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INTERNATIONAL MATHEMATICAL UNION

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A — ORGANIZATIONAL

At the end of 1961, the following 37 countries were members of the International Mathematical Union, in the Groups I to V, as under:

Group I : Argentina, Australia, Brazil, Bulgaria, China-Taiwan, Cuba, Eire, Finland, Greece, Iceland, Malaya-Singapore, Mexico, Norway, Portugal;

Group II : Austria, Denmark, Israel, Pakistan, Rumania, Spain, Sweden, Yugoslavia;

Group III : Belgium, Canada, Czechoslovakia, Hungary, India, the Netherlands, Switzerland;

Group IV : France, Germany, Italy, Japan, Poland;

Group V : Great Britain, U. S. A., U. S. S. R.

Countries in the Groups I—V carry, respectively, 1, 2, 3, 4, and 5 votes, and make financial contributions of 1, 2, 3, 5 and 8 units by way of membership fees. The present membership thus corresponds to 86 votes and 100 units, accounting for an annual income of about 6,520 US dollars.

As on 1 January 1961, the Executive Committee (EC) of the Union consisted of Professor R. Nevanlinna (President), Professors P. Alexandroff and M. Morse (Vice-Presidents), Professor B. Eckmann (Secretary), Professor H. Hopf (President during the preceding term) and Professors K. Chandrasekharan, G. Choquet, J. F. Koksma, H. Kneser and K. Kuratowski (Members). Professor Eckmann resigned his Secretaryship on 14 October 1961, and was succeeded in that office by Professor K. Chandrasekharan,

the former continuing to be a Member of the EC. With effect from that date, the legal domicile of the Union became India, in accordance with the Statutes of the Union; the Secretary's Office was transferred to the Tata Institute of Fundamental Research, Bombay, while the Business Office of the Union remained at Room 22d, Ecole Polytechnique Fédérale, Zurich, with Mrs. T. Tischhauser as Office Secretary.

B—ACTIVITIES OF THE COMMISSIONS AND COMMITTEES

The Union has four Commissions: the International Commission on Mathematical Instruction (ICMI), the Commission on Exchange of Mathematicians, the Commission on Scientific Publications, and the Commission for the Documentation of Mathematical Literature. Brief reports of their activities follow.

1. International Commission on Mathematical Instruction¹

ICMI continued to function as in the previous year with the following members: Professor M. H. Stone (President), Professors H. Behnke and D. Kurepa (Vice-Presidents), Professor G. Walusinski (Secretary), Professors Y. Akizuki, A. D. Alexandroff, O. Frostman (Members), and Professors Y. Akizuki, A. D. Alexandroff, H. Behnke, P. Buzano, G. Choquet, H. Fehr, H. Freudenthal, D. Kurepa, E. A. Maxwell, M. H. Stone (Members-at-large), and one national delegate from each member-country.

ICMI held three conferences in 1961 — one on Analysis in June at Lausanne in co-operation with the Swiss Mathematical Society, one on Geometry in October at Bologna in co-operation with the Italian National Commission on Mathematical Instruction, and one on Mathematical Education in the Americas in December at Bogota (the Inter-American Conference on Mathematical Education), with the financial support of UNESCO, the Organization of American States, the U. S. National Science Foundation, the Columbian Association of Universities, the Ford Foundation, and the Rockefeller Foundation. It is planned to publish detailed reports of all these conferences — of the first and second in *l'Enseignement Mathématique*, and of the third, independently. Regarding the financial details of ICMI participation in these conferences, for the Lausanne Conference, the Union contributed Sw. Fr. 3,017.— (from its UNESCO-ICSU subvention), and the Swiss Mathematical Society the balance of Sw. Fr. 4,075.28. For the Bologna Conference, the UNESCO-ICSU subvention to the Union accounted for \$ 400.—, and the Union made an additional grant of \$ 472.05 from its own funds. The financial account of the Bogota Conference is a separate matter, and will not be completed for some months, as the costs of publication cannot be taken care of at once. The total expenses of this conference will be somewhere between \$ 35,000.— and \$ 40,000.—, according to present indications.

2. Exchange Commission

The Exchange Commission functioned throughout the year with Professor S. MacLane as Chairman, and Professors E. Bompiani, T. M. Cherry, R. D. James, E. Marczewski, S. L. Sobolev and K. Yosida as Members.

Under the IMU Lecturership Programme, the Union co-sponsored the visit of Professor H. Grauert (Germany) to Japan in the spring, of Professor L. Garding (Sweden), Professor J. Deny (France), and Professor C. E. Rickart (U. S. A.) to England, and of Professor E. Sparre-Andersen (Denmark) to Poland in the fall. Professor Andersen lectured at the Universities of Warsaw, Wroclaw, and Krakow. Professors Deny, Garding, and Rickart were guest speakers at the Instructional Conference on Functional Analysis, London.

