSU-UNESCO.

Resolution 2 : The E.C. authorizes the Secretary to transfer each year to the ICM 78 account in Helsinki in K.O.P. the provision decided in the IMU budget for the International Congress.

NEWS AND ANNOUNCEMENTS

MATHEMATICAL EDUCATION IN SECONDARY SCHOOL.

The German Mathematical Society informs the Secretary of IMU that it has published a Resolution concerning Mathematical Education in Secondary School. This Resolution has appeared in the Journal : "Der Mathematische und Naturwissenschaftliche Unterricht", p. 431 - 434.

NECROLOGY :

Sad news of the death of :

Professor P.L. Bhatnagar, Director of the Mehta Research Institute of Mathematics and Mathematical Physics, in Allahabad, India, and Member-at-large of India in ICMI, who died suddenly on October 5, 1976.

Professor N. Terzioglu, President of the Turkish Mathematical Society, Director of the Mathematical Research Institute in Istanbul, who suddenly passed away on September 20, 1976,

Professor Fraeijs de Veubeke, from the University of Liège, Belgium, Director of the Aeronautical Laboratory, who died on September 16, 1976.

We give hereafter a notice on the life and on the work of late Professor Nicolescu, Vice President of our Union at the time of his sudden death in 1975.

This notice has been written by Professor Marcus and Professor G. Vranceanu.

L' ACADEMICIEN MIRON NICOLESCU

(1903 - 1975)

Vice-Président de l'UNION MATHEMATIQUE INTERNATIONALE

Le Professeur Miron NICOLESCU s'est éteint le 30 Juin 1975. Il était l'un des plus éminents mathématiciens roumains, membre de prestigieuses académies et de hautes assemblées scientifiques, Commandeur de la Légion d'Honneur, Vice-Président de l'Union Mathématique Internationale, Président de l'Académie de la République Socialiste de Roumanie.

Fils d'un instituteur, Miron NICOLESCU est né en 1903, à Giurgiu (Roumanie). Après avoir terminé ses études secondaires au Lycée "Matei Basarab" de Bucarest, il devient étudiant dans la section de Mathématiques de la Faculté des Sciences de l'Université de Bucarest. Il obtient en 1924 la licence ès mathématiques et poursuit ensuite ses études à Paris, comme élève de l'Ecole Normale Supérieure, où il subit fortement l'influence des cours d'Emile Picard. En 1928, il soutient sa thèse de Docteur-ès-Sciences à la Sorbonne sur le sujet : "Fonctions complexes dans un plan et dans l'espace" devant un jury composé de Paul Montel (Président), de Henri Villat et de Jean Chazy.

De retour en Roumanie, il est Maître de Conférences puis Professeur à l'Université de Cernaŭti où il déploie, pendant douze années, une très riche activité dont le point culminant est la publication, en 1936, dans la collection "Actualités scientifiques et industrielles" aux Editions Hermann de Paris, de la monographie "Les Fonctions polyharmoniques". Cet ouvrage reste jusqu'à aujourd'hui un ouvrage de référence fondamentale dans l'étude des fonctions polyharmoniques et de leurs applications en élasticité et en hydrodynamique.

Il est nommé, en 1940, Professeur à l'Université de Bucarest, poste qu'il occupera jusqu'à la fin de sa vie, tout en devenant l'un des deux grands maîtres de l'école roumaine d'Analyse mathématique moderne, l'autre étant Simion Stoilow.

Son activité scientifique connaît un essor nouveau. Son mémoire monographique sur les fonctions polycaloriques (1954), ses études sur l'analyticité hyperbolique sont des étapes vers une théorie générale de l'analyticité par rapport à un opérateur différentiel linéaire, dans une algèbre normée, théorie parachevée par Miron NICOLESCU dans la dernière étape de son activité. Mais il ne faut pas non plus oublier ses beaux résultats concernant la dérivée aréolaire, l'analyse globale (au sens de Bögel), la mesure de Jordan, la seconde formule de la moyenne, les fonctions convexes et doublement convexes, le théorème de compacité de Kolmogoroff, les séries doubles, etc...

