a few papers, one a discussion by Dr. Walter Hough of two great culture-plants of America, the palm and the agave. Further, the desirability of a uniform phonetic alphabet was discussed in a paper sent in by Mr. Jules Geddes, and another by Mr. J. N. B. Hewitt, which were discussed by Father Morice. At the following business meeting Vienna was chosen as the place of meeting of the next congress, which is to take place in 1908. After the business meeting the congress was closed by the president, Dr. Robert Bell, of Ottawa.

The success of the meeting at Quebec, and its peculiar character, were due particularly to the efforts of Monsignor J. C. K. Laflamme and of Dr. D. E. Dionne, the secretary-general. After the close of the congress, a number of excursions were made, which continued until Monday, the seventeenth.

A number of publications were presented to the congress by various organizations. The government of Quebec presented two books on the geographical names of Quebec, one by Dr. Roy, the other by Dr. Rouillard. The government of Mexico presented a special publication on the excavations at Teotihuacan, and three other contributions from the Department of the Inspection and Preservation of Archeological Monuments, all prepared by Mr. Batres. The University of California sent the important papers by Professors Putnam and Merriam on cave explorations in California. The government of Ontario sent copies of its archeological report, which contains a general summary of Canadian ethnology, prepared by a number of contributors. The University of Pennsylvania dedicated to the congress the first part of the second volume of the *Transactions* of the Department of Archeology, containing articles on the decorative art of Crete, by Edith H. Hall; notes on Xochicalco, by Miss Breton; notes on the Western Eskimo, by Dr. Gordon; and notes on an engraved bone from Ohio, also by Dr. Gordon. Mr. Charles P. Bowditch presented to the congress a paper relating to his Maya studies. The American Anthropological Association presented a useful summary of anthropological activities in the United States since the meeting of the congress in New York in 1902. A special number prepared by the publishers of *Globus* unfortunately did not reach Quebec in time. The Society of Americanists of Paris presented a set of its publications to the congress, and copies of the last number of its publications to all the members of the congress. Mr. Teobert Maler sent a valuable set of blue-prints of his plans and drawings.

THE AMERICAN MATHEMATICAL SOCIETY.

The thirteenth summer meeting and fifth colloquium of the society were held at Yale University, extending through the week September 3–8. Monday and Tuesday were devoted to the presentation of the thirty-four papers on the program of the regular meeting. President W. F. Osgood and ex-President E. H. Moore occupied the chair. Forty-six members were in attendance. The following new members were elected: William Beebe, Yale University; J. B. Clarke, San Francisco Polytechnic High School; E. C. Colpitts, Cornell University; Brother Constantius, St. Louis Christian Brothers College; G. W. Droke, University of Arkansas; R. M. Ginnings, State Normal School, Kirksville, Mo.; Harriet E. Glazier, Western College for Women; C. O. Gunther, Stevens Institute; W. G. Hurwitz, University of Missouri; G. O. James, Washington University; B. F. Johnson, State Normal School, Cape Girardeau, Mo.; E. B. Morrow, Princeton University; G. B. Obear, Brown University; F. M. Pedersen, New York City College; G. A. Rose, Hardin College; R. L.

Short, Chicago, Ill.; Betty Trier, Mount Holyoke College; J. W. Withers, St. Louis Teachers College. Thirteen applications for membership were received. The total membership of the society is now about 540.

A committee consisting of Professors Bôcher, Van Vleck and Townsend was appointed to report to the council at the October meeting a list of nominations of officers to be elected at the annual meeting in December. Steps were also taken toward amending the constitution to include the editorial committee of the *Transactions* in the membership of the council, and toward increasing the sale of the Chicago Mathematical Papers and the Boston Colloquium Lectures published by the society.

One of the most valuable of the society's institutions, and one as regards which it stands alone among similar organizations, is the colloquium, or course of lectures on recent important advances in the science given at intervals of two or three years by specialists in the fields covered. The fifth of the series opened on Wednesday morning and extended to Saturday noon. Three courses were given, as follows: By Professor E. H. Moore, five lectures 'On the theory of bilinear functional operations'; by Professor E. J. Wilczynski, four lectures on 'Projective differential geometry'; by Professor Max Mason, four lectures on 'Selected topics in the theory of boundary value problems of differential equations.' Forty-three persons attended these courses.

On Tuesday afternoon the visitors were conducted through the grounds and buildings of the university. Thursday afternoon and evening were devoted to an excursion to the shore of Long Island Sound. Throughout the meeting, the Graduates Club was the center for large and small gatherings. The hospitality of the university and its officers was gratefully acknowledged by appropriate resolutions and will long be remembered by all who were present at the meeting.

The following papers were read at the summer meeting.