3. Documentation Commission

The office-bearers of the Commission were, as in the previous year, Professor J. F. Koksma (Chairman), and Professors B. A. Amira, W. Fenchel and G. Sansone (Members). Partly because of the Chairman's indisposition, and partly because of the difficulties inherent in the kind of work the Commission was expected to do, it has not been possible yet to make a detailed report.

4. World Directory

The Bureau of the World Directory of Mathematicians, which was established in Bombay soon after the appearance of the first edition of the Directory in the summer of 1958, was entrusted with the task of preparing a more complete second edition, within a budget appropriation of \$ 1,200.— This second edition appeared, according to schedule, in August 1961. Besides up-to-date lists of mathematicians from all countries which were included in the first edition, the second edition contained lists from Czechoslovakia, Kenya, Morocco, Nepal, Senegal, Sierra Leone, South Rhodesia, Tunisia, South Viet Nam, Venezuela and West Indies. The Directory is on sale at the Tata Institute of Fundamental Research, Bombay (price \$ 1.50 per copy). Up till now, over 350 copies out of a total of 1000 printed have been sold.

On a resolution of the EC, a sub-committee consisting of Professors K. Chandrasekharan, M. Morse and H. Hopf, was set up in October 1961, with a view to making recommendations regarding a possible third edition of the Directory. The sub-committee arrived at certain criteria, to be ratified by the EC, to govern future additions to the Directory.

Professor K. Chandrasekharan continued to be the Liaison Officer between the EC and the Bureau.

C — SCIENTIFIC ACTIVITIES

The Union participated in two scientific meetings in 1961.

(1) *Symposium on General Topology and its relation to Modern Analysis and Algebra*, Prague, 1—8 September 1961. The Symposium was sponsored jointly by the IMU and the Czechoslovak Academy of Sciences. Besides 51 Czechoslovak mathematicians, 94 foreign mathematicians participated in the Symposium: Austria — 1, Bolivia — 1, England — 1, France — 6, German Democratic Republic — 3, German Federal Republic — 1,

Hungary — 3, India — 2, Italy — 1, Japan — 2, Mexico — 1, Netherlands — 2, Poland — 24, Rumania — 8, U. S. A. — 24, U. S. S. R. — 12, and Yugoslavia — 2. 82 communications were presented: 28 on general topology (topological spaces more general than separable, metrizable, uniform structures etc.), 25 on topology of metric spaces (in particular, continua, manifolds etc.), 20 on connections between topology and analysis, 12 on connections between topology and algebra, and 4 on algebraic topology.

The full proceedings of the Symposium will be published separately. Out of a total budget of \$ 14,543.—, the Union contributed \$ 3,000.—, from out of its UNESCO-ICSU subvention, the balance being met by the Czech Academy.

(ii) *Instructional Conference on Functional Analysis and some of its applications*, University College, London, 6—20 April 1961, co-sponsored with the London Mathematical Society, and the Royal Society. The purpose of the conference was to provide a thorough introduction to several branches of functional analysis. The opening lectures by Professor F. F. Bonsall, Professor J. L. B. Cooper and Dr. F. Smithies, two each, were devoted to foundations. The major programme of the conference consisted in a series of lectures by Professor L. Garding (on the theory of distributions and their application to differential equations), Professor J. Deny (on potential theory), and Professor C. E. Rickart (on Banach algebras and linear operators). Besides, there were 8 invited lectures, one each by Professors H. Reiter, A. P. Robertson, V. Ptak, J. Deny, F. G. Friedlander, C. E. Rickart, D. G. Kendall, and L. Garding. There were in all 149 participants, from Denmark, Germany, Holland, Ireland, Norway, Sweden, U. S. A. and Great Britain. The contribution of IMU to the conference was \$ 700.—.

D — RELATIONS WITH ICSU

The Union was represented at the meetings of the Executive Board and General Assembly of the International Council of Scientific Unions (ICSU) in London, September 18—28, 1961, by Professor K. Chandrasekharan.

During the year, the Union joined the ICSU Committee on Space Research, COSPAR, with Professor B. Rosser as delegate, and Professor A. van Wijngaarden as alternate. Professor Rosser was requested by the EC to take steps in order to get together a group of mathematicians interested in space research.

