

INTERNATIONALE MATHEMATISCHE NACHRICHTEN  
INTERNATIONAL MATHEMATICAL NEWS  
NOUVELLES MATHÉMATIQUES INTERNATIONALES

Herausgegeben von der

ÖSTERREICHISCHEN MATHEMATISCHEN GESELLSCHAFT

11. Jahrgang

Wien - Dezember 1956

Nr. 47 48

**BULLETIN OF THE  
INTERNATIONAL MATHEMATICAL UNION**

**REPORT OF THE EXECUTIVE COMMITTEE TO  
THE NATIONAL ADHERING ORGANIZATIONS**

Covering the period April 21, 1955 — May 31, 1956

*Preliminary remarks.* This report covers the activities of IMU during the indicated period and gives the Financial Report for the period January 1 — December 31, 1955.

**A — ORGANIZATIONAL**

An application for membership in the Union (Group I) dated June 9, 1955 was received from the Royal Irish Academy. The application was unanimously accepted by all voting members (equalling 60 votes of the total of 63). Therefore, Eire became an effective Member of IMU on October 15, 1955. The National Adhering Organization is the Royal Irish Academy, Dublin.

Therefore, the list of members on January 1, 1956, was the following (the number in brackets indicating the group):

Argentina (I)	France (IV)	Mexiko (I)
Australia (I)	Germany (IV)	Netherlands (II)
Austria (II)	Great Britain (V)	Norway (I)
Belgium (III)	Greece (I)	Pakistan (II)
Brazil (I)	Iceland (I)	Portugal (I)
Canada (II)	India (III)	Spain (II)
Cuba (I)	Israel (II)	Sweden (II)
Denmark (II)	Italy (IV)	Switzerland (II)
Eire (I)	Japan (IV)	U. S. A. (V)
Finland (I)	Malaya-Singapore (I)	Yugoslavia (II).

Considering the groups of adherence and the number of unit contributions:

Group	I	II	III	IV	V
Units	1	2	3	5	8

the present membership corresponds to 64 votes and to 74 units (i. e. to an annual income of \$ 4,824.80).

Letters of invitation together with documents of IMU have been sent to the following 27 nations: Bulgaria, Burma, Ceylon, Chile, China (Peking), City of the Vatican, Colombia, Czechoslovakia, Ecuador, Egypt, Eire, Hungary, Iran, Morocco, New Zealand, Panama, Philippines, Poland, Rumania, South Africa, Taiwan (Formosa), Thailand, Tunisia, Turkey, Uruguay, U.S.S.R., Venezuela.

The Polish Academy of Sciences acting as National Adhering Organization of Poland, applied for membership in the Union in Group IV. The respective letter (February 25, 1956) is signed by *H. Jablonski*, Scientific Secretary, Polish Academy of Sciences. The following persons constitute the National Committee for Mathematics: *K. Kuratowski*, chairman, director of the Institute of Mathematics of the Polish Academy of Sciences, *S. Straszewicz*, president of the Polish Mathematical Society, Prof. *K. Borsuk*, *E. Marczewski*, *S. Mazur*, *S. Turski*, *T. Wazewski*, Dr. *M. Stark*. The Executive Committee has recommended the approval of this application to the members and the postal ballot is still in operation. (*Supplement, summer 1956*: The membership of Poland became effective on July 15, 1956.)

The Academy of Sciences of the U.S.S.R. at Moscow, acting as National Adhering Organization of the U.S.S.R., has applied for membership in the Union in Group V. The respective letter (Moscow, May 5, 1956) is signed by Professor *A. V. Topciev*, First Scientific Secretary of the Presidium of the Academy of Sciences of the U.S.S.R. In its meeting of May 24, 1956, the Executive Committee of the IMU was unanimously in favor of this application. The Members (adhering organizations) of the IMU will immediately be asked to give their votes by postal ballot.

## B — ACTIVITIES OF THE COMMISSIONS

### 1. Commission for the World Directory of Mathematicians

The Commission's function at present and in the immediate future is to act in an advisory capacity to the firm of Butterworth's Publications, Ltd., London, which hopes to publish a World Directory of Mathematicians, sponsored by IMU. Lists of mathematicians by country have now been prepared and in several instances revised by the National Committees concerned. The final revision of the lists will then be entrusted to a panel to work at Chicago under the guidance of Professor *Stone*. With regard to some rather difficult questions, Professor *Hodge* (Cambridge, England) has hitherto acted, and if necessary will also act in future, as mediator between the Commission and Butterworth's. It is hoped that by 1957 the publication of the Directory will be either an accomplished fact, or, at worst, a matter no longer requiring the advice of the Commission.

