

berlin (T. C.) was led by his study of glacial climates to formulate several hypotheses which have done much to advance geology (see "The Origin of the Earth"). The recently published work of Ellsworth Huntington concerning changes of climate is of notable interest to geologists. The data he has accumulated and the stimulating hypotheses he has advanced to interpret these data are worthy of most serious consideration. The importance of climate and the promised fruitfulness of its study has led the speaker to attempt to facilitate its study by summarizing what is known as to climate under the title "Laws of Climate." This summary will be published soon in *The Monthly Weather Review*.

A notable case of successive stream piracy in southern Indiana: CLYDE A. MALOTT. This paper deals with the Knobstone cuesta region lying between the Muscatatook and Ohio Rivers near the eastern margin of the driftless area of southern Indiana. Its purpose is to show specifically the responsibility of the geologic structure and topographic condition in drainage adjustment. Details shown how the particular lithologic units with their regional westward dip are important conditioning factors in giving rise to topographic forms. Other conditioning factors scarcely less important are the so-called time factors, such as various uplifts, rejuvenation and glaciation. The peculiarity of the streams flowing east from the Knobstone escarpment is noted. Blue River with its peculiar unchanging gradient is discussed in some detail, as it is representative of all the streams on the back-slope of the cuesta. It is shown that the piracy of the Muddy Fork of Silver Creek has taken place as a result of the geologic structure and topographic condition along the Knobstone cuesta. It is not a single instance of piracy, but consists of successive piracy wherein a large number of tributaries belonging to a single system have been annexed one after another to the drainage system of the invading stream. Some 35 square miles have been stolen. The conditions are highly favorable for piracy to continue, and eventually the largest part of the Muddy Fork of Blue River will be taken over by the Muddy Fork of Silver Creek. Such piracy will continue until a balanced condition of the gradients of the two stream systems is reached. Such a condition will mark the beginning of old age of the stream systems, when stream adjustments are practically complete.

The Satsop formation and structure of the Cascade range: J. HARLEN BRETZ.

Geotectonic economy of thrust-faulting: CHARLES R. KEYES.

ROLLIN T. CHAMBERLIN,
Secretary

THE AMERICAN MATHEMATICAL SOCIETY

THE two hundred and tenth regular meeting of the society was held at Columbia University on Saturday, April 24, extending through the usual morning and afternoon sessions. The total attendance exceeded one hundred and thirty and included eighty-two members. President Frank Morley occupied the chair, yielding it to ex-President R. S. Woodward during the presentation of the papers on relativity at the afternoon session. The Council reported the election of the following persons to membership in the Society: Professor H. S. Everett, Bucknell University; Dr. J. L. Rouse, University of Michigan; Professor Nilos Sakellariou, University of Athens; Mr. H. L. Smith, University of Wisconsin; Professor Eugene Taylor, University of Wisconsin; Professor W. P. Webber, University of Pittsburgh. Thirteen applications for membership were received.

Professor L. P. Eisenhart was reelected to the Editorial Committee of the *Transactions*, for a term of three years. Professor P. F. Smith will retire from the Editorial Committee on October 1, after nine years' service as editor, and Professor G. D. Birkhoff will fill out Professor Smith's unexpired term. Professor Oswald Veblen was appointed a representative of the society in the Division of Physical Sciences of the National Research Council for a term of three years. Professor Veblen's Cambridge Colloquium lectures on Analysis Situs will be published by the society in the fall. Committees were appointed to confer with a committee of the Mathematical Association on joint plans for future meetings and to prepare nominations for officers for the annual election next December.

On the recommendation of the Council it was unanimously voted to incorporate the society under the membership corporations law of the state of New York. The new form of organization will involve hardly any changes beyond those necessary to comply with legal requirements. The board of trustees will be composed of those members of the Council who are elected by the society, the ex-officio members not being eligible as trustees. Otherwise the constitution and by-laws, which have come down from the beginnings of the so-

ciety and which are a highly efficient instrument of government, well worthy of study, will remain practically as they stand.

The committee on reorganization of the society is actively engaged in preparing plans for carrying on the administrative work after the present year and enlarging the society's income. It will make specific recommendations at a later meeting. A report was received from the committee on the International Mathematical Union, and the formation of an American Section of the Union was approved. The report of the committee on bibliography, recommending the establishment of a journal of mathematical abstracts, was approved, and the committee was authorized to take steps toward securing the necessary financial support.

In the interval between the sessions over fifty members and friends took luncheon at the Faculty Club; thirty gathered there at the dinner after the meeting.

The greater part of the afternoon session was devoted to a symposium on Relativity at which the following papers were presented:

1. "The physical and philosophical significance of the principle of relativity," by Professor Leigh Page, of Yale University.

2. "Geometric aspects of the Einstein theory," by Professor L. P. Eisenhart, of Princeton University.

The regular program consisted of the following papers:

N. A. Court: "On a pencil of nodal cubics."

E. L. Post: "Introduction to a general theory of elementary propositions."

E. L. Post: "Determination of all closed systems of truth tables."

Jesse Douglas: "The dual of area and volume."

J. K. Whittemore: "Reciprocity in a problem of relative maxima and minima."

I. A. Barnett: "Linear partial differential equations with a continuous infinitude of variables."

I. A. Barnett: "Functionals invariant under one-parameter continuous groups in the space of continuous functions."

T. R. Hollcroft: "A classification of plane involutions of order four."

Tobias Dantzig: "A group of line-to-line transformations."

A. R. Schweitzer: "On the iterative properties of the abstract field."

J. F. Ritt: "On the conformal mapping of a region into a part of itself."

L. R. Ford: "A theorem relative to rational approximations to irrational complex numbers."

L. E. Dickson: "Recent progress in the theory of numbers."

G. D. Birkhoff: "Note on the ordinary linear differential equation of the second order."

Joseph Lipka: "The motion of a particle on a surface under any positional forces."

Joseph Lipka: "Note on velocity systems in a general curved space of n dimensions."

J. E. Rowe: "Testing the legitimacy of empirical equations by an analytical method."

Oswald Veblen: "Relations between certain matrices used in analysis situs."

O. D. Kellogg: "A simple proof of a closure theorem for orthogonal function sets."

C. L. E. Moore: "Rotation surfaces of constant curvature in a space of four dimensions."

H. S. Vandiver: "On Kummer's memoir of 1857 concerning Fermat's last theorem."

Nilos Sakellariou: "A note on the theory of flexion."

Abstracts of the papers will be published in the secretary's report in the July issue of the society's *Bulletin*.

The Chicago Section held a two-day meeting at Chicago on April 9-10, the program including a symposium on the Maxwell field equations and the theory of relativity. The San Francisco Section met at Stanford University on April 10.

The twenty-seventh summer meeting and ninth colloquium of the society will be held at the University of Chicago during the week of September 6-11. The colloquium will open on Wednesday, and will consist of two courses of five lectures each by Professor G. D. Birkhoff, of Harvard University, on "Dynamical systems," and Professor F. R. Moulton, of the University of Chicago, on "Certain topics in functions of infinitely many variables."

F. N. COLE,
Secretary

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