versed by an electric current, was rotated about its axis at uniform speed. The inner armature of the condenser was then insulated from the outer, after which the magnetic field was annulled and the rotation stopped. The inner armature was then tested for electric charge.

The second series of experiments was similar to the first except that the magnetic field was produced by two symmetrical electromagnets mounted coaxially with the condenser and rotated together at the same speed.

In neither series of experiments was there detected upon the condenser any charge as great as the experimental error (see below).

Now it is an immediate consequence of the classical experiments of Faraday and others upon the electromotive force developed in a metal disc rotating in a magnetic field produced by a *fixed* electric coil or magnet, together with experiments of Blondlot,[1] H. A. Wilson,[2] and myself[3] upon the electric charges developed on adjacent conductors by the motion of insulators in magnetic fields produced by fixed coils or magnets, that, if the complete condenser and its short-circuiting wire had been rotated while the coil or magnets remained fixed, the armature tested would have received a charge equal to the continued product of the capacity of the condenser as it would be with air or free ether as dielectric, the magnetic flux through the space between the armatures, and the number of revolutions of the condenser per second. Moreover, it follows from the above mentioned experiments on insulators that if the condenser's dielectric is air, as in my own experiments, it is of no consequence whether the air rotates with the armatures or not.

It was thus easy to calculate the charge which would have been developed upon the condenser in each of my experiments for the same relative motion between it and the complete field-producing agent, but with this agent at rest and the condenser in motion.

The investigation proved conclusively that the condenser system, when it remained at rest and the agent producing the field rotated, received not more than a minute fraction of the charge it would have received for the same relative motion if the agent producing the field had been the part to remain at rest. Within the limits of error of the experiments —about 1.4 per cent. in the experiments with the electric coil, and about 1 per cent. in the experiments with the electromagnets—this fraction was zero.

The experiments appear to be *experimenta crucis*, in complete accord with the theory of Lorentz, but inconsistent with any theory based on complete relativity.

S. J. Barnett
The Ohio State University

[1] *Journal de Physique*, 1902.
[2] *Phil. Trans.*, 1904.
[3] *Physical Review*, 1908.

THE AMERICAN SOCIETY OF NATURALISTS

The thirtieth annual meeting of the American Society of Naturalists was held at Case School of Applied Science, Cleveland, Ohio, on January 2, in connection with the meetings of the American Society of Zoologists, the American Association of Anatomists, the Botanical Society of America, the American Society of Physiologists, the American Society of Biological Chemists, the American Phytopathological Society, and the various sections of the American Association for the Advancement of Science.

The morning session was devoted to a symposium on Adaptation, with the following speakers:

M. M. Metcalf (Oberlin College): "The Origin of Adaptations through Selection and Orthogenesis."

Burton E. Livingston (Johns Hopkins University): "Adaptation in the Living and Non-living."

George H. Parker (Harvard University): "Adaptation in Animal Reactions."

Henry T. Cowles (University of Chicago): "The Adaptation Viewpoint in Ecology."

Alfred G. Mayer (Carnegie Institution of Washington): "Adaptation of Tropical Animals to Temperature."

Albert P. Mathews (University of Chicago): "Adaptation from the Standpoint of the Physiologist."

Lawrence J. Henderson (Harvard University): "The Fitness of the Environment; an Inquiry

into the Biological Importance of the Properties of Matter.''

These papers will appear in the *American Naturalist.*

The afternoon session was for the reading of papers on Genetics, the program being as follows:

R. M. Strong (University of Chicago): ''Sex-linked and Sex-limited Inheritance.'' Read by title.

L. J. Cole (University of Wisconsin): ''The Reversionary Blue Pigeon.''

B. M. Davis (University of Pennsylvania): ''The Behavior of Hybrids of *Œnothera biennis* and of *Œ. grandiflora* in the Second and Third Generations.''

George H. Shull (Carnegie Institution of Washington): (1) ''Duplicate Genes for *Bursa bursa-pastoralis.*'' (2) ''A Sex-limited Character in Plants.''

R. A. Emerson (University of Nebraska): ''The Inheritance of a Recurring Somatic Variation in Variegated Ears of Maize.''

C. M. Child (University of Chicago): ''The Fundamental Reaction System and its Significance in Inheritance.'' Read by title.

A. F. Shull (University of Michigan): ''Inheritance of Egg Characters and the Sex-ratio in *Hydatina senta.*''

J. A. Detlefsen (University of Illinois) (introduced by W. E. Castle): ''Studies of a Cross between *Cavia rufescens* and the Guinea-pig.''

K. Foot and E. C. Strobell (New York City): ''Results of Crossing Two Hemipterous Species with Reference to the Inheritance of an Exclusively Male Character, and its Bearing on Modern Chromosome Theories.''

H. K. Hayes (Connecticut Agricultural Experiment Station): ''The Inheritance of Certain Quantitative Characters in Tobacco.''

The annual dinner of the society was held on the evening of January 2, at the Colonial Hotel, one hundred and twenty-four being present. The president's address by Professor E. G. Conklin, on ''Heredity and Responsibility,'' was published in SCIENCE for January 10.

The following new members were elected: Helen D. King, Wistar Institute; Lewis R. Cary, Princeton University; E. Newton Harvey, Princeton University; Ethel M. Browne, Princeton University; Aute Richards, University of Texas; Otto F. Kampmeier, University of Pittsburgh; C. G. Crampton, Massachusetts Agricultural College, Amherst, Mass.; H. F. Roberts, Manhattan, Kansas; F. W. Bancroft, Rockefeller Institute; Caswell Grave, Johns Hopkins University, and H. L. Wieman, University of Cincinnati.

The following officers were elected for 1913:

President—Ross G. Harrison, Yale University.

Vice-president—E. M. East, Harvard University.

Secretary—B. M. Davis, University of Pennsylvania.

Treasurer—J. Arthur Harris, Station for Experimental Evolution, Cold Spring Harbor.

Additional Members of the Executive Committee—A. P. Mathews, University of Chicago, and A. L. Treadwell, Vassar College.

A. L. TREADWELL,
Secretary for 1912

THE AMERICAN MATHEMATICAL SOCIETY

THE nineteenth annual meeting of the American Mathematical Society was held at Cleveland, Ohio, in affiliation with the American Association for the Advancement of Science, on Tuesday–Thursday, December 31–January 2. The usual winter meeting of the Chicago Section was merged in this annual meeting. Separate sessions of the society were held on Tuesday morning, Wednesday morning and afternoon and Thursday morning. On Tuesday afternoon there was a joint meeting of the society with Sections A and B of the American Association, the Astronomical and Astrophysical Society of America and the American Physical Society. At this joint meeting the following papers were read:

E. B. Frost, vice-presidential address, Section A: ''The spectroscopic determination of stellar velocities, considered practically.''

R. A. Millikan, vice-presidential address, Section B: ''Unitary theories in physics.''

A. G. Webster: ''Henri Poincaré as a mathematical physicist.''

E. J. Wilczynski: ''Some general aspects of modern geometry.''

L. A. Bauer: ''Cosmical magnetic fields.''

G. E. Hale: ''Preliminary note on an attempt to detect the general magnetic field of the sun.''

The attendance at the several sessions of the society included sixty-two members. The chair was occupied in succession by Professors E. W. Davis, E. H. Moore, G. A. Bliss, and after the annual election by the president-elect, Professor E. B. Van Vleck. The following new members were elected: E. W. Chittenden, University of Illinois; C. S. Cox, Mulberry, Fla.; S. D. Killam, University of Rochester; J. T. Rorer, Philadelphia, Pa.; R. M.