gave a general lecture on "The Duplicity of Logic" on the evening of the first day's session. Dr. Marshall H. Stone, professor of mathematics at Harvard University, spoke on "Boolean Algebra," and Dr. John von Neumann, of the Institute for Advanced Study at Princeton, on "Continuous Geometry." Dr. Garrett Birkhoff, of Harvard University, read a paper on "Partially-Ordered Function Spaces." He has collaborated with Dr. von Neumann in writings on several mathematical subjects. Dr. Oystein Ore, of Yale University, discussed "Structures and Their Application." Participants from the University of Chicago were Dr. A. Adrian Albert, professor of mathematics, and Dr. J. K. Senior, professor of chemistry, who discussed certain applications of algebra to chemistry.

The University of Notre Dame was represented by Dr. Karl Menger, associate professor of mathematics, formerly professor of mathematics at the University of Vienna and a visiting professor at Harvard University and the Rice Institute, and Dr. Emil Artin, associate professor of mathematics, who was formerly professor of mathematics at the University of Hamburg and is known for his work on the theory of numbers. He gave the concluding address on "Geometric Aspects of an Algebraic Subject." Dr. Arthur N. Milgram, also of Notre Dame, presented a paper on "A Theorem on the Algebra of Geometry."

In addition to those mathematicians who presented formal papers, a number of foreign mathematicians attended the sessions. Among these were the Canon Lemâitre, who arrived recently from Louvain, Belgium, to assume his post as visiting professor at Notre Dame during the second semester.

THE WILLIAM LOWELL PUTNAM MATHEMATICAL COMPETITION

THE Mathematical Association of America, an organization of nearly two thousand teachers of college mathematics, announces an intercollegiate mathematical competition to be held for a period of at least three years beginning with the spring of 1938. It is designed to stimulate a healthful rivalry in the undergraduate work of mathematical departments in colleges and universities of the United States and Canada. This is made possible by the trustees of the William Lowell Putnam Intercollegiate Memorial Fund, left by Mrs. Putnam in memory of her husband, a member of the Harvard class of 1882. The competition is open only to undergraduates who have not received a degree. A full announcement is being made through *The American Mathematical Monthly* and by letters to the heads of the departments of mathematics. The first examination will be held on Saturday, April 16.

The examinations will be constructed so as to test not only technical competence but also originality. The groundwork of knowledge required for the examination is such as would usually be met by two years in the calculus, a half year's work each in higher algebra and differential equations and a year's work in analytic geometry.

Any college or university may enter individual contestants or a team of three persons; the largest awards go to the latter. There will be awarded to the departments of mathematics of the institutions which have the first three winning teams the sums of $500, $300, $200 in the order of their rank. There will be awarded to each member of the three winning teams and to each of the first five contestants a suitable medal indicating his success in the competition and, in addition, to each member of the three winning teams a prize of fifty dollars, thirty dollars or twenty dollars, according to the rank of his team, and to each of the first five contestants a prize of fifty dollars.

For further encouragement of the competition by the trustees of the fund, there will be awarded at Harvard University[1] an annual $1,000 William Lowell Putnam Prize Scholarship to one of the first five contestants, this scholarship to be available for one of the two following academic years, at the option of the recipient.

The records will be available to all institutions interested, and the association is sponsoring this plan in the hope that other institutions may find it possible to offer scholarships to winners in the contest.

GRANTS FOR RESEARCH OF THE GEOLOGICAL SOCIETY OF AMERICA

RECENT grants made by the Geological Society of America in furtherance of research are as follows:

$10,300 to Francis P. Shepard, of the University of Illinois, in cooperation with the Scripps Institution of the University of California at La Jolla, California, for the investigation of the physiography, current dynamics and sedimentation in selected areas of the sea floor off the California coast.

$1,000 to W. F. Prouty, Chapel Hill, North Carolina, for magnetometer study of the origin of the "Carolina bays" of the Atlantic Coastal Plain suspected by some geologists to have been due to a shower of meteors.

$254 to John T. Lonsdale, Ames, Iowa, for a petrographic study of igneous rocks from the Terlingua district, Texas.

$572 to George M. Schwartz, Minneapolis, Minnesota, and A. E. Sandberg, Cincinnati, Ohio, analyses of several phases of three Keweenawan sills closely related to the Duluth gabbro.

$1,000 to Arthur C. Veatch, New York City, for continuation of his investigation, in cooperation with the United States Coast and Geodetic Survey, of submarine

[1] Or at Radcliffe College, in the case of a woman.