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THE MILWAUKEE MEETING OF THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

Edited by Dr. F. R. MOULTON

PERMANENT SECRETARY

FOR the second time in its history the American Association for the Advancement of Science held a meeting in Wisconsin. The first meeting in Wisconsin was held in Madison from August 17 to August 22, 1893; the recent meeting in Milwaukee was held from June 19 to June 24, 1939. The proximity of Milwaukee to Chicago with its several great educational institutions and its unsurpassed accessibility by railroads has obviously prevented its being selected hitherto as a meeting place for the association. It is delightfully located, however, on the shores of Lake Michigan and has ample facilities for a very large convention.

In 1893, at the time of the meeting in Madison, there were 1,982 members of the association; at the time of the meeting in Milwaukee there were 20,310 members. The attendance at the meeting in Madison was 290; at Milwaukee, about 700. There were 168 papers presented at Madison, and 264 papers and addresses at Milwaukee. In comparing these statistics of attendance and papers it should be remembered that the regular annual meeting of the association was held at Madison, while only a summer meeting was held in Milwaukee.

Although many of the programs presented in Milwaukee were of a very high order of excellence, the attendance was low, only about a third of that at the meeting in Ottawa a year ago. It is a question whether there are not so many meetings of scientists that general summer meetings of the association fail to justify their cost in effort and money. Possibly the association

would better fulfil its purpose of advancing the interests of science and society if, instead of holding general summer meetings of all sections, it would arrange for those sections and affiliated societies which find it advantageous to have summer programs to hold special regional meetings in connection with universities and other organizations.

REGISTRATION

Although about 700 persons were in attendance at the meeting, only 331 registered and secured the General Program of all sessions and events. The registrants were distributed as follows: Alabama, 1; Arkansas, 1; California, 5; Colorado, 1, Connecticut, 3; Washington, D. C., 18; Georgia, 1; Idaho, 1; Illinois, 58; Indiana, 4; Iowa, 8; Kansas, 2; Maine, 1; Massachusetts, 10; Michigan, 21; Minnesota, 17; Missouri, 13; Nebraska, 1; New Jersey, 6; New Mexico, 1; New York, 20; North Carolina, 1; North Dakota, 1; Ohio, 13; Oklahoma, 1; Oregon, 1; Pennsylvania, 7; Rhode Island, 1; South Dakota, 2; Vermont, 1; Wisconsin, 48; Milwaukee, 60; Foreign and Unknown, 4.

GENERAL SESSIONS

On June 20 the eighth Hector Maiben Lecture was delivered by Dr. Victor G. Heiser, distinguished author of "The Odyssey of an American Doctor," on "The Influence of Nutrition on the Diseases of Middle and Old Age." A large and appreciative audience listened attentively to Dr. Heiser's exposition of some of the astonishing consequences of unbalanced diet.

On Wednesday evening, June 21, Dr. Heber D. Curtis, director of the observatories of the University of Michigan, delivered a lecture, illustrated by motion pictures, on "Solar Storms." The motion pictures, taken with the remarkable apparatus developed at the McMath-Hulburt Observatory, showed most astounding phenomena taking place on the sun. The large audience sat in awe before pictures of great masses of flaming gas, thousands of times greater in volume than the earth, shooting up from the surface of the sun tens of thousands of miles and, strangely, often shooting down with comparable velocities. Indeed, the photograph of one eruption was shown that ascended to a height of over 600,000 miles.

The third conference on "Science and Society" presented a program of four general sessions on "The Economic System in Relation to Scientific Progress." The program is given in the report of the Section on Social and Economic Sciences below.

SYMPOSIA

Eleven symposia were presented at the meeting, in addition to a symposium at Madison under the sponsorship of the Division of Physical and Inorganic Chemistry of the American Chemical Society and the University of Wisconsin, in cooperation with the Section on Chemistry (C).