## 2. Commission on the Exchange of Mathematicians

Through cooptation the Commission has been enlarged as follows: *H. Davenport* (Chairman), *M. Brelot*, *B. Eckmann*, *S. Iyanaga*, *A. Pleijel*, *B. Segre*, *W. Süß*, *W. Wunderlich*. With the help of the "Österreichische Mathematische Gesellschaft", the Commission has organized an information service concerning (i) mathematicians normally resident in non-European countries who are planning to visit one or more European countries, (ii) European mathematicians planning to visit European countries other than their own.

*In both cases, mathematicians are invited to communicate their plans to Professor W. Wunderlich, Technical University, Karlsplatz 13, Vienna, Austria*, indicating the addresses at which they may be reached (with dates if known), and any wishes they may have as to meeting mathematicians interested in particular fields, or living in particular countries. It may be helpful to indicate which language they speak. The information itself may be written in English, French, or German.

The details received will be reproduced by the office of I.M.N. and circulated from time to time. *Any individual or institution interested in receiving the circulars, should ask to be placed on the mailing list.* A post-card addressed to Professor *W. Wunderlich* will suffice for this purpose. The Commission itself cannot assume the task of arranging any visits or exchanges, nor does it dispose of any funds for this purpose. The members of the Commission are prepared to advise mathematicians who intend to visit their respective countries.

Towards the end of 1956 it might be desirable to see to what extent the information service has been useful, and whether it should be improved or extended.

A further project contemplated is that of preparing a detailed list of fellowships and scholarships and exchanges open to young mathematicians in the different countries. Such a list would supplement or even supersede the UNESCO handbook "Study Abroad" with respect to mathematics.

## 3. Commission on Scientific Publications.

Professor *R. P. Boas*, Chairman of the Commission, has asked the Secretary of IMU to give publicity to the following statement:

"The Commission on Scientific Publications of the IMU consists of *B. A. Amirà*, *R. P. Boas*, *W. Fenchel*, and *G. Sansone*. The Commission would be glad to receive suggestions from mathematicians about what problems it should study and what it might hope to accomplish. Suggestions may be sent to any of the members of the Commission, but should preferably be addressed to the Chairman *R. P. Boas*, Lunt Building, Northwestern University, Evanston, Illinois, U.S.A."

As to the activities for 1956 the Commission has reached, among others, the following tentative conclusions:

(1) A majority of the Commission feels that a mathematical lexicon is not greatly needed at the present time.

(2) The Commission believes that a new medium for the publication of short monographs on topics of current interest is needed, but it cannot yet decide whether a series like the "Ergebnisse" or an annual volume of

review articles would be better. A publisher has expressed an interest in a review volume and might be led to undertake publication if IMU gives its official blessing . . . (is this possible?)

The Commission will try to make definite plans for the publication described in (2).

It also plans to approach editors of mathematical journals by circular letter to see if they are willing to adopt a uniform style for reprints.

The Chairman has also informed us that the Academic Press of New York seems interested in the idea that the Commission on Scientific Publications may start some sort of annual review volume of articles on mathematics. The Chairman asks how far the IMU would be willing to go in supporting such a venture, and whether it would be willing to have "sponsored by the IMU" appear on the volumes, or something of that sort. — The Executive Committee of the IMU is in favor of these suggestions, which will be further examined.

#### 4. International Commission on Mathematical Instruction (ICMI).

At present, the ICMI has National Sub-commissions in the following 22 countries: Argentine, Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Great Britain, Greece, India, Israel, Italy, Japan, Luxembourg, Netherlands, Portugal, Sweden, Switzerland, United States of America, Yugoslavia. As emphasized in the "Lettre circulaire" (circular letter) printed in the International Mathematical News, Nr. 43/44 (Vienna, April 1956), the Office of the Commission is convinced that the work and the activity of the ICMI cannot be successful without the active help and cooperation of the Sub-commissions.

The same circular letter contains the three points which shall form the main objects of investigation and discussion within the Commission in the present and next years, namely: (1) Mathematical instruction up to the age of 15 years; (2) The scientific bases of mathematics in the secondary instruction; (3) Comparative study of the methods of initiation into geometry. It is hoped that ICMI will be able to give detailed and ample reports on the results of these discussions at the International Congress at Edinburgh in 1958.

The above mentioned and other objects of Mathematical Instruction were discussed at two international meetings, which were held at Münster (Germany) on October 31—November 1, 1955 and on May 27, 1956, respectively, under the chairmanship of Professor *Behnke*, President of the ICMI. The active participants at these meetings included *S. Bundgaard* (Denmark), *H. Freudenthal* (Netherlands), *G. Kurepa* (Yugoslavia), at the first, and *P. Burniat* (Belgium), *H. Freudenthal* (Netherlands), *J. C. H. Gerretsen* (Netherlands), *R. Gloden* (Luxembourg), *F. Hohenberg* (Austria), *H. Rau* (Germany), at the second meeting.