A. R. SCHWEITZER: 'Systems of axioms for projective geometry.'

A. R. SCHWEITZER: 'Concerning abstract geometrical relations.'

O. D. KELLOGG: 'The behavior on the boundary of harmonic functions of a region.'

F. R. SHARPE: 'The motion of a viscous gas.'

R. D. CARMICHAEL: 'Multiply perfect numbers of three different primes.'

LUDWIG STICKELBERGER: 'Zur Theorie der vollständig reduciblen Gruppen die zu einer Gruppe linearer homogener Substitionen gehören.'

W. B. FITE: 'Irreducible linear homogeneous groups whose orders are powers of a prime.'

ARTHUR RANUM: 'The group of classes of congruent matrices and its application to the group of isomorphisms of any abelian group.'

R. G. D. RICHARDSON: 'On the reduction of multiple integrals.'

G. D. BIRKHOFF: 'On a certain class of sets of normed orthogonal functions.'

W. B. CARVER: 'Associated configurations of the Cayley-Veronese class.'

L. E. DICKSON: 'On commutative linear algebras in which division is always uniquely possible.'

L. E. DICKSON: 'Uniform definitions of the abstract forms of the various known systems of linear groups.'

L. E. DICKSON: 'Criteria for the irreducibility of functions in a finite field.'

L. E. DICKSON: 'On the theory of equations in a modular field.'

JAMES MCMAHON: 'The differential geometry of the general vector field.'

W. A. MANNING: 'A note on transitive groups.'

C. H. SISAM: 'On systems of conics lying on surfaces of the third, fourth and fifth orders.'

VIRGIL SNYDER: 'Plane quintic curves which possess a group of linear transformations.'

MAX MASON: 'The expansion of an arbitrary function in terms of normal functions.'

MAX MASON: 'The boundary value problems of differential equations of hyperbolic type.'

EDWARD KASNER: 'The inverse problem of dynamics.'

EDWARD KASNER: 'The geometry of dynamical trajectories.'

J. W. YOUNG: 'General theory of approxima-

tion by functions with a given number of parameters.'

J. I. Hutchinson: 'On loci the coordinates of whose points are abelian functions of three parameters.'

L. P. Eisenhart: 'Applicable surfaces with asymptotic lines of one surface corresponding to a conjugate system of another.'

H. B. Leonard: 'On the factoring of composite hypercomplex number systems.'

Frank Morley: 'Reflexive geometry.'

G. A. Miller: 'Generalization of the groups of genus zero.'

E. B. Wilson: 'On divergence and curl.'

E. B. Wilson: 'Oblique reflections and unimodular strains.'

E. B. Wilson: 'Double products and strains in n dimensions.'

F. R. Moulton: 'A class of three dimensional periodic orbits in the problem of three bodies, with applications to the lunar theory.'

Oskar Bolza: 'Weierstrass's theorem and Kneser's theorem on transversals for the most general case of an extremum of a simple definite integral.'

The next meeting of the society will be held at Columbia University on Saturday, October 27. The San Francisco Section met at the University of California on Saturday, September 29.

F. N. Cole,
Secretary.

THE EDINBURGH MUSEUM.

The Edinburgh museum challenges attention. It is significantly *useful,* and seems to attempt to make its collections supplementary to class-room study; nor is there any hesitancy shown in displaying specimens to the limits of its capacity, as long as they contribute in the slightest degree to the need of the student. Its methods of installation are not expensive or elaborate, but they show painstaking care, considerable ingenuity and promise to be made progressively better and more complete.

There can be no question as to the richness of its possessions in geology and lithology and Scottish mineralogy, nor is there reason to look askance upon their splendid biological demonstrations. The writer enjoyed the opportunity of only one or two visits to its crowded halls, and then confined his attention to the departments of natural history, which are in it associated with very satisfactory, in some instances most valuable, collections, illustrating machinery, fictile art, ceramics, design, ethnology, sculpture, architecture, industries, chemistry, navigation, archeology and house furnishings.

There are evidences in many places of unfinished plans, of reorganization and experiment, but the museum indubitably claims the attention, and admiration, in some ways, of every museum promoter and officer, and its own relations to the inquisitive Scotch public are wholesome and helpful.

Criticism in some particulars might naturally be provoked as where in one hall or room, mammals, birds, insects, crustaceans, fish, shells, echinoids and hydrozoans are grouped together, and in another invertebrate fossils and birds, while in a third there are discovered birds, invertebrate fossils and corals. This peculiar juxtaposition is doubtless referable to want of space, capacious as the museum is, and not in all instances to the aims of comparative study.

The museum is on Chamber Street between South and George Bridge Streets, beyond St. Giles cathedral, not far from the university, and opposite the Watt College. It consists of a long (250 feet) three-storied skylighted oblong section with terminal buildings disposed at right angles to the axis of the main structure, and similarly arranged in three stories with skylights, except that their anterior portions are also illuminated by the introduction of wall windows. Back of the main series of halls or galleries, as they might be called, are three large rectangular