

THE INTERNATIONAL CONGRESS OF MATHEMATICIANS AT ZURICH.

THE call issued last spring for an International Congress of Mathematicians, to be held at Zurich in August of the past summer, was responded to by two hundred mathematicians, Austria, Belgium, Denmark, England, Finland, *France, Germany, Greece, Holland, Hungary, Italy, Portugal, Russia, Spain, Sweden, Switzerland* and the United States being represented. Three-fourths of the total number of participants were from the countries whose names appear in italics, the contingent from each of these countries numbering over a dozen.

The Congress opened with a reception Sunday evening, 8 August. The first general session was held on Monday, 9 August, at 9 A. M., in the hall of the Polytechnic Institute and was opened by Professor Geiser, of Zurich. The Congress chose the following executive board :

President : Professor C. Geiser, of Zurich. *General Secretaries* : Professor F. Rudio and Professor J. Franel, of Zurich. *Secretaries to represent respectively the German, the French, the Italian and the English languages* : Dr. E. von Weber, of Munich ; Professor E. Borel, of Paris ; Professor V. Volterra, of Turin ; and Professor J. Pierpont, of Yale University. *Members at Large of the Board* : Professor F. Klein, of Göttingen ; Professor H. Poincaré, of Paris ; Professor E. Picard, of Paris ; Professor F. Brioschi, of Milan ; Professor F. Mertens, of Vienna ; Professor G. Mittag-Leffler, of Stockholm ; Professor H. Weber, of Strassburg ; and Dr. E. W. Hobson, of Christ's College, Cambridge.

The papers announced for this session were an address by Professor Poincaré : "On the reciprocal relations existing between pure analysis and mathematical physics ;" a report from the Committee by Professor Rudio : "On the functions and the organization of international mathematical congresses ;" and an address by Professor Hurwitz : "Modern development of the general theory of functions." Professor Poincaré was prevented from attending the Congress ; his paper was read by Professor Franel. Professor Rudio pointed out some of the more important ends that international congresses may serve. Personal intercourse between mathematicians of different countries would be promoted and a better understanding of one another's work would be attained. The historical development and

the present status of different branches of pure and applied mathematics, as well as individual problems of special importance could be treated in lectures held and reports made at the congresses. Such reports have for several years been an important feature of the proceedings of the *Deutsche Mathematiker-Vereinigung*, and they appear to present an eminently fit subject for international coöperation. "We should thus have in a short time," the speaker went on to say, "a sequence of historical monographs, and these would form (I am now following out an idea suggested by Mr. Eneström) a systematic continuation of that great work which Mr. M. Cantor is about to conclude with the year 1759 and whose continuation is far too vast a task for any one man.

"*Viribus unitis!* Let this be our watchword! With the union of our forces it will be possible to accomplish tasks that hitherto, in the absence of coöperation, could not even be attempted. To give an illustration. Here on Swiss soil you will pardon me if I take as such an edition of Euler's works, — a debt of honor, which the mathematical world has hitherto been unable to discharge. An important piece of preliminary work which must precede the direct attack of this great task has now been performed, — I mean the work of our American colleague, Mr. Hagen, who, as you know, published a year ago a complete list of Euler's works. From Mr. Hagen's writings you are aware, too, that an edition of these works is now no longer a chimerical project, nay, requires perhaps nothing more than international moral support."

Professor Rudio then mentioned without comment several further suggestions that the Committee had received: a directory, to appear if possible annually, of all the mathematicians of the world, with a statement of their special fields of work; a bibliographical and literary dictionary of all mathematicians now living, together with their portraits; and a bibliographical journal. Furthermore may be mentioned the institution of international scientific exhibitions, like the one that was held in Munich in 1893 under the direction of Professor Dyck. And questions of terminology might be dealt with by the Congress. The speaker closed by emphasizing strongly the need of coöperation in bibliographical matters and the services that the Congress could render here. He suggested a publication that should contain the exact title of every paper that appears in the world and that should be issued in such a form that the information it contained would be sent out

within a month, perhaps even within a week of the receipt of the same by the editors. Such a publication, he pointed out, would have to be preceded by a classification of mathematical literature which should have been universally adopted.

At one o'clock a banquet was served in the main hall of the *Tonhalle*. An excursion on the Lake of Zurich to Rapperschwyl followed and abundant opportunity was afforded the members for becoming acquainted with each other and for scientific discussions. The steamer returned to Zurich a little after nine o'clock.

Tuesday, 10 August, was devoted to the sessions of the various sections, a list of which, together with the name of the president of each one, is here appended.

Section I: Arithmetic and Algebra; Professor Mertens, of Vienna.

Section II: Analysis and Theory of Functions; Professor Picard, of Paris.

Section III: Geometry; Professor Reye, of Strassburg.

Section IV: Mechanics and Mathematical Physics; Professor Jung, of Milan.

Section V: History and Bibliography; Professor M. Cantor, of Heidelberg.

Most of the papers presented at these sessions were, as was to be expected, of a special nature.

The second general session was held on Wednesday, 11 August. Reports of committees were presented and it was voted to hold the next congress at Paris in 1900. On motion of Professor Picard it was voted to appoint as the committee of arrangements for that congress the executive board of the present congress. The third congress will probably be held in Germany in 1905, the period of five years being likely to be the one that will ultimately be adopted.

The papers announced for the session were an address by Professor Peano: "Mathematical logic"; and an address by Professor Klein: "On the question of instruction in higher mathematics." The congress adjourned shortly before noon and the members proceeded by special trains to the summit of the Uetli, where the closing banquet was served. The afternoon was warm, but not uncomfortable. The panorama of the Alps was unusually distinct and many remained till a late hour in the evening, enjoying the moonlight landscape that lay before and beneath them.

The transactions of the Congress, together with the papers presented, are to be published in full.

W. F. OSGOOD.