

class one-way ticket to Chicago, securing a "certificate plan certificate" reading "for the American Association for the Advancement of Science and Associated Societies." The certificate must be left at the validation desk in the registration offices to be called for later at the same place. Each person presenting an endorsed and validated certificate may purchase a continuous passage, one way return ticket for *one third* of the regular fare by the same route as that traveled to Chicago. Certificates must be validated before July 4. Tickets to Chicago must be purchased between June 15 and June 28 (both dates inclusive). Return tickets must be purchased by July 4; having purchased the return ticket its holder can remain in Chicago at will, provided he reaches the original starting point within thirty days.

Special fares of varied character have already been announced by certain lines and probably more such will be offered before the date of our meetings. Information about these rates and the precise conditions of issue and use may best be secured from your local agent. Early application is advisable. It is likely that special ten-day rates will be preferable, except for persons desiring to make a longer stay in Chicago.

SCIENTIFIC SESSIONS OF SECTIONS AND SOCIETIES

Sections are arranged in the order of the alphabetic designations used in the association's records. Affiliated societies are given the letter of the section under which each is listed, together with a distinguishing number. The president and secretary of each society are named, and they represent the organization on the council of the association, unless other representatives have been elected and are present to serve at Chicago. It is hoped that the societies may all be well represented at council meetings in order to facilitate prompt and proper transaction of business.

The programs as outlined are not complete, but they are in the main correct and adequate to give a true conception of the final program.

A—Mathematics

- A-1. Section A of the Association. June 21-23.
Vice-president, Charles N. Moore; *Secretary*, E. R. Hedrick.
- A-2. American Mathematical Society. June 19-23.
President, L. P. Eisenhart; *Secretary*, R. G. D. Richardson.
- A-3. Mathematical Association of America. June 20-23.
President, E. T. Bell; *Secretary*, W. D. Cairns.

The program of the American Mathematical Society will open on Monday, the morning being devoted to registration and the afternoon to a session of con-

tributed papers. On Tuesday morning there will be another session of contributed papers. On Tuesday afternoon the Mathematical Association of America is planning a program at which the following papers will be presented: "The Postulation Method in Mathematics," by Professor E. V. Huntington, of Harvard University; "The Lag of Mathematics behind Literature and Art in the Early Centuries," by Professor H. E. Slaughter, of the University of Chicago; "Applications of Mathematics to Real Estate Problems," by Dr. Henry Babcock, of Evanston. On Wednesday morning Section A and the American Mathematical Society will hold a joint symposium, at which Professor Lipot Fejer, of the University of Budapest, will speak on "The Infinite Sequences Arising in the Theories of Harmonic Analysis, of Interpolation and of Mechanical Quadratures," and Professor C. N. Moore, of the University of Cincinnati, will give a paper entitled "On the Use of Cesaro Means in Determining Criteria for Fourier's Constants." One other speaker has been invited to participate in this meeting. Wednesday afternoon will be devoted to a joint session of Section A and the society, at which invited addresses on geometry will be given. Professor Levi-Civita, of the University of Rome, will speak on "Nets on a Surface and Extension of Trigonometry," and Professor W. C. Graustein, of Harvard University, will give a paper entitled "Invariant Methods in Differential Geometry." Two other speakers have been invited to participate. On Thursday morning the American Mathematical Society will hold a meeting devoted to short contributed papers. For Thursday afternoon the Mathematical Association of America is planning a program in which the following men will present papers: Dr. T. C. Fry, of the Bell Telephone Laboratories, on "Fundamental Concepts in the Theory of Probability"; Professor George D. Birkhoff, of Harvard University, on "Mathematics and Art"; Dr. D. H. Lehmer, of the California Institute of Technology, on "A Number Theory Machine." On Friday morning there will be a joint session of Section A and the American Mathematical Society, at which Professor Levi-Civita will give a lecture on "Some Mathematical Aspects of the New Mechanics" and Professor G. D. Birkhoff on "Quantum Mechanics and Asymptotic Series." This meeting will be of special interest to the members of the American Physical Society, although they are not meeting jointly with Section A. For Friday afternoon the American Mathematical Society has arranged for a lecture by Professor L. E. Dickson, of the University of Chicago, on "Recent Progress in Additive Number Theory," which will be followed by short papers on number theory. A dinner for the mathematicians is planned for Friday evening.

B—Physics

- B-1. Section B of the Association. June 19-24.
Vice-president, C. J. Davisson; *Secretary*, H. A. Barton.
- B-2. American Physical Society. June 19-24.
President, Paul D. Foote; *Secretary*, W. L. Severinghaus.
- B-3. American Meteorological Society. June 19-20.
President, Herbert H. Kimball; *Secretary*, Charles F. Brooks.