Une place importante est occupée dans son oeuvre par le traité d'Analyse mathématique en trois volumes (1957, 1958, 1960), le premier traité roumain moderne d'Analyse mathématique. Ce traité manifeste un équilibre remarquable entre l'attention donnée aux problèmes de la théorie des fonctions réelles, aux pathologies contrôlables de ces fonctions et l'effort pour placer tous les faits de l'Analyse mathématique dans le meilleur cadre possible du point de vue de l'Analyse fonctionnelle.

En tant que l'un des membres fondateurs de l'Institut mathématique de Bucarest et Directeur de cet Institut pendant dix ans (1963-1973) Miron NICOLESCU a donné un appui essentiel au développement de l'école roumaine de mathématiques et particulièrement aux jeunes mathématiciens roumains.

Homme de culture remarquable, très humain dans ses relations avec les gens de toute sorte, Miron NICOLESCU reste un modèle de vie dévouée aux plus nobles idéaux de l'humanité.

APPENDIX



société française d'audit et d'expertise

68, boulevard de Courcelles - 75017 Paris - R.C. Paris B 303 753420
766 28 05 - 766 28 09 - 766 28 49 - télex : 660870 svp serj réf. 1049

Membre de la FRANÇAISE DE REVISION

Associated Internationally with SPICER and OPPENHEIM

16.04.1976

IMU/mpy.kld/n° 55868

INTERNATIONAL MATHEMATICAL UNION
Collège de France
11, place Marcelin Berthelot
75231 PARIS CEDEX 05

Dear Sirs,

On the basis of the work we carried out on the 1975 International Mathematical Union's financial statements and of our audit report dated April 8, 1976 on these accounts, we identify the figures shown on pages 1 to 10 of this financial report as being in accordance with those of our report.

Yours faithfully,

G. ELBAUM

INTERNATIONAL MATHEMATICAL UNION

FINANCIAL REPORT

for the period January 1 to December 31, 1975.

1. INCOME.

The Union had the following sources of income during the year :

- A). Dues from the member nations,
- B). UNESCO/ICSU contribution,
- C). Sales of the World Directory of Mathematicians,
- D). Grant.
- E). Interests on Bank Accounts.

A). During the financial year 1975, dues were paid at the :

i)	<u>Chase Manhattan Bank,</u>	by :		
	Argentina	I	1975	(part)
	Czechoslovakia	III	1975	(remaining part)
	India	III	1974	
	Ireland	I	1975	
	Israël	II	1975	(part)*
	Mexico	I	1975	(part)
	Nigeria	I	1975	(part)*
	Portugal	I	1975	(part)
	U.S.A.	V	1975	

Total : US \$. 4,097.49

(*) Balance paid in the first days of 1976.

Brought forward : US \$ 4,097,49

ii) Swiss Credit Bank, by :

Australia	III	1975	
Austria	II	1975 (remaining part)	
Belgium	III	1975	
Bulgaria	II	1974 & 1975	
Cuba	I	1975	
Denmark	II	1975	
Finland	II	1975 (remaining part)	
Dem. Rep. of Germany	III	1975	
Fed. Rep. of Germany	V	1975	
Hungary	III	1975	
Italy	IV	1975	
Japan	V	1975	
Netherlands (The)	III	1975	
New Zealand	I	1975	
Norway	I	1975	
Poland	IV	1975	
Rumania	II	1975	
Spain	II	1975	
Sweden	III	1975	
Switzerland	III	1975	
U.S.S.R.	V	1975	
United Kingdom	V	1975	
Yugoslavia	II	1975	
Total:	Sw.F.	59.060,74	<u>US\$. 22,892.81</u>

iii) Soci t  G n rale, by :

France	V	1975	
	F.F.	10.760,00	<u>US\$. 2,561.90</u>

iv) Banque Degrocof, by

Belgium	III	1974	
	F.B.	14.097.00	<u>US\$ 414,62</u>

v) Swedish Postal Giro Acc., by

Czechoslovakia	III	1975 (part)	
Dem. People's Rep. of Korea	I	1975	
	Kr.Sw.	2.079,30	<u>US\$ 508,85</u>

TOTAL INCOME FROM MEMBERSHIP DUES IN 1975 ; (**)

Add. : PAID IN ADVANCE IN 1974 :

US\$ 31,333.13

(**) Exchange rates at the date of bank statements
UNESCO standard rates of exchange.