There have been two meetings of the Executive Committee of ICMI, the first at Geneva, July 2, 1955, and the second at Münster, May 27, 1956. Among others, the following resolutions were adopted in the second meeting: (1) An exhibition of books connected with mathematical instruction shall be prepared for the International Congress at Edinburgh in 1958. (2) Responding to a desire pronounced by some colleagues from India, the Executive Committee of ICMI recommends to the National Sub-commissions to send documents concerning the programs and the organization of mathematical instruction in their own countries to the Indian Sub-commission (Professor *K. Chandrasekharan*, Tata Institute, Bombay).

Furthermore, the President of ICMI will write to the Indian colleagues and suggest that a delegation be sent from India to other countries in order to study the problems and the conditions of mathematical education on the spot. (3) The Executive Committee wishes to draw attention to the fact that the journal "L'Enseignement Mathématique", issued at Geneva, is the official organ of the ICMI and that the editor of this journal will be glad to receive projects of articles of interest to a rather broad public.

## C — COLLOQUIA, CONFERENCES

During the period covered by this report, IMU acted as co-sponsor for three Colloquia on different mathematical fields, and for a Conference on mathematical education.

### 1. Colloquium for young topologists on Algebraic Topology, Oxford (England), June 28 to July 1, 1955.

In contrast to the usual type of international Colloquium, this one was meant to be a Colloquium expressly for the younger, mostly not yet internationally known mathematicians, the older, already renowned ones remaining in the background. The main idea, as brought forth by *J. H. C. Whitehead*, was to give young people from different countries an occasion to meet and to have plenty of discussions. There is good reason to assume that the Colloquium was a considerable success in this as well as in the strictly scientific respect. The entire mornings and twice an hour in the afternoon were taken up by short reports on research given exclusively by younger topologists. The remainder of the time was spent in discussions, in which the older mathematicians were also allowed to participate. Discussions and personal contacts were facilitated by the fact that all participants staid in the same College.

The Colloquium, which was recommended by the British National Committee for Mathematics, was financially supported by the British Council and the IMU. Chairman of the Organizing Committee was *J. H. C. Whitehead*. The delegates of IMU in this Committee were *H. Hopf* (representing the Executive Committee) and *W. V. D. Hodge*.

Attendants from abroad were: *A. Aeppli* (Switzerland), *P. Dedecker* (Belgium), *A. Dold* (Germany), *B. Eckmann* (Switzerland), *G. Hirsch* (Belgium), *H. Hopf* (Switzerland), *D. M. Kan* (Israel), *M. Kervaire* (Switzerland), *A. Kosinski* (Poland), *J. Milnor* (U.S.A.), *J. C. Moore* (U.S.A.), *F. Peterson* (U.S.A.), *D. Puppe* (Germany), *H. Röhrl* (Germany), *H. Schubert* (Germany), *H. Seifert* (Germany), *R. Thom* (France), *H. Toda* (Japan), *M. Vaccaro* (Italy), *E. Vesentini* (Italy).

*The following papers were read:*

<i>J. F. Adams:</i>	The loop space of a complex
<i>A. Aeppli:</i>	Modifikation von topologischen reellen und komplexen differenzierbaren Mannigfaltigkeiten
<i>W. D. Barcus:</i>	Track groups and homotopy classification of mappings
<i>P. Dedecker:</i>	A generalization of the spectral sequence
<i>A. Dold:</i>	The completeness of Wu's relations between the Stiefel-Whitney classes of compact manifolds

P. J. Hilton.	Quasi-Lie algebras and homotopy
D. M. Kan:	Abstract homotopy
M. Kervaire:	Homotopy and generalized curvatura integra
A. Kosinski:	(i) On $r$ -spaces, manifolds, etc. (ii) On some generalizations of antipodal theorems (report of work by J. W. Jaworowski)
J. Milnor:	Immersion of manifolds in a sphere
J. C. Moore.	Mappings of compact spaces in a sphere
F. Peterson:	Generalized cohomotopy groups
D. Puppe:	On sphere-like manifolds
H. Schubert:	Knots with two bridges
R. Thom:	Operations in real cohomology
H. Toda:	The homotopy groups of spheres and Lie groups
E. Vesentini:	Sur certaines champs de vecteurs et sur les points stationnaires de formes différentielles méromorphes d'une variété complexe compacte.

## 2. Colloquium on the Algebraic Theory of Numbers, Tokyo (Japan), September 8 to 13, 1955.

This Colloquium was organized by the Science Council of Japan and co-sponsored by the IMU. Chairman of the Organizing Committee was *S. Iyanaga*. The delegates of the I.M.U. in this Committee were *S. Mac Lane* (representing the Executive Committee), *K. Chandrasekharan* and *C. Chevalley*.