On Monday morning, June 19, Section B and the American Physical Society will have a program of short contributed papers. The American Meteorological Society will hold a meeting devoted to papers on "A Century of Progress in American Meteorology," at which the following papers will be presented: "Pioneers in American Meteorology and the Founding of Weather Services," by Mr. Eric R. Miller, of the U. S. Weather Bureau at Madison; "The Early History of Aerology in the United States," by Mr. S. P. Fergusson, of Harvard University; "History of the Application of Meteorology to Aeronautics with Special Reference to the United States," by Mr. W. R. Gregg, of the U. S. Weather Bureau at Washington; "On the Dynamics of Penetrative Convection," by Dr. J. Bjerknes, of the Geophysical Institute, Bergen, Norway; "Periodicities in Rainfall," by Professor Dinsmore Alter, of the University of Kansas. On Monday afternoon the American Meteorological Society will hold a symposium on "Radiation and General Circulation of the Atmosphere." Dr. H. H. Kimball, of Harvard University, will present a paper on "Solar Radiations as a Meteorological Factor"; Dr. W. J. Humphreys, of the U. S. Weather Bureau at Washington, a paper on "Incoming and Outgoing Radiation as Affected by the Atmosphere"; Dr. J. Bjerknes, on "A Theory of the General Circulation of the Atmosphere." Mr. John Patterson, of the Meteorological Office in Toronto, will also present a paper. On Tuesday morning Section B and the American Physical Society, with Section C as their guests, will hold a symposium on "Application of Quantum Mechanics in Chemistry," with the following speakers: Professor J. C. Slater, of the Massachusetts Institute of Technology, on "Electron Energies in Atoms and Molecules"; Professor Linus Pauling, of the California Institute of Technology, on "Quantum Mechanics of Condensed Ring Systems, Free Radicals and Other Complex Molecules"; Dr. Henry Eyring, of Princeton University, on "Quantum Mechanics and Chemical Reactions"; Professor R. S. Mulliken, of the University of Chicago, on "Band Spectra and Molecular Structure." The American Meteorological Society will hold a symposium on "Dynamics of Extratropical Cyclones." Dr. J. Bjerknes will present a paper on

"Vertical Cross Sections through Extratropical Cyclones"; Mr. Andrew Thomson, of the Meteorological Office in Toronto, will present a paper on "The Cyclone of November 18-19, 1931"; Dr. W. J. Humphreys, on "Origins of Extratropical Cyclones"; Mr. K. O. Lange, of the Massachusetts Institute of Technology, on "Atmospheric Soundings for Glider Meets"; Mr. Phil E. Church, of Mooseheart, Illinois, on "Dynamic Climatology from the Massachusetts Institute of Technology Weather Maps"; Professor T. A. Blair, of the U. S. Weather Bureau at Lincoln, Nebraska, on "Interrelations of Seasonal Weather, Pacific Ocean and North America"; an additional paper by Professor C. G. Rossby, of the Massachusetts Institute of Technology. On Tuesday afternoon the American Meteorological Society will hold a meeting devoted to miscellaneous papers. The following men will present papers: Dr. H. H. Kimball, of Harvard University, and Mr. I. F. Hand, of the U. S. Weather Bureau at Washington, on "The Use of Glass Color Screens in the Study of Atmospheric Depletion of Solar Radiation"; Mr. Bernard Haurwitz, of the University of Leipzig, and Mr. Harry Wexler, of the Massachusetts Institute of Technology, "Turbidity of American Air Masses according to Linke's and Ångström's Measures of Turbidity"; Mr. S. P. Fergusson, of Harvard University, on "Anemometer Experiments." Section B and affiliated societies will hear an address by Dr. J. Bjerknes on "Atmospheric Soundings, Methods and Results." On Wednesday morning Section B and the American Physical Society will meet with Section C in a symposium on "Isotopes" (see announcement of Section C). On Wednesday afternoon Section B and the American Physical Society will participate in a joint symposium with Sections C, D and E on "Measurements of Geologic Time" (see announcement of Section E). Following the symposium, Professor Enrico Fermi, of the University of Rome, will give an address on "Theory of Hyperfine Structures." In the evening the American Physical Society will hold a dinner, which will be followed by a general session. On Thursday morning Section B and the American Physical Society with Section D will hold a joint symposium on "Spectroscopy and Astronomy" (see announcement of Section D). On Thursday afternoon Section B and the American Physical Society will meet for a lecture by Professor N. Bohr on "Space and Time in Contemporary Physics." On Friday morning Section B and the American Physical Society will hold a symposium on "Nuclear Disintegration." Professor E. O. Lawrence, of the University of California, will speak on "Recent Work on Nuclear Disintegration at the University of California"; J. D. Cockroft, of the University of Cambridge, England,

on the "Disintegration of Light Elements by High Velocity Protons"; Dr. M. A. Tuve, of the Department of Terrestrial Magnetism at Washington, on "Disintegration Experiments on Elements of Medium Atomic Number"; Professor W. D. Harkins, of the University of Chicago, on "Disintegration of Nuclei by Neutrons." The members of Section B will be interested in the program which Section A has arranged for Friday morning. In the afternoon Professor A. Sommerfeld, of the University of Munich, will give an address on "Theory of Metallic Conduction." On Saturday morning Section B is meeting with the American Section of the International Union of Pure and Applied Physics.

C—Chemistry

C-1. Section C of the Association. June 19-23.

Vice-president, Arthur B. Lamb; *Secretary*, J. H. Simons.

C-2. American Chemical Society. June 23.