1. The Section on Geology and Geography (E) held a joint symposium with the American Society of Agricultural Engineers, the Section on Engineering, Association of American Geographers and the Geological Society of America on "Soil Conservation and Land Utilization in the Great Lakes Region," at which 14 papers were presented in two sessions. The contributions were by M. L. Nichols and Bruno Klinger, C. F. Stewart Sharpe, Eugene I. Roe, T. M. Bushnell, Otto E. Guthe, A. H. Paschall, Dallas E. Perfect, E. A. Norton, Paul M. Barrett, F. P. Struhsaker, W. F. Ramsdell, A. R. Whitson, L. B. Thomson and Louis A. Wolfanger.

2. The Section on Zoological Sciences (F) presented a symposium on "The Relation of Genetics to Geographical Distribution and Speciation," under the chairmanship of L. J. Cole, who opened the symposium with introductory remarks. The discussions were by Carl L. Hubbs, M. R. Irwin and R. W. Cumley, A. H. Sturtevant, L. R. Dice, and Alfred C. Kinsey.

3. The Section on Zoological Sciences (F) presented also a second symposium on "Regeneration," under the chairmanship of J. W. Buchanan, who opened the symposium. The papers of this symposium were presented by W. C. Curtis, Olin Rulon, William Balamuth, L. H. Hyman, and the session closed with a tribute to H. V. Wilson by W. C. Curtis.

4. The Section on Botanical Sciences (G) in a joint session with the Ecological Society of America, the Society of American Foresters and the Section on Agriculture (O) presented a symposium on "Socio-economic Approach to Land Use," under the chairmanship of L. R. Schoenmann. The participants were Aldo Leopold, K. C. McMurry, G. S. Wehrwein and Raphael Zon.

5. The American Society of Plant Physiologists in joint session with the Section on Botanical Sciences (G) and the American Phytopathological Society presented a symposium on "Photoperiodism," at which the speakers were W. F. Loehwing, Karl C. Hamner, R. H. Roberts and B. Esther Struckmeyer.

6. The Section on Psychology (I) presented a symposium on "Measuring Attitudes," one section of which was under the chairmanship of Stephen M. Corey and the other of which was under the chairmanship of Gilbert J. Rich. At the former, the speakers were Maurice Newburger, Louis D. Goodfellow, David A. Grant and Herbert I. Meyer, Delton C. Beier, and H. Wilkes Wright.

7. The Section on Psychology (I) presented also a symposium on "Neuromuscular Tension," under the chairmanship of Edmund Jacobson.

8. The Section on Social and Economic Sciences (K) presented a broad symposium on "Population

Problems and Programs in the Northern Lake States," under the direction of an organizing committee consisting of Warren S. Thompson, E. P. Hutchinson and Stanley D. Dodge. The first part on "The Settlement of the Northern Lake States" was presented in joint session with the Population Association of America and the Ecological Society of America, under the chairmanship of Stanley D. Dodge. Papers were presented by Glenn T. Trewartha, W. Bruce Dick and Guy-Harold Smith.

The second part, on "Population Capacity under Different Forms of Land Use," was presented in joint session with the Population Association of America and the Ecological Society of America. E. P. Hutchinson was chairman and the speakers were Charles M. Davis, Stanley D. Dodge and Raphael Zon.

The third part, on "State and Regional Planning," was presented in joint session with the Population Association of America, under the chairmanship of Warren S. Thompson. The contributors were Samuel Teper, George Wehrwein and M. W. Torkelson.

The fourth part, on "Population Adjustment through Migration," was presented in joint session with the Population Association of America, under the chairmanship of Conrad Taeuber. Papers were read by C. E. Lively, Ray E. Wakeley and J. F. Thaden.

The fifth part, on "Regional Differentiation of Culture Patterns," was presented under the chairmanship of C. E. Lively, at which A. R. Magnus, Philip Beck and George W. Hill presented papers.

The sixth part, on "Agricultural Policies and Programs of the Federal Government," was presented under the chairmanship of Warren S. Thompson. The participants were C. C. Taylor and H. R. Tolley.

The final session on "Evaluation of Federal Policies and Programs" was held under the chairmanship of R. C. Smith, and papers were presented by Lowry Nelson, T. W. Schultz and Noble Clark.

9. The Section on Medical Sciences (N) in cooperation with the American Neisserian Medical Society organized and presented a comprehensive symposium on "Gonococcus and Gonococcal Infection."