Subscriptions were due from the following countries at the end of 1975 :

1974 : Brazil, Cuba.

1975 : Brazil, Canada*, Rep. China-Taiwan*, Greece*, Iceland*, India , Turkey.

B). UNESCO/ICSU contribution 1975.

US \$.	6.500.00	
	<u>6.500.00</u>	US \$. 13.000.00

C). Sales from the World Directory of Mathematicians :

Kr.S.	19.908.44	
US.S.	1.018.42	US \$ 6.001,68

D). Grants.

grant from Italy of Lire 5.000.000	US \$. 7.325.00
------------------------------------	-----------------

E). a) Interests on Bank Accounts :

Swiss Credit Bank (private a/c)		
S.Fr. 2.245,15	US \$	844.04
Handelsbanken (private a/c)		
Kr.S. 203.75	"	46.41
Swedish Giro Postal Account		
Kr.S. 5.40	"	1.35
		<u>891,80</u>
	US \$	891,80

b) Bank charges :	- US \$ 339.67
c) Exchange difference :	- US \$ 81.00

The total income received during the year 1975 was :

A). Membership dues :	US \$ 31,333.13
B). UNESCO/ICSU	" 13,000.00
C). Sales from W.D.M.	" 6,001.68
D). Grant	" 7,325.00
E). Interests on Banks a/c	891.80
	<u>TOTAL : US \$ 58,551.61</u>

2. EXPENDITURE.

- A. Actual expenditure in 1975 compared with the amounts authorized by the Seventh General Assembly

The authorized figures are shown in Swiss Frs. and in US \$ (exchange rate at December 31, 1975 : Sw.Frs 2,66 = US \$ 1.)

The real expenditure is shown only in US \$ (exchange rates at the date of payment).

EXPENDITURE

	<u>Authorized</u>		<u>Actual</u>	<u>Difference</u>	
	Sw.Frs.	US. \$	US \$	- US \$	+ US \$
<u>SCHEDULE A.</u>					
1. a) Secretarial help (IMU Office)	9.000	3,383.00	3,936.15		553.15
b) Secretarial help (President)	1.000	376.00	—	376.00	
c) I.C.M.I.	900	338.00	300.00	38.00	
d) C.T.S.	600	226.00	200.00	26.00	
2. Office expenses	4.000	1,504.00	523.84	980.16	
3. Travel expenses E.C.	14.000	5,263.00	7,672.26		2,409.26
4. President's and Secretary's expenses	1.500	564.00	56.57	507.43	
5. Contribution to ICSU (2 1/2% of dues)	2.300	865.00	411.25	453.75	
6. Publication & disse- mination of the IMU Bulletin	2.000	752.00	563.13	188.87	
7. Audit fee	450	169.00	1,159.11 + 950.00		990.11
8. General Assembly 1978	2.000	752.00	—	752.00	
9. World Directory of Mathematicians	10.000	3,759.00	577.91	3,181.09	
10. Contingencies	2.500	940.00	420.67	519.33	
	50.250	18,891.00	16,770.89	7,322.03	3,952.52

	<u>A u t h o r i z e d</u>		<u>A c t u a l</u>	<u>D i f f e r e n c e</u>	
	Sw.Frs.	US \$	US \$	- US \$	+ US \$
<u>SCHEDULE B.</u>					
1. Scientific Activities : Symposia & Conferences IMU Lectures Exchange Commission I.C.M.I.	48.000	18,045.00	11,863.97	6,181.03	
2. IMU Fellowship Fund	6.000	2,256.00	1,292.00	964.00	
3. Consultative Committee ICM 1978	3.000	1,128.00	---	1,128.00 (*)	
4. Subvention to the ICM 1978 (including travel grants to young mathematicians from developing countries)	18.750	7,049.00		7,049.00 (**)	
	<u>75.750</u>	<u>28,478.00</u>	<u>13,155.97</u>	<u>15,323.03</u>	<u>---</u>

(*) No expenditure this year, the first C.C. meeting being scheduled in 1976.