On Monday morning Section C will hold a joint symposium with Section N on "Colloid Chemistry Related to Biological Problems." Professor Theodor Svedberg, of Upsala University, Sweden, will present a paper on "Sedimentation Constants and Molecular Weights of the Respiratory Proteins." Professor Filippo Bottazzi, of Naples, Italy, will present a paper on "Physico-Chemical Properties of Concentrated Blood Serum." Additional papers will be presented by the following: Professor Edwin J. Cohn, of the Harvard Medical School, on "Electrostatic Forces in Systems Containing Biological Components"; Professor J. W. McBain, of Stanford University, on "Some Experimental Methods Applicable to Biological Problems"; Professor W. J. V. Osterhout, of the Rockefeller Institute for Medical Research, on "Cell Physiology in Relation to Colloidal Structure." On Tuesday morning, Section C will meet in a joint session with Section B and the American Physical Society at a symposium on "Application of Quantum Mechanics in Chemistry" (see announcement of Section B). On Thursday, Section C and the Chicago Chemists Club will have a luncheon at the International House, which will be followed by brief informal and non-technical talks. On Wednesday morning, Section C will hold a joint symposium with Section B and the American Physical Society on "Isotopes"; Dr. F. W. Aston, of Cambridge, England, will present a paper on "Some Measurements of Relative Abundance of Isotopes"; papers will also be presented by Dr. K. T. Bainbridge, Bartol Research Foundation of the Franklin Institute, on the "Masses of Isotopes and the Disintegration of Atoms"; Dr. E. W. Washburn, of the U. S. Bureau of Standards, on "Isotopic Fractionation of Water";

Professor Fred Allison, of the Alabama Polytechnic Institute, on the "Magneto-Optic Method in the Study of Isotopes"; Professor W. D. Harkins, of the University of Chicago, on "Neutrons and Isotopes" and Professor H. C. Urey, of Columbia University, on "Diffusion Method of Separation of Isotopes." On Wednesday afternoon Section C will meet with Sections B, D and E in a symposium on "The Measurement of Geologic Time" (see announcement of Section E). The American Physical Society is holding a dinner on Wednesday evening, which will be of interest to members of Section C. On Thursday morning Section C will hold a session devoted to contributed papers. On Friday morning Section B is holding a symposium on "Nuclear Disintegration," which will interest members of Section C. In the evening Section C and the Chicago Section of the American Chemical Society are holding a dinner at the Midland Club. Professor Theo. Svedberg, of Upsala University, Sweden, will give the principal address on "Sedimentation of Molecules in Centrifugal Fields."

D—Astronomy

D-1. Section D of the Association. June 21-24.

Vice-president, V. M. Slipher; *Secretary*, H. T. Stetson.

D-2. American Astronomical Society.

President, W. S. Adams; *Secretary*, R. S. Dugan.

On Wednesday afternoon, June 21, Section D and the American Astronomical Society will meet with Sections B, C and E in a symposium on the "Measurement of Geologic Time" (see announcement of Section E). On Thursday morning Section D and the American Astronomical Society will participate in a joint symposium with Section B and the American Physical Society on "Spectroscopy and Astronomy." Professor A. Sommerfeld, of the University of Munich, will speak on the "Present Status of Spectroscopic Theory"; Professor W. S. Adams, of the Mt. Wilson Observatory, on "Spectroscopy as a Tool in Astronomy"; Dr. I. S. Bowen, of the California Institute of Technology, on "Spectra of Highly Rarefied Gases"; Professor Otto Struve, of Yerkes Observatory, on "Matter in Interstellar Space." On Thursday afternoon Section D and the American Astronomical Society will attend the lecture by Professor N. Bohr, of the University of Copenhagen, on "Space and Time in Contemporary Physics." On Friday and Saturday mornings Sections D and the American Astronomical Society will hold sessions at the Adler Planetarium, devoted to miscellaneous papers contributed by members. On Saturday afternoon an excursion will be made to the Yerkes Observatory.

E—Geology and Geography

- E-1. Section E of the Association. June 20-22.
Vice-president, R. T. Chamberlin; *Secretary*,
 Kirtley F. Mather.
- E-2. Geological Society of America. June 20-22.
President, Reginald A. Daly; *Secretary*, Charles
 P. Berkey.

On Tuesday morning Section E and affiliated societies have arranged a session, at which Professor J. J. Sederholm, of Helsingfors, Finland, will speak on "Ultrametamorphism and Anatexis." Dr. R. J. Tillyard, of Australia, will present a paper on "A New Class of Arthropods from the Precambrian of the Adelaide Series, South Australia." Dr. Arthur Bevan, of the University of Virginia, will speak on "Recent Studies of the Paleozoic Formations in Virginia." On Tuesday afternoon Professor J. J. Sederholm will give an address on "Progress and Scope of Precambrian Research." In the evening an informal dinner will be held for geologists and geographers. It is hoped that Sir Douglas Mawson, of England, will be present and that he will speak after the dinner. On Wednesday afternoon Section E will hold a joint symposium with Sections B, C and D on "The Measurement of Geologic Time," at which the following papers will be presented: "General Survey of the Problem," by Dr. Alfred C. Lane, of Tufts College; "Working Formulae for the Age of a Radioactive Mineral," by Professor A. F. Kovarik, of Yale; "The Significance of the Isotopes of Uranium and Lead," by Dr. C. S. Piggot, of the Geophysical Laboratory; "The Actinium Series of Radioactive Elements and the Measurement of Geologic Time," by A. V. Grosse, of the University of Chicago; "The Helium Method, a New Outlook," by W. D. Urry, of the Massachusetts Institute of Technology; "Thorianite from Eastern Pennsylvania," by Dr. R. C. Wells, of the U. S. Geological Survey; "Post-glacial Time Calculations from Recent Geothermal Gradient Measurements in the Calumet Copper Mines," by President W. O. Hotchkiss, of the Michigan College of Mining and Technology, and Professor L. R. Ingersoll, of the University of Wisconsin; "The Radium Content of the Travertine Deposits of Mammoth Hot Springs, Yellowstone Park, as an Index of Their Age," by Dr. Herman Schlundt, of the University of Missouri.