The following ten mathematicians from abroad attended the Colloquium: *E. Artin* (U.S.A.), *R. Brauer* (U.S.A.), *C. Chevalley* (U.S.A.), *M. Deuring* (Germany), *K. Iwasawa* (U.S.A.), *A. Néron* (France), *K. G. Ramannathan* (India), *J. P. Serre* (France), *A. Weil* (U.S.A.), *D. Zelinsky* (U.S.A.).

There were three public lectures (on the first day), 20 ordinary lectures and 17 short communications:

### *Public lectures:*

<i>E. Artin:</i>	Theory of Braids
<i>A. Weil:</i>	On the breeding of bigger and better zeta-functions
<i>C. Chevalley:</i>	Some remarks on mathematical journals

### *Ordinary lectures:*

<i>E. Artin:</i>	Representatives of the connected components of the idèle class group
<i>K. Iwasawa:</i>	Galois groups acting on the multiplicative groups of local fields
<i>A. Weil:</i>	On certain characters of idèle class groups
<i>R. Brauer:</i>	Number-theoretical investigations on groups of finite order
<i>T. Tannaka:</i>	On the generalized principal ideal theorem
<i>T. Kubota:</i>	Density in a family of abelian extension
<i>C. Chevalley:</i>	Projective imbedding of a group variety
<i>K. Yamazaki:</i>	Fibre spaces and sheaves in number theory
<i>D. Zelinsky:</i>	Cohomology of function fields and other algebras

- T. Nakayama (read by  
M. Kawada): A conjecture on the cohomology of algebraic number fields and the proof of its special case  
On complex multiplications
- G. Shimura: Jacobian varieties and number fields
- Y. Taniyama: Generalization of complex multiplication
- A. Weil: On zeta-functions of elliptic curves with singular modulus
- M. Deuring: On Siegel's modular functions
- I. Satake: Units of fixed points in involutorial algebras
- K. G. Ramanathan: Syzygy theory in local rings
- J. P. Serre: Arithmétique et classes de diviseurs sur les variétés algébriques
- A. Néron: Some results in the theory of the differential forms of the first kind on algebraic varieties
- Y. Nakai: The theory of multiplicity in local rings
- M. Nagata:

*Short communications:*

- F. Terada: A generalization of the principal ideal theorem
- K. Taketa: Über die Struktur der metabelschen Gruppen
- E. Inaba: On cohomology groups in a field which is complete with respect to a discrete valuation  
Cohomology theory for algebras
- M. Ikeda: On orthogonal groups over number fields
- T. Ono: On some extensions of Epstein's Z-series
- T. Tamagawa: Additive prime number theory in the totally real algebraic number field
- T. Tatzuza:
- K. Yamamoto: Theory of arithmetic linear transformations and its application to an elementary proof of Dirichlet's theorem about the primes in an arithmetic progression
- H. Morikawa: Cycles on algebraic varieties
- M. Narita: On the structure of complete local rings
- S. Takahashi: On Fermat function fields
- H. Kuniyoshi: Certain subfields of rational function fields
- K. Masuda: On the arithmetic on a Galois structure
- G. Azumaya: An existence theorem of algebras
- Y. Kawada: Some remarks on class formations
- M. Moriya: Zusammenhang zwischen 2-Kohomologiegruppe und Differenten
- N. Nakano: Idealtheorie in unendlichen algebraischen Zahlkörpern
- T. Morishima: On Fermat's last theorem

Proceedings will be issued by the Organizing Committee.

### 3. International Colloquium on Zeta Functions, Bombay (India) February 14 to 21, 1956.

The Colloquium was jointly sponsored, and financially supported, by the Government of India in the Ministry of Natural Resources and Scientific Research, the Sir Dorabji Tata Trust, the Tata Institute of Fundamental Research, and the IMU.

The proposal for the Colloquium brought forth by the Tata Institute of Fundamental Research, was endorsed by the National Committee for Mathematics in India, which acted as the principal agency for executing the plan of the Colloquium. The Tata Institute of Fundamental Research was the principal host institution. Chairman of the Organizing Committee was *K. Chandrasekharan*, Bombay. The delegates of the IMU in this Committee were *J. F. Koksma* (for the Executive Committee of IMU), *A. Selberg* and *C. L. Siegel*.

Attendants from abroad were: *Y. Akizuki* (Japan), *S. Bochner* (U.S.A.), *N. G. de Bruijn* (Netherlands), *S. Chowla* (U.S.A.), *M. Deuring* (Germany), *M. Eichler* (Germany), *R. C. Gunning* (U.S.A.), *M. Koecher* (Germany), *H. Maass* (Germany), *S. Mandelbrojt* (France), *A. Oppenheim* (Singapore), *H. Petersson* (Germany), *R. A. Rankin* (Great Britain), *I. Satake* (Japan), *A. Selberg* (U.S.A.), *C. L. Siegel* (Germany), *P. Turán* (Hungary).