(**) This sum is reserved for 1978.

S U M M A R Y

<u>TOTAL OF INCOME</u>	US. \$ 58,551.61
<u>TOTAL OF EXPENDITURE</u>	
under SCHEDULE A	US. \$ 16,770.89
under SCHEDULE B	" 13,155.97
<u>EXCESS OF INCOME</u>	
<u>OVER EXPENDITURE</u>	US. \$ 28,624.75

B. Details of expenditure under UNESCO/ICSU/IMU Grants (Schedule B of the budget)

(i) UNESCO/ISCU Grant

a) <u>Symposia and Conferences</u> :	Kyoto Jan. 1975	US \$ 3,000
	Orsay June 1975	" 2,000
	Lund July 1975	" 2,000
	IMU/IUTAM Sept. 1975	" 2,000
		<u>US\$ 9,000.00</u>
b) <u>IMU Lectures</u> :	Prof. Mumford	US \$ 1,000 ^(*)
c) <u>Exchange Commission</u> :	Dr. Jankowski	US \$ 596,27
	Dr. Globvenik	" 267,70
		<u>US \$ 863,97</u>
d) <u>I.C.M.I.</u> :	Indian Meeting	<u>US \$ 2,000.00</u>
		<u>TOTAL : US \$ 11,863.97</u>

(*) Left to be paid in 1976 to Prof. Mumford	US \$ 1,000.00
Reserved for 1976 :	US \$ 136.03
	<u>GRANT : US \$ 13,000.00</u>

(ii) IMU Grant :

a) <u>Fellowship Fund</u> :	Dr. Swarup (rest)	US \$ 1,292.00
b) <u>Consultative Committee</u> :	reserved for 1976	US \$ 1,128.00
c) <u>I.C.M. 1978</u> :	reserved for 1978	<u>US \$ 7,049.00</u>
		<u>TOTAL : US \$ 9,469.00</u>

(iii) ITALY's Grant :

a) <u>Fellowship Fund</u> : for travel		
to young mathematicians from		
developing countries, ICM 1978		<u>TOTAL : US \$ 7,325.00</u>

Recapitulation :	UNESCO/ISCU :	13,000.00	US \$
	IMU	9,469.00	"
	ITALY	7,325.00	"

TOTAL OF EXPENDITURE :

a) Under IMU Budget :

SCHEDULE A		US \$.	16,770.89	
SCHEDULE B	{	Expenditure 1975	US \$.	1,292.00
		Reserved for ICM 78	"	7,049.00
		Reserved for C.C.76	"	<u>1,128.00</u>
				US.\$ 26,239.89

b) Under UNESCO/IMU Budget :

SCHEDULE B	{	Expenditure 1975	US.\$	11,863.97	
		Left to be paid (Professor Mumford)	"	1,000.00	
		Reserved for 1976	"	<u>136.03</u>	
				US.\$ 13,000.00	

c) Under Special Grants (ITALY) :

(IMU Budget)

Fellowship Fund (reserved for 1978)	US.\$	7,325.00	US.\$ 7,325.00
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S_U_M_M_A_R_Y

<u>TOTAL OF INCOME :</u>	US.\$	58,551.61
<u>TOTAL OF EXPENDITURE :</u>		
SCHEDULE A	US.\$	16,770.89
SCHEDULE B	US.\$	29,794.00
<u>EXCESS OF INCOME OVER EXPENDITURE :</u>	US.\$	11,986.72

WORLD DIRECTORY ACCOUNT
as per December 31, 1975

	DEBIT	CREDIT	US \$
	Skr	Skr	
Jan. 1 Balance	80.706.87	6.934.43	3.095.72
June 30 Income of sales Jan.-June		16.450.69	1.018.42
" Packing, postage "	1.710.00		
Dec. 31 Income of sales July-Dec.		3.457.75	
" Packing, postage "	661.75		
" Interest on Deposit Acc.		203.75	
	<hr/>	<hr/>	
	83.078.62	27.046.62	4.114.14
Difference		56.032.00 =	<hr/> 12.763.55
<u>Deficit</u> as per December 31, 1975			<hr/> 8.649.41