On Thursday morning Section E will hold a joint session with the Geographical Society of Chicago, at which the following men will speak: Professor Charles C. Colby, of the University of Chicago, on "Distribution of World's Major Cities"; Professor Stanley D. Dodge, of the University of Michigan, on "A Plan for the Study of the Regional Geography of the Upper Connecticut Valley"; Professor V. C. Finch, of the University of Wisconsin, on "A Departmental

Program for Geographical Research: Plan and Progress"; Professor Wellington D. Jones, of the University of Chicago, on "A Reconnaissance Map of Metropolitan Chicago." On Thursday afternoon there will be another joint session. Professor K. C. McMurtry, of the University of Michigan, will speak on "A Geographical Reconnaissance of the Lower Rio Grande Valley of Texas"; Dr. Richard Hartshorne, of the University of Minnesota, on "Geographic and Political Boundaries in an Area of International Tension: Upper Silesia"; Professor Henry M. Leppard, of the University of Chicago, on "Tyneside"; Professor Glenn T. Trewartha, of the University of Wisconsin, on "Results of Field Reconnaissance in Japan"; Professor R. S. Platt, of the University of Chicago, on "An Air Traverse of Central America."

F—Zoological Sciences

- F-1. Section F of the Association. June 20-23.
Vice-president, A. S. Pearse; *Secretary*, George
 R. La Rue.
- F-2. American Society of Zoologists. June 20-23.
President, W. C. Curtis; *Secretary*, W. H. Cole.
- F-3. Entomological Society of America. June 22-23.
President, J. J. Davis; *Secretary*, H. B. Hungerford.
- F-4. American Association of Economic Entomologists. June 22-23.
President, W. P. Flint; *Secretary*, A. I. Bourne.

On Tuesday morning, June 20, Section F has arranged a symposium on "Physical and Chemical Changes in Nerve during Activity"; in this Section N will join. Professor G. H. Parker, of Harvard University, will preside. Professor A. V. Hill, of London, will give an address on "The Heat Production of Nerve"; Professor W. O. Fenn, of the School of Medicine and Dentistry of Rochester, will speak on "Nerve Respiration"; Professor R. W. Gerard, of the University of Chicago, on "Chemical Activity of Nerve"; Dr. H. S. Gasser, of Cornell University, on "Electrical Phenomena in Nerve." On Tuesday afternoon, Dr. Joseph Barcroft, of Cambridge, England, will address the section on "Foetal Respiration." On Wednesday afternoon Section F will meet with the American Society of Naturalists and Section O in a symposium on "Heredity" (see announcement of American Society of Naturalists). On Thursday morning Section F, the Entomological Society of America and the American Association of Economic Entomologists will meet to hear a lecture by Dr. R. J. Tillyard, of Australia, on "The Evolution of the Insect." The lecture will be followed by a luncheon for members of both societies of entomologists. On Thursday afternoon Section F will meet with the Ecological Society of America in a symposium on "Life in Deep Water" (see announcement of the Ecological

Society of America). On Friday evening the two entomological societies will hold a dinner for members at the Chicago Women's Club. It is hoped that Dr. Royal N. Chapman, of the University of Hawaii, will give an address on some phase of insect life in Honolulu.

G—Botany

- G-1. Section G of the Association. June 20-22.
Vice-president, Karl M. Wiegand; *Secretary*, Sam F. Trelease.
- G-2. Botanical Society of America. June 20-22.
President, George J. Peirce; *Secretary*, Loren C. Petry.
- G-3. American Phytopathological Society. June 20-22.
President, F. D. Heald; *Secretary*, F. C. Meier.
- G-4. American Society of Plant Physiologists.
President, W. E. Tottingham; *Secretary*, W. A. Gardner.

On Tuesday morning, June 20, Sections G and O, the Botanical Society of America, the Ecological Society of America, the American Society of Plant Physiologists and the American Society of Agronomy will hold a joint session. Professor Ludwig Diels, of the University of Berlin, will give an address on "Taxonomy of the Angiosperms"; Sir Daniel Hall, of England, on "Does the Introduction of Wild Plants to Cultivation Induce Variation?" and Professor C. E. Allen, of the University of Wisconsin, on "Polyploidy in the Hepaticae." On Tuesday afternoon the same societies will visit the laboratory and greenhouses of the University of Chicago. For Wednesday is planned an all-day field trip to Warren Forest and Dune Reservation, Michigan. In the morning Sections G and O, the American Society of Agronomy, the American Society of Plant Physiologists and the American Phytopathological Society will hold a meeting devoted to progress in plant pathology during the century. Dr. Jean Dufrénoy, of Brice, France, will present a paper on "Local Immunity in the Plant Cell"; Dr. Neil Stevens, of the U. S. Department of Agriculture, on "The Dark Ages in Plant Pathology, 1832-1872"; Dr. J. C. Arthur, of Purdue University, will speak on "My Memories of Plant Pathologists, 1872-1933." In the afternoon the same societies, under the leadership of Dr. G. B. Ramsey, of the U. S. Department of Agriculture, will take a trip to South Water Markets to study markets pathology problems. For Thursday the Botanical Society of America has planned an all-day field trip to Wychwood, Lake Geneva, Wisconsin, which will be of interest to ecologists. In the morning Sections G and O, the American Phytopathological Society and the American Society of Agronomy will hold a joint session, with Dr. J. C. Arthur presiding. Dr. Otto Appel, of Berlin, will speak. Dr. H. H. Whetzel, of Cornell University,

