a belt a few miles wide near the Mississippi River. In this succession of strata all of the series, or larger divisions, of the Devonian system recognized in the New York section are present, as shown in the following table of formations:

Devonian formations present in southwest Illinois:

Upper Devonian.
  Chautauquan series.
    Mountain Glen shale, 45 feet.
  Senecan series.
    Alto formation, 90 feet.
Middle Devonian.
  Erian series.
    Lingle limestone, 90 feet.
    Misenheimer shale, 35 feet.
  Ulsterian series.
    Grand Tower limestone, 125 feet.
    Dutch Creek sandstone, 30 feet.
    Clear Creek chert, 300 feet.
Lower Devonian.
  Oriskanian series.
    Rocks of this age are not known to occur in the state, but they are present farther northwest in Missouri; and farther southeast, in western Tennessee. Remnants are probably present in Illinois, but concealed beneath younger strata.
  Helderbergian series.
    Back-bone limestone, 65 feet.
    Bailey limestone, 100 feet.

ROLLIN T. CHAMBERLIN,
Secretary

(*To be continued*)

THE AMERICAN GEOPHYSICAL UNION

THE first annual meeting of the American Geophysical Union was held in the forenoon of April 23, 1920, at the offices of the National Research Council in Washington. At this meeting the permanent organization of this body was completed, amendments to its statutes were adopted, by-laws were enacted, officers of the Union were elected and the elections of officers of the sections conducted by mail ballot were ratified.

Reports were submitted by the American officers of the sections of the International Geodetic and Geophysical Union describing the progress made in the organization of these international sections. A report was submitted from the acting executive committee covering the work of preparation for the annual meeting.

A brief exposition was given of the status and functions of the American Geophysical Union, on the one hand, in relation to the parent bodies, the International Research Council, the National Research Council and the International Geodetic and Geophysical Union, and on the other, in relation to the branches of science embraced under the term "geophysics" and specifically included in the sections of the union.

For each of the sections addresses were made by the chairman, setting forth in outline various problems of interest to the sections. These addresses constituted brief surveys of the research needs of the various branches of geophysics. They will be prepared for publication and issued at a later date.

Officers were elected to serve from July 1, 1920, as follows: American Geophysical Union: *Chairman,* Wm. Bowie for two years; *Vice-chairman,* L. A. Bauer, for two years; *Secretary,* H. O. Wood, for three years; Section (*a*), Geodesy; *Chairman,* Wm. Bowie, for two years; *Vice-chairman,* J. F. Hayford, for two years; *Secretary,* H O. Wood, for three years; Section (*b*), Seismology; *Chairman,* H. F. Reid, for two years; *Vice-chairman,* J. C. Branner, for two years; *Secretary,* H. O. Wood, for three years; Section (*c*), Meteorology, *Chairman,* C. F. Marvin, for two years; *Vice-chairman,* W. J. Humphreys, for two years; *Secretary,* A. J. Henry, for three years; Section (*d*), Terrestrial Magnetism and Electricity, *Chairman,* L. A. Bauer, for two years; *Vice-chairman,* W. F. G. Swann, for two years; *Secretary,* J. A. Fleming, for three years; Section (*e*), Physical Oceanography; *Chairman,* G. W. Littlehales, for two years; *Vice-chairman,* tie vote, no election; *Secretary,* J. T. Watkins, for three years; Section (*f*) Volcanology; *Chairman,* H. W. Washington, for two years; *Vice-chairman,* R. A. Daly, for two years; *Secretary,* H. O. Wood, for three years.

HARRY O. WOOD,
Secretary

THE NATIONAL ACADEMY OF SCIENCES

THE program of the scientific sessions of the annual meeting, held in Washington on April 26 and 27, was as follows:

MONDAY, APRIL 26

Morning Session

Conservation of natural resources as a proper function of the National Academy: JOHN M. CLARKE.

On the rate of growth of the population of the United States since 1790 and its mathematical expression: RAYMOND PEARL.

Growth and development as determined by environmental influences: FRANZ BOAS.

Plural births in man: Charles B. Davenport.

Dynamical aspects of injury, recovery and death: W. J. V. Osterhout.

The importance of the presence of both sympathetic superior cervical ganglia to the maintenance of life; and their possible relations to respiratory diseases: Samuel J. Meltzer.

The National Research Council: James R. Angell.

A psychological study of the medical officers in the Army: Robert M. Yerkes.

Afternoon Session

Spectroscopic phenomena of very long vacuum tubes: Robert W. Wood.

The measurement of small time intervals and some applications, principally ballistic (introduced by Arthur G. Webster): L. T. E. Thompson, C. N. Hickman and N. Riffolt.

The effect of molecular structure upon the reflection of molecules from the surface of liquids and solids: Robert A. Millikan.

The Springfield rifle and the Leduc formula: Arthur G. Webster.

On the internal ballistics of the Springfield rifle: Arthur G. Webster.

The 100-inch Hooker telescope of the Mt. Wilson Observatory: George E. Hale.

The vertical interferometer: Preliminary tests in an attempt to measure the diameter of the stars; A modification of the Foucault method adapted to long-distance measurement of the velocity of light: A. A. Michelson.

Preliminary measurements on the pressures in the "Onde de Choc": Arthur G. Webster.

On the specific heat of powder gases: Arthur G. Webster.

Thermal conductivity of metals: Edwin H. Hall.

Evening Session

The scale of the universe: Harlow Shapley, Mount Wilson Solar Observatory, and Heber D. Curtis, Lick Observatory (open to the public). U. S. National Museum (main auditorium). (William Ellery Hale Lectures.)

TUESDAY, APRIL 27

Morning Session

Distribution and villages of the Indian tribes of the Klamath River region, California: C. Hart Merriam.

Significance of correlation in function between the dentition and skeleton of the Sabre-tooth tiger: John C. Merriam.

On the colonial nervous system of Renilla: George H. Parker.

The genus Botrychium and its relationships: Douglas H. Campbell.

The influence of cold in stimulating the growth of plants: Frederick V. Coville.

Some common foods as sources of vitamines: Thomas B. Osborne and Lafayette B. Mendel.

The physico-chemical properties of hæmoglobin: Lawrence J. Henderson.

The direct combination of nitrogen and chlorine: William A. Noyes.

Valance and chemical affinity: Gilbert N. Lewis.

Afternoon Session

Shock of water ram in pipe lines with imperfect reflection at the discharge end and including the effect of friction and non-uniform change of valve opening: William F. Durand.

Recent notable progress in the theory of numbers: Leonard E. Dickson.

Geodesics and relativity: Edward Kasner.

The use of alternating currents for submarine cable transmission (introduced by G. O. Squier): F. E. Pernot.

Improvements in telegraphy: George O. Squier.

The air resistance of spheres: Lyman J. Briggs.

The possibilities of the rocket in weather forecasting: Robert H. Goddard.

The distribution of land and water on the earth: H. Fielding Reid.

The alterations of limestones in contact-metamorphism: Waldemar Lindgren.

Structure of Marrella and allied middle Cambrian crustaceans: Charles D. Walcott.

On a single numerical index of the age distribution of a population (by title): Raymond Pearl.

Biographical memoir of George Jarvis Brush (by title): Edward S. Dana.

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