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The International Mathematical Union and its work Report of the first session held at Rome *

(March 6-8, 1952)

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The new International Mathematical Union held its first General Assembly at Rome, March 6-8, 1952. The Assembly planned its activities up to the time of its next meeting, to be held in the Netherlands in 1954 in connection with the next International Congress of Mathematicians. The Assembly also elected officers of the Union, as follows: President, M. H. Stone (U. S.); First Vice President, E. Borel (France); Second Vice President, E. Kamke (Federal Republic of Germany); Secretary, E. Bompiani (Italy); and elected members of the Executive Committee, W. V. D. Hodge (U. K.), S. Iyanaga (Japan), and B. Jessen (Denmark).

The following 22 countries are now members of the Union: Argentina, Australia, Austria, Belgium, Canada, Cuba, Denmark, Finland, France, Federal Republic of Germany, Greece, Italy, Japan, the Netherlands, Norway, Pakistan, Peru, Spain, Switzerland, United Kingdom, the United States, and Yugoslavia. With the exception of Argentina, Canada, Cuba, and Pakistan, all these countries were represented at the Rome meeting. An application from Sweden for membership in the Union is now pending. The General Assembly was attended also by observers from Poland and Portugal. The United Nations Educational, Scientific and Cultural Organization (UNESCO) and the International Council of Scientific Unions sent representatives who participated in the work of the Assembly.

The function of the International Mathematical Union is to promote international cooperation and activities which favor the development of mathematics. The valuable work done by national mathematical organizations (such as the American Mathematical Society, the Mathematical Association of America, the Institute of Mathematical Statistics, the Association for Symbolic Logic, and the National Council of Teachers of Mathematics, to name the principal American mathematical organizations) needs to be supplemented and coordinated by an international organization in which common problems can be discussed and attacked for the common benefit. Among such problems are the facilitation of international travel by mathematicians (student mathematicians included) for scientific purposes; the organization of general and special scientific meetings of an international character, like the International Congress of Mathematicians (which has been held, except for interruptions due to World Wars I and II, at intervals of approximately 4 years since 1893); the solution of financial and technical difficulties obstructing the prompt

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publication and universal dissemination of mathematical discoveries and ideas; and the many problems arising from the need for teaching more mathematics to more young people in a world where science and technology are accelerating the already rapid changes in our old ways of life.

The Union will accept the adherence of any country which is mathematically active and which applies for membership in one of the five groups described in the statutes. The Union, moreover, will continue to urge the adherence of all mathematically active countries which are not yet members. It is also very encouraging that, as the U. S. delegation to the recent General Assembly has reported, the work of the Union has begun in a cordial spirit, permitting the Union to combine the best features of the various related proposals put forward in the debate on its program.

In the experience of mathematicians, personal associations through correspondence and at individual or group meetings are most fruitful for the development of mathematics. The discussion of current research and the exchange of ideas about mathematical problems under independent study by a number of different investigators are stimulating and helpful to a very significant degree. The Union believes that it can augment the opportunities for fruitful associations by publishing both a world directory of active mathematicians and a regular bulletin covering the news of current mathematical publications, international mathematical meetings, and individual travel by mathematicians. A committee is making plans for these publications.

WORK OF THE INTERNATIONAL COMMISSION

One of the most significant tasks to be undertaken by the Union will be the continuation and expansion of the work begun a number of years ago by the International Commission of Mathematical Instruction. This Commission proposed to the General Assembly that it be reconstituted as a Committee of the Union. At the Rome meeting the Assembly acted favorably on this proposal, and the Committee is now being organized. The problems of instruction which await consideration by the Committee are of wide variety. For example, the coming decades will see the establishment of systems of mass education in many countries where schooling has in the past been restricted to a fortunate few. The place of mathematical instruction in these new educational systems must be determined with attention to the requirements of the modern industrial society which is displacing the older agricultural forms of social organization throughout the world.

If democracy is to have any meaning in a complex industrial society, the people must know enough of mathematics to grasp the essentials of social security programs, taxation, crop controls, wage and price controls, and other features of governmental relations to the individual citizen which involve mathematical concepts and techniques. At the same time many trades and industrial activities demand mathematical skills above the level of mere mathematical literacy, and failure to provide for the acquisition of those skills within the system of mass education means the denial of opportunity to many a young man or woman starting out in life.

The problem of determining the place of mathematics cannot be divorced from technical considerations concerning teaching methods. If we judge by the results, we must find it difficult to escape from the conclusion that our attempts to teach mathematics as part of a program of mass education have so far been, to put it bluntly, a colossal failure, traceable to our ignorance and complacency in respect to the art of teaching.

No less important than elementary mathematical instruction is the training of

young scientists, including mathematicians, in the various branches of mathematics basic to scientific understanding and research. The student of man and his behavior, whether individual or social, stands increasingly in need of mathematical tools and the ability to use them. Thus, the problem of higher instruction in mathematics has to be examined in the light of the social scientist's needs quite as much as those of the natural scientist and engineer. The Committee on Mathematical Instruction can perform a valuable service by stressing the importance of this problem, as well as by stimulating the study of teaching methods and the preparation of teaching materials, particularly textbooks.

ROLE OF MATHEMATICS IN OUR SOCIETY

Whatever the Union may be able to do on behalf of progress in mathematics affects interests far wider than the obvious ones of the mathematical profession itself, because mathematics plays a vital role in the growth of our industrial civilization. Indeed, the capacity for national growth and development can be gauged rather accurately by the quality and extent of the national activity in mathematics. Advances in mathematical research are essential to advances in pure science, and hence to advances in technology.

Although the International Mathematical Union already has more than a score of member countries, its resources are limited and it must commence its work on a modest scale. By keeping the initial outlays at a minimum, the Union will be able to build up a small reserve fund, essential to its financial security. The Union hopes that the nature of its work may inspire the good will and the generosity of individuals and organizations both within and without the mathematical profession. It believes that some of its activities would be of interest to UNESCO, particularly that part of the work of the Committee on Mathematical Instruction which deals with mathematical literacy and secondary mathematics teaching.

In each country which adheres to the Union, a National Committee for Mathematics has been formed as the adhering organization for that country. In the United States the National Committee is a committee of the Division of Mathematics of the National Research Council, the adhering organization for the United States being the National Academy of Sciences-National Research Council. These National Committees for Mathematics will give continuing attention to relations between the Union and the adhering organizations. They can actively promote the work of the Union both by interpreting it to the people of their respective countries and by soliciting support for it from both governmental and private agencies. Above all, they can contribute strength to the Union by maintaining close contacts between the Union and the members of the mathematical profession in the various adhering countries.

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