will present a paper on "A Century of Research in Plant Pathology," and Dr. I. E. Melhus, of the Iowa State College, on "A Century of Plant Disease Control." The American Society of Plant Physiologists will hold a symposium on "Radiation and Plant Growth." In the afternoon Sections G and O, the American Society of Agronomy and the American Phytopathological Society will accompany Dr. H. W. Anderson, of the University of Illinois, to the Cook County Experimental Farm to study truck crop diseases.

F and G—Zoology and Botany

- FG-1. American Society of Naturalists. June 20.
President, R. A. Gortner; *Secretary*, E. W. Lindstrom.
- FG-2. Ecological Society of America. June 20-23.
President, George E. Nichols; *Secretary*, Raymond Kienholz.
- FG-3. American Microscopical Society. June 23.
President, M. J. Elrod; *Secretary*, James E. Ackert.
- FG-4. Phi Sigma Biological Research Society. June 19-21.
Chancellor, Paul B. Sears; *Secretary*, A. I. Ortenburger.

On Monday, Tuesday and Wednesday mornings the Phi Sigma Biological Research Society will hold business meetings. Sessions for presentation of contributed papers will be held on Monday and Tuesday afternoons. The annual banquet will be given on Monday evening. On Tuesday morning, June 20, the Ecological Society will meet jointly with Sections G and O, the Botanical Society of America and the American Society of Agronomy (see announcement of Section G). In the afternoon the same societies will make a trip to the greenhouses of the University of Chicago. In the evening there will be an informal dinner for botanists and ecologists at Ida Noyes Hall, at which Professor Ludwig Diels, of Berlin, will speak on "Plant Geography with Reference to the Pacific Flora." The Ecological Society of America and the Botanical Society of America have arranged an all-day field trip for Wednesday to Michigan dunes and Beach Maple Forest, which will be primarily plant ecology, but also animal ecology. On Wednesday afternoon the American Society of Naturalists, with Sections F and O and the American Society of Agronomy participating, has arranged a symposium on "Heredity." Professor F. R. Lillie, of the University of Chicago, will preside. Professor Richard Goldschmidt, director of the Institute of Experimental Biology of Berlin, will talk on "The Influence of the Cytoplasm on Gene-Controlled Heredity." Professor Sewall Wright, of the University of Chicago, will speak on "Physiological and Evolutionary Theories of

Dominance." The Botanical Society of America has arranged an all-day field trip to Wychwood, Lake Geneva, Wisconsin, which will be of interest to ecologists. On Thursday afternoon the Ecological Society, with Section F participating, has arranged a symposium on "Life in Deep Water." Professor August Krogh, of the University of Copenhagen, Denmark, will speak on "Energetics in Great Depths of the Ocean," which will be followed by papers by Professor C. Juday, of the University of Wisconsin, on "The Centrifuge Plankton Content of the Water"; Dr. E. A. Birge, of the University of Wisconsin, on "The Non-Centrifugable Organic Content of the Water"; Professor A. S. Pearse, of Duke University, on "The Ecology of Deep Water Animals"; Dr. P. S. Galtsoff, on "The Biochemistry of the Invertebrata of the Sea." Dr. V. E. Shelford, of the University of Illinois, will lead the discussion. On Friday the Ecological Society of America will take an all-day field trip to Indiana Dunes, primarily for animal ecology.

H—Anthropology

H-1. Section H of the Association. June 22-24.

Vice-president, T. W. Todd; *Secretary*, W. M. Krogman.

H-2. American Anthropological Association.

President, F. C. Cole; *Secretary*, J. M. Cooper.

On Thursday morning Section H and the American Anthropological Association will hold a meeting devoted to the subject of ethnology. The following men will speak: Dr. B. Laufer, of the Field Museum of Natural History, on "The Domestication of Animals"; Dr. M. J. Herskovits, of the Northwestern University, on "The American Negro: a Physical, Cultural and Historical Problem"; Dr. A. R. Radcliffe-Brown, of the University of Chicago, on "Studies in Social Organization"; Professor R. Redfield, of the University of Chicago, on "The Maya Indian: a Study in Acculturation." Thursday afternoon will be devoted to visiting anthropological exhibits of A Century of Progress. On Friday morning will be held a symposium on "Archeological Surveys." Dr. A. T. Olmstead, of the University of Chicago, will speak on "Historical and Archeological Method in the Near East." The following papers will be presented: "Archeological Surveys—National Scope," by Dr. Carl Guthe, of the University of Michigan; "Pictorial Survey of the Mississippi Valley," by Mr. Thorne Deuel, of the University of Chicago; "Archeological Survey of Southern Illinois," by Professor Arthur Kelley, of the University of Illinois. At the Friday afternoon session Dr. E. A. Speiser, of the University of Pennsylvania, will speak on "The Ethnic Background of the Early Civilization of the