The Union decided to join the ICSU Committee on Science Teaching, and pursuant to this decision, a Special Committee on the Teaching of Science, SCOTS, was established in order to advise the EC, from time to time, on the Union's responsibility for ensuring that the mathematicians' point of view was properly represented on international bodies concerned with the programmes for the improvement of the teaching of science. The Committee consisted of Professor M. H. Stone (Chairman), and Professors H. Cartan, K. Chandrasekharan, G. de Rham, H. Hopf and A. Mostowski. The Committee was entrusted with the immediate task of carrying out a contract, signed on December 22, 1961, between the Union and UNESCO, for the purpose of preparing a comparative survey of the relations between the teaching of mathematics and of physics at the university level.

E — MEETINGS OF THE EC

The EC met twice during the year under report. The first meeting — *the fourteenth meeting of the EC* — was held at Düsseldorf, January 24—26, 1961, and was attended by all members except Professors Alexandroff, Koksma, Kuratowski and Morse. The major decisions arrived at are summarized below.

(i) An expenditure of \$ 9,100.— under various heads was authorized for 1961. An allocation of \$ 15,000.— was requested from UNESCO-ICSU for 1962, in view of the heavy commitment of the Union to contribute \$ 15,000.— to the Organizing Committee of the International Congress of Mathematicians, Stockholm, August 1962.

(ii) It was decided to bring forth a second edition of the World Directory in August 1961.

(iii) Three meetings of ICMI were projected for 1961, at Lausanne, Florence, and Bogota.

(iv) Professor B. Rosser was appointed the Union's delegate on COSPAR.

(v) The IMU Lecturership programmes for 1961 were finalized, and it was decided to continue the programme in 1962.

(vi) An allocation of \$ 15,000.— was made for the Stockholm Congress in 1962.

(vii) It was resolved that the Union should take a more active part than hitherto in the quadrennial International Congresses, and a Consultative Committee, with Professor G. de Rham as Chairman, was constituted to help the Organizing Committee of the Stockholm Congress prepare the scientific programme of the Congress. The EC also expressed its willingness to take over the arrangements for the award of the Fields Medals at the successive International Congresses.

(viii) Details regarding the forthcoming General Assembly of the Union at Saltsjöbaden in August 1962 were discussed.

The fifteenth meeting of the EC was held in Princeton, October 12—13, 1961, all members except Professors P. Alexandroff, G. Choquet, H. Hopf and J. Koksma attending; however, Professor G. de Rham deputized for Professor H. Hopf. The following were the principal items of business transacted.

(i) A sub-committee consisting of Professors K. Chandrasekharan, H. Hopf, and M. Morse was appointed to make recommendations to govern a possible third edition of the World Directory.

(ii) A Special Committee on the Teaching of Science (SCOTS) was appointed with a view to help the Union put across its views on matters affecting the teaching of science. The committee was charged with the execution of a contract to be entered into with UNESCO for preparing a comparative survey on the relations between the teaching of mathematics and of physics at the university level.

(iii) Provision was to be made for a possible meeting of ICMI in 1962.

(iv) The EC expressed interest in the possibility of co-sponsoring a symposium on Differential Topology in 1963 in U.S.A.

(v) Arrangements for the General Assembly at Saltsjöbaden were discussed, and the procedure for elections laid down. This procedure would consist in (a) the appointment of a Nominating Committee, (b) the presentation of

a slate to the Nominating Committee by the EC and by other delegates if they so wish, (c) the recommendation of the slate to the General Assembly by the Nominating Committee, and (d) a secret ballot conducted individually on each nomination, including any valid nominations previously proposed to the Nominating Committee by delegates, other than members of the EC, if the proposer so insists.

(vi) The composition of the EC for the term 1963—1966 was discussed, and it was decided to present a slate to the General Assembly, after ascertaining the views of the various National Committees.

(vii) Steps were taken to prepare an authorized Russian translation of the Statutes of the Union.

(viii) A committee was appointed to decide on the location of the International Congress 1966. Proposals were to be sent to the Secretary of the Union.

(ix) The EC accepted the resignation of Professor B. Eckmann as Secretary, and appointed Professor K. Chandrasekharan as Secretary for its remaining term.

*Professor K. Chandrasekharan
Secretary
International Mathematical Union.*

IMU LECTURERSHIP PROGRAMME

It has been decided to continue the IMU Lecturership programme in 1962. Members of the IMU are requested to forward their applications for grants of IMU Lecturerships to the Secretary.

Professor B. Eckmann of the Ecole Polytechnique Fédérale, Zurich, will visit Israel in May 1962 under the IMU Lecturership programme and lecture at various mathematical institutions there.

*Professor K. Chandrasekharan
Secretary
International Mathematical Union.*

End of the Bulletin of the International Mathematical Union.