*The following papers were read:*

<i>S. Bochner:</i>	<i>Gamma factors in functional equations</i>
<i>S. Bochner and K. Chandrasekharan:</i>	<i>On Riemann's functional equation</i>
<i>S. Chowla and A. Selberg:</i>	<i>On Epstein's zeta function</i>
<i>M. Deuring:</i>	<i>The zeta functions of algebraic curves and varieties</i>
<i>M. Eichler:</i>	<i>Modular correspondences and their representations</i>
<i>M. Koecher:</i>	<i>On the Hecke operators for modular forms of degree <math>n &gt; 1</math></i>
<i>H. Maass:</i>	<i>Spherical harmonics and theta series</i>
<i>H. Petersson:</i>	<i>On a certain kind of zetafuchsian functions</i>
<i>K. G. Ramanathan:</i>	<i>Quadratic forms over involutorial division algebras</i>
<i>R. A. Rankin:</i>	<i>The construction of automorphic forms from the derivatives of a given form</i>
<i>I. Satake:</i>	<i>Some remarks on Siegel's modular functions</i>
<i>A. Selberg:</i>	<i>Harmonic analysis and discontinuous groups in weakly symmetric Riemannian spaces, with application to Dirichlet series</i>
<i>C. L. Siegel:</i>	<i>A Generalization on the Epstein Zeta function</i>
<i>P. Turán:</i>	<i>On the zeros of the zeta function of Riemann</i>

The text of the papers and a detailed report on the Colloquium will be published.

#### 4. Conference on Mathematical Instruction in South Asia, Bombay (India), February 22 to 28, 1956.

The Conference was held at the Tata Institute of Fundamental Research, Bombay. Sponsoring and supporting institutions were the same as for the International Colloquium on Zeta Functions, thus including IMU, and furthermore UNESCO. Chairman of the Organizing Committee was *K. Chandrasekharan*, delegates of IMU in this Committee were *E. Bompiani*, Secretary of IMU, and *M. H. Stone*, Vice-President of ICMI.

The purpose of the Conference was to discuss, with special reference to South Asia, the problems of mathematical education at all levels, and to formulate plans for its sound development. The following countries from South Asia were represented: Burma, Ceylon, India, Indonesia, Malaya, Pakistan, Singapore, and Thailand.

The participation of interested mathematicians from all countries, South Asian and others, was not only welcomed, but positively encouraged. Australia, China, Poland, and the U.S.S.R., for instance, were thus represented. The members of the International Colloquium on Zeta Functions were also invited to participate in the Conference.

Furthermore, the following mathematicians who did not attend the Colloquium on Zeta functions and who came from countries other than the ones mentioned above attended the Conference: G. Choquet (France), E. Bompiani (Italy), H. Freudenthal (Netherlands), T. A. A. Broadbent (Great Britain), M. H. Stone (U.S.A.).

The Conference functioned in three parts: (i) invited addresses, (ii) working groups, (iii) plenary sessions. Beside the invited addresses, some special lectures were given on the invitation of the Organizing Committee.

*List of the invited addresses and special lectures:*

K. Chandrasekharan:	Presidential address
M. H. Stone:	Some crucial problems of mathematical instruction
G. Choquet:	Teaching in secondary schools and research
T. A. A. Broadbent:	Present-day problems in English mathematical education
A. Oppenheim:	The problems which face mathematicians in Singapore and the Federation of Malaya
H. Freudenthal:	Initiation into geometry
A. D. Alexandrov:	On mathematical education in the U. S. S. R.
G. Choquet:	New material and a new method for teaching elementary calculations in primary schools
E. Bompiani:	Report on mathematical instruction in Italy
T. A. A. Broadbent:	Typography and the teaching of mathematics
E. Marczewski:	Information on mathematical education in Poland
H. F. Tuan:	A brief account of the present situation of mathematical education in Chinese universities

A full report on the Conference has been published in "The Mathematical Student", vol. XXIV, 1956. This report contains the text of the addresses and of the special lectures, as well as all details on the working groups and plenary sessions.

This Conference on Mathematical Instruction was the first of its kind, and it is hoped that it may serve as a model for similar events in the future.

All of the four events, reported upon in this section, were great successes. The Executive Committee of IMU sincerely congratulates all national institutions and all individual persons to whose initiative and efforts these successes are due.

## D — RELATIONS WITH THE INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS (ICSU)

*Preliminary remark:* ICSU has two groups of members, namely "scientific members" (Unions) and "national members" (Countries, through adhering organizations). The Executive Board of ICSU consists of the Bureau and representatives of the scientific members, while the General Assembly includes representatives of all members, scientific and national. The Board holds a meeting every year, the General Assembly every third year.

There were meetings of the Board on August 8 to 9, 1955, and of the General Assembly on August 9 to 12, 1955, at Oslo, Norway. Chairman was Professor *B. Lindblad* (Sweden), President of ICSU. The representatives of IMU were *H. Hopf* and *J. F. Koksma*.