Near East"; Professor Leland W. Parr, of the George Washington University, on "Physiological Approaches to the Study of Anthropology with Special Reference to the Near East"; Mr. Henry Field, of the Field Museum of Natural History, on "Ancient and Modern Inhabitants of Central Mesopotamia"; and Dr. W. M. Krogman, of Western Reserve University, on "Cranial Types of Alishar Huyuk." This meeting will be followed by a special inspection of the new Hall of the Races of Mankind and Hall of the Stone Ages of the Old World at the Field Museum of Natural History. On Friday evening the association will hold a general session on the subject of "Anthropology." The Saturday morning session will be devoted to physical anthropology. Professor C. U. A. Kappers will speak on "Racial Differences in the Human Brain"; Dr. T. Wingate Todd, of Western Reserve University, on "The Brain in Childhood"; Drs. W. H. F. Addison and Henry H. Donaldson, of the Wistar Institute of Biology, Philadelphia, on "The Area of the Sunken Cerebral Cortex as Determined from the Length and Depth of Selected Sulci, in Three Classes of Human Brains: Scholars, Hospital Whites, Hospital Negroes." Professor C. J. Herriek, of the University of Chicago, will lead a general discussion on "The Human Brain."

I—Psychology

I-1. Section I of the Association. June 20-24.

Vice-president, Walter R. Miles; *Secretary*, John E. Anderson.

For Tuesday morning Section F has arranged a symposium on "Physical and Chemical Changes in Nerve during Activity," which the psychologists will find of interest. On Tuesday afternoon Section I will hold a symposium on "Character," in which will be presented a paper by Professor Emilio Mira, of Barcelona. Professor Mandel Sherman, of the University of Chicago, and several others will also participate. On Wednesday morning there will be a symposium on "New Conceptions of Intelligence." Professor Charles E. Spearman, of London, will speak on "New Conceptions and Test of Intelligence." Following the symposium, Professor Henri Pieron, of the Sorbonne, will give an address on "Sensorial Basis of Knowledge." On Thursday morning a symposium has been arranged on "Reaction Time," in which Professor Henri Pieron will speak. Professor Walter R. Miles, of Yale University, and several others will also participate. At the close of the symposium Professor Emilio Mira will give an address on "New Conceptions of Moral Behavior." For Friday morning a symposium is arranged on Gestalt, which will be discussed by Professor Wolfgang Koehler, of Berlin. Professor Raymond H. Wheeler, of the University of

Kansas, and several others will participate. It is hoped that a symposium on "Clinical Psychology" will be held on Saturday morning. On Saturday evening there will be a general session of the association, with an address by Professor Charles E. Spearman, on "Recent Advances in Our Knowledge of Human Personality."

K—Social and Economic Sciences

- K-1. Section K of the Association. June 27-30.
Vice-president, Wesley C. Mitchell; *Secretary*, James Ford.
- K-2. American Statistical Association. June 26-29.
President, Irving Fisher; *Secretary*, W. I. King.
- K-3. American Sociological Society. June 26-29.
President, L. L. Bernard; *Secretary*, L. Wirth.
- K-4. Econometric Society.
President, Irving Fisher; *Secretary*, Charles F. Roos.

On Tuesday evening, June 27, Section K has planned a program devoted to social insurance. Professor Wm. Oualid, of the University of Rome, and Professor G. A. Bagge, of the Social Science Institute of Sweden, will speak. On Wednesday morning, June 28, Section K and the Econometric Society are meeting in joint session with Section O on "Elasticity of Demand for Agricultural Products" (see announcement of Section O). A program of Section K on Wednesday evening will be centered around "Social Trends." The speakers will be Professor W. F. Ogburn and Professor Chas. E. Merriam, of the University of Chicago. On Wednesday or Thursday the Econometric Society will hold a meeting on "Recent Developments in Business Cycle Theory." Section K has arranged the program for the general session of the association on Thursday evening, with Professor Henry Clay as speaker. On Friday afternoon the Econometric Society will meet with the American Society for Testing Materials for a program on "Theoretical Economics in Engineering." Professor Irving Fisher, of Yale University, will preside. Dr. S. Karrer, of the Consolidated Gas, Electric Light and Power Company of Baltimore, will speak on "Economics in the Program of Industrial Research" with discussion by Dr. L. O. Grondahl, of the Union Switch and Signal Company; Dr. C. F. Roos, secretary of the Econometric Society, will speak on "Contributions of the Mathematician to Economics," with discussion by Professor H. Schultz, of the University of Chicago. Professor H. Hotelling, of Columbia University, will speak on "Contributions of the Theoretical Statistician to Economics," with discussion by Dr. R. W. Burgess, of the Western Electric Company. Dean Kimball, of Cornell University, will speak on "The Engineering Economist of the Future." On Friday evening the same societies will meet for a program