(US \$ 1.00 = Skr 4.39)

ASSETS

Orders billed but not paid as per December 31, 1975 450.00
Stock-in-trade, 890 copies

Stockholm, January 21 1976

Otto Frykman

3. FINANCIAL STATEMENT FOR THE PERIOD JANUARY 1, 1975 TO DECEMBER 31, 1975.

1)	<u>US.\$</u>	<u>S.Frs.</u>	<u>F.Frs</u>	<u>B.Frs</u>	<u>Sw.Krs</u>	<u>F.Frs</u>	
					Postal Giro	Svenska H. Bank	Cash
a) Bank Balance in current accounts on 1/1/1975	146.51	844.85	—	132.00	7.287,84	5.909,03	— —
b) Bank Balance in private account on 1/1/1975		62.372,28					
<u>1.: Receipts during 1975 :</u>							
1. Membership dues	4,097,49	59.060,74	10.760,-	14.097,00	2.079,30	—	—
2. UNESCO/ICSU Grant	13,000.00						
3. Sales of W.D.M.	1,018.42					19.908,44	
4. Grant	7,325.00						
5. Exchange differ., Bank charges	-12.16	- 835,29	- 6,60		+5,40		
Interests on a/c		2.245,15				203,75	
6. Inter Bank transfers		10.000.00	37.000,00		11.138	4611.000,00	29.100,00
	<u>25,575,26</u>	<u>133.687,73</u>	<u>47.753,40</u>	<u>14.229,</u>	<u>20.511,-</u>	<u>37.021,22</u>	<u>29.100,00</u>

2). Expenditure :

SCHEDULE A.

1.a) Secretarial help IMU office					3.580,00		13.050,00
b) Secretarial help President	—	—	—	—	—	—	—
c) I.C.M.I.	300,00						
d) C.T.S.	200.00						
2. Office expenses			310,15		788,00	955,00	32,40
3.&4. Travel expenses of the E.C.	300.00		12.750,00		2.091,00		16.017,60
5. Contribution to I.C.S.U.	411.25						
6. Publication of the IMU Bulletin					2.337,00		
7. Audit fee			4.000,00		850,00		
8. General Assembly	—	—	—	—	—	—	—
9. W.D.M.					10.865,00	1.671,75	
10. Contingencies (Inter Bank tr.)		32.903,00	29.100,00			22.138,46	

SCHEDULE B.

1. Scientific activities of the Union : Symp ICMT, Exchange Comm.	11,267,70	1.496,65					
2. IMU Fellowship	1,292,00						
3. C.C.	—	—	—	—	—	—	—
4. Subvention to ICM 78	—	—	—	—	—	—	—
	<u>13,770.95</u>	<u>34.399,65</u>	<u>46.160,15</u>		<u>20.511 -</u>	<u>24.765,21</u>	<u>29.100,00</u>
<u>BALANCE</u>	<u>11,804,31</u>	<u>25.362,20</u>	<u>1.593,25</u>	<u>14.229,-</u>	<u>00</u>	<u>1.052,26</u>	<u>00</u>
In private account		<u>73.925,88</u>				<u>11.203,75</u>	

Summary of Net Assets as on 31.12.1975 :

	US.\$	S.Frs.	Frs.F.	Sw.Krs.	B. Frs.
In Current Accounts	11,804.31	25.362,20	1.593,25	1.052,26	14.229.00
In Private Accounts		<u>73.925,88</u>		<u>11.203,75</u>	
NET ASSETS :	11,804.31	99,278,08	1.593,25	12.255,01	14.229.00

Prepared by :

Audited by :

J.L. LIONS, Secretary
INTERNATIONAL MATHEMATICAL
UNION

Société Française d'Audit et
d'Expertise