There is given below a small selection from the long list of the resolutions adopted and the topics discussed in these meetings:

(1) The financial subventions from UNESCO to the Unions for the year 1956 were discussed and allocated. — (IMU had applied for \$ 12000, the Bureau of ICSU had recommended the allocation of \$ 8000, and, after a protest made by IMU's delegates, \$ 8500 were finally allocated. This reduction of almost 30% corresponds to the average reduction met by all Unions. The total annual amount of UNESCO's subventions to ICSU is about \$ 180000.)

(2) The International Union of Physiological Sciences and the International Union of Biochemistry were admitted as scientific members of ICSU.

(3) The International Union of Scientific Psychology applied for admission to ICSU. The General Assembly resolved "that consideration of the admission of the International Union of Scientific Psychology to ICSU be deferred and that the International Union of Biological Sciences be invited to convene a committee of representatives of the International Unions of Biological Sciences, Physiological Sciences, Mathematics, Pure and Applied Physics, to prepare a report for the next meeting of the Executive Board on the place which Scientific Psychology might occupy in the framework of the ICSU organization".

(4) The International Union of the History of Science (member of ICSU) and the International Union of the Philosophy of Science (not member of ICSU) have set up a joint Union for the History and Philosophy of Science. This new Union (IUHPS) has now been admitted as scientific member of ICSU in lieu of the former Union of the History of Science (IUHS).

(5) The U.S.S.R. has unanimously been admitted as national member of ICSU. Adhering organization is the Academy of Sciences of the U.S.S.R. at Moscow.

(6) At present, the organization of the "International Geophysical Year" (1957/58) is considered to be the most important among ICSU's activities. In one of the sessions of the General Assembly, Professor *L. V. Berkner* (New York), Vice-President of the Special Committee for the International Geophysical Year, gave a highly interesting speech on this project. It is hoped that not only an outstanding amount of scientific results will be obtained, but that this event will also become a model for scientific cooperation between nearly all countries of the world.

(7) On the initiative of the International Union for Biological Sciences a resolution on the biological hazards of large fission and thermonuclear experiments was adopted, the most important parts of which read as follows: "The General Assembly of ICSU recognizing the rapidly increasing importance of nuclear energy processes in human affairs, recognizing that these processes have biological effects and other consequences, recognizing the duties of scientists to study and to evaluate these effects on living systems . . . . resolves that the members of ICSU be invited to undertake appropriate studies on the biological and other effects of nuclear radiations as a basis for the scientific assessment of their implications with respect to living systems; and, further, . . . . also resolves that ICSU offers to the United Nations through UNESCO its services in connection with the scientific aspects of such matters . . . .".

(8) The elections for the period 1955/58 resulted in the following composition of the Bureau:

President:	<i>L. V. Berkner</i> (U. S. A.)
Vice-President (3 years):	<i>K. S. Krishnan</i> (India)
Vice-President (6 years):	<i>P. Lejay</i> (France)
Treasurer:	<i>E. Herbays</i> (Belgium)
Secretary General:	<i>A. V. Hill</i> (Great Britain)
Retiring President:	<i>B. Lindblad</i> (Sweden)
Member (3 years):	<i>A. Engelhardt</i> (U. S. S. R.)
Member (6 years):	<i>A. Stoll</i> (Switzerland)

(9) The next meeting of the Executive Board of ICSU will be held in June 1956 at Bagnères-de-Bigorre (France), the next meeting of the General Assembly in summer 1958 at Washington.

## E — EXECUTIVE COMMITTEE (E. C.)

The members of IMU were informed by a letter dated May 30, 1956 (International Mathematical News Nr. 45/46, August 1956) of Professor *E. Bompiani's* resignation from the office of the Secretary of IMU, and that Professor *B. Eckmann* had been appointed as Secretary by the Executive Committee, the new address of the Secretariat now being: Ecole Polytechnique Fédérale, Zurich, Switzerland. In a further letter to the members of the same date, the President of IMU expressed the Executive Committee's feelings of gratitude towards Professor Bompiani.

Two meetings of the E.C. were held: the 5th meeting on May 3—4 and the 6th meeting on May 24, 1956, both at Paris. As a consequence of a car accident, Professor *Bompiani* was unable to attend the 5th meeting, but he was present at the 6th meeting. Professor *Denjoy* was absent from the 6th meeting because of his travel to the Congress of Mathematicians at Bukarest. All other members attended both meetings. Professor *Koksma* acted as Secretary in both meetings.

A great part of the discussions in these meetings dealt with the possibilities for new scientific activities of IMU, especially considering those activities which will contribute directly to the development of mathematics. In this connection, it was pointed out that up till now IMU has saved a great deal of its proper funds and that these funds might now be used for the above-mentioned purposes. At the time of the writing of this report, these discussions between members of the E.C., and between the E.C. and the Commissions, are still going on.