on "Some Fundamental Problems of Mutual Interest to Scientific Economists and Engineers." Dean A. A. Potter, of Purdue University, president of the American Society of Mechanical Engineers, will preside. Professor Jos. Schumpeter, of Harvard University, will give a discussion "From the View-point of the Scientific Economist"; Dr. F. B. Jewett, vice-president of the American Telephone and Telegraph Company, "From the View-point of the Engineer," and Dr. A. P. Fleming, of the Metropolitan Vickers Electrical Company, of Manchester, England, on "The Internationalization of Scientific Knowledge as a Factor in World Economic Recovery." The American Sociological Society and the Society for Social Research will hold round table discussions on the following subjects: "The Family," L. Guy Brown, of Ohio Wesleyan University, chairman; "Crime; The Community," R. D. McKenzie, chairman; "Prediction and Forecasting," S. A. Stouffer, of the University of Wisconsin, chairman; "Minimum Standards of Training in Research Techniques," W. C. Reckless, of Vanderbilt University, chairman; "Graphic Presentation," Howard W. Green, of the Cleveland Health Council, chairman; "Experimental Social Psychology"; "Collective Behavior in the Depression," Harold D. Lasswell, of the University of Chicago, chairman; "Rural Sociology." Each round table will meet one or two forenoons of the days from June 26 to 29.

L—Historical and Philological Sciences

- L-1. Section L of the Association. June 26.
Vice-president, Waldo G. Leland; *Secretary*, Joseph Mayer.
- L-2. The History of Science Society. June 26.
President, J. Playfair McMurrich; *Secretary*, F. E. Brasch.

On Monday evening, June 26, Section L has arranged a symposium on "Nationalism." Professor Charles A. Beard, president of the American Historical Association, will present a paper on "Nationalism in American History." Professor Bernadotte Schmitt, of the University of Chicago, will also speak. It is hoped that one or more of the foreign guests will take part.

M—Engineering

(From N. H. Heck and C. E. Davis)

The program of Section M is an integral part of a coordinated program of nearly a score of engineering societies meeting in Chicago during the week of June 26. Sessions of the engineering societies will start on Monday morning, June 26, and continue through Friday, Wednesday, however, being set aside for certain joint functions. The outstanding features of the week include a number of addresses by distinguished engi-

neers and scientists. On Tuesday afternoon at half past three Dr. Herbert J. Gough, of England, will present the Edgar Marburg Lecture under the auspices of the American Society for Testing Materials. Dr. Gough's subject has been selected as "Crystalline Structure in Relation to Failure of Metals, Especially by Fatigue." On Tuesday evening, June 27, under the auspices of Section M, Dr. A. P. M. Fleming, of England, will discuss "The Industrial Development of the Century." Outstanding engineers representing the various engineering societies will contribute to the discussion.

The joint functions of Wednesday will include the award of the Guggenheim Medal to Juan de la Cierva, inventor of the autogiro. The ceremony will take place at Soldiers Field, where Mr. Cierva will arrive in an autogiro and be conducted to the platform where the medal will be awarded. The rest of the day will be spent in a visit to the various engineering and scientific features of the exposition. In the evening there will be a joint dinner at the Stevens Hotel with an outstanding national figure as speaker.

On Thursday there will be a joint engineering luncheon under the auspices of the American Society of Military Engineers in honor of General Lytle Brown, chief of the Corps of Engineers. On Thursday evening a boat trip on the lake will give an excellent opportunity to enjoy the spectacular lighting effects of the exposition.

On Friday afternoon and evening there will be sessions under the auspices of the Econometric Society, participated in by the American Society of Mechanical Engineers, the American Institute of Electrical Engineers and the American Society for Testing Materials, which will be devoted to some fundamental problems of mutual interest to scientific economists and engineers. The speakers will be Dr. A. P. M. Fleming, of England, Dr. F. B. Jewett, Dean Dexter S. Kimball and others.

The Society for the Promotion of Engineering Education will celebrate its fortieth anniversary in the same general locale of its origin, in 1893, as the society was founded on the occasion of a previous fair. The program will be devoted largely to a résumé of the progress in engineering education during the life of the society.

Other features of interest include a joint dinner of the boards of direction of the four major engineering societies and a dinner of the National Council of State Boards of Engineering Examiners.

The engineering sessions are planned to cover the entire field of engineering. Approximately four hundred papers will be presented at some two hundred sessions during the week.

N—Medical Sciences

N-1. Section N of the Association. June 19-22.

Vice-president, C. R. Stockard; *Secretary*, Walter M. Simpson.

On Monday morning, June 19, Section N will meet in a joint session with Section C (see announcement of Section C). On Tuesday morning Section N will hold a joint meeting with Section F (see announcement of Section F). On Tuesday evening at eight o'clock a general session of the association is to be held under the auspices of Section N, commemorating "The Century of Progress in Medicine." On Wednesday morning, June 21, a symposium on "Pathological Physiology" will be held with the following speakers: Dr. Arthur L. Tatum, of the University of Wisconsin, on "Morphine Addiction and Morphine Tolerance"; Dr. C. H. Best, of the University of Toronto, on "Fatty Changes in the Liver of Normal and Diabetic Animals"; Dr. Maurice B. Strauss, of the Thorndike Memorial Laboratory, on "The Etiology of Pernicious Anemia and the Related Macrocytic Anemias"; Dr. William H. Park, of the Department of Health, New York City, on "BCG Vaccination." Madame Curie may also address this meeting. On Thursday morning, June 22, a surgical-endocrinological symposium will be held. Dr. George Crile, of the Cleveland Clinic, will give an address on "A Century of Progress in Surgery—Anesthesia, Antisepsis and Asepsis, Shock, and Careful Handling of Tissues." Dr. Max Ballin, of Detroit, will speak on "Clinical Recognition and Surgical Treatment of Parathyroidism"; Dr. Percival Bailey, of the University of Chicago, will discuss "Surgical Control of Hypophyseal Disorders"; Dr. John de J. Pemberton, of the Mayo Clinic, will speak on "Recent Developments in the Clinical Recognition and Surgical Management of Hyperfunction of the Thyroid Gland." Dr. Evarts Graham, of the Washington University School of Medicine, will speak on "Clinical Recognition and Surgical Treatment of Hypoglycemia Produced by Tumors of the Islets of Langerhans," with discussion by Professor Robert R. Bensley, of the University of Chicago.