The first session was on "The Biology of the Gonococcus," at which papers were presented by Gaylord W. Anderson, Alden K. Boor, N. S. Ferry, Michael Wisengrad, C. Philip Miller, Wesley W. Spink and Alfred Cohn. The subject of the second session was "The Diagnosis of Gonococcal Infection." The contributors to the discussion of this subject were Christine E. Rice, Annis E. Thomson and Agnes C. Hamann, Charles M. Carpenter, Oscar F. Cox and William A. Hinton, Adolph Jacoby, Walter M. Brunet, J. Albert Key, Sara E. Branham, and C. L. Martin.

"Sulfanilamide and Related Compounds" comprised the third session, with papers by Ralph R. Mellon and Lawrence E. Shinn, Charles M. Carpenter and Gerald M. Barbour, Ruth A. Boak, Cassius J. Van Slyke, Percy S. Pelouze, J. F. Mahoney and Anna Nimelman, Nathaniel Jones and Stafford L. Warren, Reuel A. Benson, Roger W. Barnes and H. M. Elliott, and Russell D. Herrold.

At the final session on "Therapy and Control" the papers were by Ruth Boring Thomas, Rogers Deakin, Eleanor L. Adler, Arthur Steer and Irving Weinstock, N. A. Nelson, Robert S. Westphal, W. A. Brumfield, Jr., and R. A. Vonderlehr.

10. The Subsection on Pharmacy of the Section on Medical Sciences presented a symposium on "Vitamins with particular reference to their Standardization." The speakers were Aaron Arnold, P. H. Phillips, C. A. Elvehjem, W. D. Woolley, A. Black and Mrs. Flemintine P. Dann.

11. The Society of American Foresters presented a symposium on "Forest Rehabilitation in the Lake States," the first session being under the chairmanship of T. Schantz-Hansen, at which papers were read by Ray Bassett, H. Basil Wales, Russell N. Cunningham and George Banzhaf. At the second session, under the chairmanship of Henry Schmitz, papers were read by O. W. Swan, William Heritage, F. H. Eyre and D. M. Matthews.

RADIO PROGRAMS

Radio programs were arranged by Dr. John D. Ball for all the three broadcasting stations located in Milwaukee. Paul B. Sears, in cooperation with John D. Ball, Jr., H. H. Remmers, Frank A. Thone and F. R. Moulton, delivered broadcasts over station W.T.M.J.; Otto Struve and J. J. O'Neill in cooperation with John D. Ball, over station W.T.S.N.; E. P. Hutchinson and F. R. Moulton, over station W.E.M.P.

SCIENTIFIC SESSIONS

SECTION ON PHYSICS (B): AMERICAN METEOROLOGICAL SOCIETY

(From the program of the society)

The American Meteorological Society, under the presidency of Robert E. Horton, held four sessions on Monday, June 19, and Tuesday, June 20, at which 22 papers were presented. The contributions at the first session were by Eric R. Miller, John G. Albright, Eugene D. Emigh, George W. Mindling, L. Walter Dick and Winston Manning. The first two papers were historical and biographical subjects. At the second session, which was devoted mostly to hydrographic problems, the speakers were R. H. Musser, William E. Barron, Albert D. Sanial and Norman A. Matson, Bertram S. Barnes, and LeRoy K. Sherman. The papers read before the third session were partly on relations of meteorology to airplane flights and partly on solar radiation. The contributors were Paul

A. Gareau, Homer W. Ball, Arthur M. Marks, Jr., Eugene D. Emigh, Irving F. Hand, L. F. Miller, and R. H. Roberts and B. Esther Struckmeyer. At the final session papers were presented by Charles F. Brooks and Leslie R. Bean, and two motion pictures were shown, one on forecasting floods on the Potomac and Ohio Rivers and the other on exploring the upper air.