Among the other topics discussed and resolutions adopted in the meetings, the following should be mentioned here:

(1) It is resolved that a Colloquium co-sponsored by IMU should be called an *International Colloquium*, except in cases where this expression would be misleading.

(2) Upon applications received from the Finnish National Committee and the German National Committee, respectively, the E.C. decides to co-sponsor the following two Colloquia:

(a) *International Colloquium on the Theory of Functions*,  
Helsinki, August 12 to 18, 1957; Chairman: Professor R. Nevanlinna.

(b) *International Colloquium on Finite Groups*,  
Tübingen, Germany, latter part of August, 1957.  
Chairman: Professor H. Wielandt.

The following delegates from IMU to the Organizing Committees are appointed by the E.C.: Professor H. Hopf and Professor A. Pfluger for (a); Professor S. Mac Lane and Professor B. L. van der Waerden for (b).

(3) The Secretariat of ICSU has informed us that the subvention from UNESCO-ICSU to IMU for 1957 will amount to \$ 6200.—. The E.C. resolves to reserve out of these funds:

- \$ 2500.— for the Colloquium in Helsinki,
- \$ 1500.— for the Colloquium in Tübingen,
- \$ 1100.— for meetings of the ICMI in 1957.

(4) The E.C. appoints Professor J. F. Koksmá and Professor S. Mac Lane as delegates to the ICSU Board meeting at Bagnères-de-Bigorre, June 1956.

(5) A meeting of experts and a colloquium on modern computing devices will be held under the auspices of UNESCO at Rome from October 15 to 18, 1956. Upon receipt of a letter from Professor Auger (UNESCO) calling our attention to this meeting, it is resolved that the Chairman shall inform him of IMU's willingness to send an observer.

(6) The International Association for Analogical Calculus requested to be affiliated to IMU by a letter from Professor J. Hoffmann, Brussels (erroneously addressed to Professor Stone) of November 28, 1955, to the President of IMU. The E.C. is not in favour of this request, since the IMU, according to its statutes officially covering all special fields of mathematics itself, should not affiliate associations dealing with some of such special fields.

(7) Professor Hodge gave a detailed survey on the preparations of the International Congress at Edinburgh, 1958. The dates of the Congress are fixed for August 14 to 21. At the moment, no symposia are planned; therefore it is possible that ICSU-IMU money, originally allotted for colloquia, may be used directly for the Congress. The Executive Committee is highly in favour of giving the Congress the strongest financial support, this even from IMU's proper funds, in case other sources should fail.

(8) It is resolved that the next General Assembly of IMU will be held at St. Andrews in the period from August 11 to 13, 1958.

## F — FINANCIAL

### 1. Income in 1955

The two income sources are: a) dues paid by member nations;  
b) UNESCO-ICSU contributions.

a) In 1955 dues were paid at the Chase Manhattan Bank by 14 countries in the amount of \$ 2,282.00, and at the Banca Nazionale del Lavoro by 15 countries in the amount of Italian Lire 1,421,447.00. These amounts include a number of back dues for 1954.

Assuming the rate of exchange \$ 1 = It. Lire 625, the total income from membership dues in 1955 was approximately \$ 4,556.00.

At the end of December 1955 the dues of five nations were still outstanding (however all these dues have been paid in 1956).

b) UNESCO contributions through ICSU for 1955 in the various categories are as follows:

C.2 Publications	\$ 4,500.00
C.3 Executive Committee and Commissions	\$ 3,000.00
C.4 Symposia	\$ 4,500.00
Total	\$ 12,000.00

The approximate total income received in 1955 is:

a) Membership dues	\$ 4,556.00
b) UNESCO contributions	\$ 12,000.00
Total	\$ 16,556.00

It should be added that the balance returned to IMU of the sum allocated for Symposia in Amsterdam in 1954 (It. Lire 257.295) has been reimbursed to ICSU (in the equivalent amount of \$ 416.35).

### 2. Expenditures in 1955

a) Expenditures against IMU funds:

Items	Authorized	—Actual expenditures—	— Balance
Secretarial Help	\$ 1,800.00	\$ 1,248.00	\$ 552.00
Office expenses	\$ 600.00	\$ 295.00	\$ 305.00
Travelling expenses	\$ 750.00	\$ 3.00	\$ 747.00
President's expenses	\$ 250.00	\$ 100.00	\$ 150.00
ICSU contribution (1% of dues paid)	\$ 50.00	\$ 45.64	\$ 4.36
Public. and dissem. of IMU news	\$ 300.00	—	\$ 300.00
Accountant's fee	\$ 150.00	—	\$ 150.00
Contingencies	\$ 500.00	\$ 120.00	\$ 380.00
	\$ 4,400.00	\$ 1,811.64	\$ 2,588.36