O—Agriculture

O-1. Section O of the Association. June 20-28.

Vice-president, A. R. Mann; *Secretary*, P. E. Brown.

O-2. American Society of Agronomy. June 20-28.

President, P. E. Brown; *Secretary*, F. B. Smith.

On Tuesday morning Section O and the American Society of Agronomy will hold a joint session with Section G (see announcement of Section G). In the afternoon Section O and the American Society of

Agronomy, with Section G, will visit the greenhouses and laboratory of the University of Chicago. In the evening Section O and the American Society of Agronomy will attend the dinner for botanists and ecologists. On Wednesday and Thursday mornings Section O and the American Society of Agronomy will meet with Section G, the American Phytopathological Society and the American Society of Plant Physiologists for programs on progress in plant pathology during the century (see announcement of Section G). On Wednesday afternoon Section O and the American Society of Agronomy will meet in joint session with Section F and the American Society of Naturalists in a symposium on Heredity (see announcement of American Society of Naturalists). On Wednesday evening Section O will hold a dinner at which Sir Daniel Hall, of England, will speak on "Polyploidy and the Special Question in the Genus Tulipa," and Professor Jean Dufrénoy, of Brice, France, on "Death—The Change of Living Substance within the Cell." On Wednesday morning, June 28, Section O and the American Society of Agronomy will hold a joint session with Section K and the Econometric Society of America on "Elasticity of Demand for Agricultural Products," which will be discussed by Sir Daniel Hall, of England. It is hoped that Professor G. F. Warren, of Cornell University, Mr. Mordecai Ezekiel and Mr. E. J. Working, of the U. S. Department of Agriculture, will also speak.

Q—Education

- Q-1. Section Q of the Association. June 29-30.
Vice-president, Walter F. Dearborn; *Secretary*, William S. Gray.
- Q-2. National Society for the Study of Education. June 29-30.
President, M. E. Haggerty; *Secretary*, Guy M. Whipple.

Section Q will hold a joint meeting with the National Society for the Study of Education, the Department of Supervisors and Directors of Instruction and the American Educational Research

Association. On Thursday afternoon Section Q and affiliated societies will hold a session on "Recent Advances in the Study of Components of Mental Ability." Professor Frank N. Freeman will preside. Dr. Charles Spearman, of the University of London, will report on recent experiments in factor analysis. Dr. Karl Holzinger, of the University of Chicago, will discuss the general theory of factor analysis and Professor Louis L. Thurstone will lead the discussion. A program for Friday morning is being organized around "The Function, Value and Future of Educational Research." Professor Walter S. Monroe, of the University of Illinois, will preside. This will be discussed with reference to research activities (a) in public school systems, by Dr. W. W. Theisen, assistant superintendent of schools, Milwaukee, Wisconsin; (b) in colleges and universities, by Dr. V. A. C. Henmon, of the University of Wisconsin; (c) in departments of education, by Professor Edgar Blake, of Ohio State University. "Dependability and Value of Survey Types of Investigation" will be discussed by Dr. Harl Douglass, of the University of Minnesota. On Friday afternoon there will be a session on "Essentials of an Education," Professor Ernest Horn, presiding. The discussion will be introduced by papers on "Maturation and Its Relation to Instruction." Dr. Charles H. Judd, of the University of Chicago, will speak on "The Application of Maturation to School Organization and Teaching," and Professor C. R. Griffith, of the University of Illinois, will speak on "The Psychology of Maturation." The remainder of the program will consider the essentials of an education in contemporary life at (a) the elementary school level, by Miss Bess Goodykoontz, of the U. S. Office of Education; (b) the secondary school level, by Dr. A. K. Loomis, of the University of Chicago, and (c) the college level, by Vice-president Clarence S. Yoakum, of the University of Michigan. A program is being organized for Friday evening on "Education for a Democracy." Dr. Walter F. Dearborn will preside. Miss Jane Addams, of Hull House, and President Robert M. Hutchins, of the University of Chicago, will speak.

THE VALUE OF SCIENTIFIC RESEARCH TO AGRICULTURE¹

By Secretary HENRY A. WALLACE

U. S. DEPARTMENT OF AGRICULTURE

In this series of radio broadcasts it is the custom, as I understand it, for each Cabinet officer to do a little boasting about his own department. I am more than

¹ Address over a national radio network of the N.B.C. on May 1.

willing to do my share of that on behalf of the Department of Agriculture; but in my remarks to-night I hope not only to discuss the past of this department, but also to consider its future.

Necessarily, that involves the new farm bill. By