The expenditures under contingencies were: \$ 70 for a meeting of ICMI and \$ 50 for office expenses of ICMI.

b) Expenditures against UNESCO contributions:

C.2	Proceedings of the International Congress in Amsterdam in 1954	\$ 4,500.00
	International Mathematical News	300.00
	Enseignement Mathématique	100.00
	Total	\$ 4,900.00
C.3	Travel expenses of members of the Executive Committee, including the meeting of the Executive Committee in Zurich, April 1955, representation of the Executive Committee at Symposia, and at General Assembly of ICSU	\$ 1,065.00
	Meeting of the Commission on the World Directory in London, October 21, 1955 and in Paris, October 27—28, 1955	\$ 250.00
	To the International Commission of Mathematical Instruction (ICMI)	\$ 750.00
	Total	\$ 2,065.00
C.4	Symposium in Oxford (June 28—July 1, 1955)	\$ 750.00
	Symposium in Tokyo (September 9—13, 1955)	\$ 4,000.00
	Total	\$ 4,750.00

*Remarks:*

1. Transfers from C.3 to C.2 and C.4 have been made in accordance with a general decision of the ICSU Executive Board allowing transfer of funds among the different categories.

2. Some of the expenditures accounted against ICSU allocation were not considered allowable by ICSU's administrative Secretary, while other expenses, originally accounted against IMU funds, were subsequently admitted to ICSU categories. As a result, the sum of \$ 256.80 shall be reimbursed to ICSU in 1956; this will reduce the active balance under 2a) above from \$ 2588.36 to \$ 2331.56.

3. Financial statement for the period January 1-December 31, 1955.

*Actual currencies carried*

	<i>Italian Lire</i>	\$	<i>French Francs</i>
<i>Opening Statement</i>			
Net Assets and Liabilities on December 31, 1954	294.820	6,888.89	1.534
- Assets	---	456.40	---
+ Liabilities	---	---	---
Bank balance and cash on hand to December 31, 1954	294.820	6,432.49	1.534

<i>Receipts</i>			
Dues for 1955	1,299.839	2,216.80	---
Dues for 1954	121.608	65.20	---
UNESCO contribution	---	12,000.00	---
Balance returned of the sum allocated for the Symposium in Amsterdam in 1954	257.295	---	---
Interest on account	2.727	---	---
<i>Totals</i>	1,681.469	14,282.00	---

<i>Expenditures</i>			
UNESCO expenditures C.2	---	4,900.00	---
UNESCO expenditures C.3	191.425	1,758.00	---
UNESCO expenditures C.4	---	4,750.00	---
Reimbursement to ICSU (balance of Symposium in Amsterdam)	---	416.35	---
Travelling expenses chargeable to IMU funds	---	3.00	---
President's expenses	---	100.00	---
10% contribution paid to ICSU for 1955	---	45.64	---
Bank Service Expenditures	930	0.75	---
ICMI	---	70.00	---
Prof. Behnke's Secretary	---	50.00	---
Secretarial Help	780.000	---	---
Postal and Office Expend.	184.420	---	---
<i>Totals</i>	1,156.775	12,093.74	---

#### *Closing Statement*

Bank balance and cash on hand to December 31, 1955	819.514	8,620.75	1,534
+ Assets	---	521.60	---
- Liabilities	---	---	---
Net Assets and Liabilities on December 31, 1955	819.514	9,142.35	1,534
Bank balance to December 31, 1954	294.820 +	6,432.49 +	1,534 +
Receipts	1,681.469 =	14,282.00 =	---
Expenditures	1,976.289 -	20,714.49 -	1,534 -
Balance on December 31, 1955	819.514	8,620.75	1,534

The undersigned Auditor of the IMU has checked the preceding accounts and found them correct, to the best of his information.

(signed B. de Finetti)

#### 4. Financial UNESCO grant for 1956 and requests for 1957.

a) Grants allocated to IMU by ICSU-UNESCO for 1956:

C.2 Publications	\$ 1,500.00
C.3 Executive Committee and Commissions	\$ 4,000.00
C.4 Symposia	\$ 3,000.00
Total	\$ 8,500.00

b) The following requests have been forwarded to ICSU for 1957:

C.2 Publications	\$ 1,500.00
C.3 Executive Committee and Commissions	\$ 5,000.00
C.4 Symposia	\$ 5,000.00
Total	\$ 11,500.00

The following allocations for 1957 have been granted by the ICSU Executive Board (Bagnères-de-Bigorre, June 1956):

C.2 Publications	\$ 1,000.00
C.3 Executive Committee and Commissions	\$ 2,500.00
C.4 Symposia	\$ 2,700.00
Total	\$ 6,200.00

As already remarked above, the Union is allowed to transfer sums from one category to another.

*End of the Bulletin of the International Mathematical Union*