SECTION ON CHEMISTRY (C)

(From report by Neil E. Gordon)

Section C cooperated with the Division of Physical and Inorganic Chemistry of the American Chemical Society in a symposium on "The Kinetics of Homogeneous Gas Reactions," which was presented at Madison, Wisconsin, from June 20 to June 22, inclusive. The speakers at the first session, over which George Scatchard presided, were Everett Gorin, Walter Kaufmann, John Walter and Henry Eyring, Eugene P. Wigner, and J. A. Christiansen. At the second session, Farrington Daniels presiding, papers were presented by George Scatchard, K. F. Bonhoeffer, K. H. Geib and O. Reitz, F. O. Rice and K. F. Herzfeld, and H. A. Taylor and Milton Burton. Harold C. Urey presided at the third session, at which papers were read by O. K. Rice and Hallock C. Campbell, Guenther von Elbe and Bernard Lewis, and R. H. Crist and J. E. Wertz. At the fourth session, S. C. Lind presiding, the contributors were G. B. Kistiakowsky and W. W. Ransom; Richard A. Ogg, Jr., and W. J. Priest, Robert W. Pease, and Farrington Daniels and Preston L. Veltman. Philip A. Leighton presided at the final session at which papers were presented by W. Albert Noyes, Jr., and F. C. Henriques, Jr., G. K. Rollefson and D. C. Grahame, E. W. R. Steacie and Roger Potvin, and S. C. Lind. Each session was followed by a general discussion.

SECTION ON ASTRONOMY (D)

(From report by Harlan T. Stetson)

Meetings of Section D were held on Wednesday and Thursday, June 21 and 22, at which the vice-president and chairman of the section, Everett I. Yowell, presided. At the session on Wednesday the contributions were on a variety of topics in several fields of astronomy and astrophysics. John A. O'Keefe, of the Yerkes Observatory, presented evidence that carbon dust periodically emitted from the star R Coronae Borealis causes the variation in brightness of that well-known variable, while Otto Struve, director of the Yerkes Observatory, discussed the chemical composition of interstellar gas. An unusual nebula with a cometary-like appendage was brought to the attention of astronomers by John Titus, of the Yerkes Observatory. Paul Herget, of Cincinnati, gave his recent results on the satellite system of Jupiter. These papers were typical of the program, which included altogether fourteen contributions in the fields of astronomy and astrophysics. About 60 persons were in attendance in Milwaukee.

On the invitation of Dr. Struve, about 70 persons gathered at the Yerkes Observatory on the shores of Lake Geneva, in Wisconsin, for the Thursday session. Dr. Struve addressed the assembly on the topic, "The Yerkes Observatory Looks to the Future," and Dr. Ross, of the observatory staff, spoke on the history and the development of optics in astronomy, including the solution of many problems in connection with the construction of the 100- and 200-inch telescopes in California. A very pleasant tea at the director's residence, by invitation of Dr. and Mrs. Struve, followed the scientific session in the observatory. Opportunity was afforded those who remained over into the evening to examine selected objects through the 40-inch Yerkes telescope. Participating in the program with the members of Section D were delegations from the Milwaukee and the Chicago Astronomical Societies.

SECTION ON GEOLOGY AND GEOGRAPHY (E), GEOLOGICAL SOCIETY OF AMERICA AND ASSOCIATION OF AMERICAN GEOGRAPHERS

(From report by Howard A. Meyerhoff)

The Section on Geology and Geography (E), meeting jointly with the Geological Society of America, was in continuous session from June 15 to 24. Section activities started with a preconvention field excursion in northern Michigan under the able leadership of R. M. Dickey and Kiril Spiroff, of the Michigan College of Mining and Technology. Despite a comparatively small party and consistently bad weather, three effective days were spent examining the pre-Cambrian and Cambrian rock sections of the Marquette and Gogebic ranges and of the Keweenaw Peninsula. The relationships of rocks and mineralization to the mining activities of the Upper Peninsula received special attention, and brief stops were made at the museum of the College of Mining and Technology and at several mines and mills.

At the opening session in Milwaukee on Monday, June 19, Dr. Ira Edwards, of the Milwaukee Public Museum, presided over a short program devoted chiefly to papers on pre-Cambrian geology. Tectonic and glacial problems constituted the subjects for discussion on Monday afternoon, when Rollin T. Chamberlin, of the University of Chicago, occupied the chair. The glacial papers furnished an excellent background for the field excursion scheduled for Tuesday, when F. T. Thwaites, of the University of Wisconsin, led a small party over the moraines and outwash of southeastern Wisconsin. Problems of correlation and dating were stressed, and those participating were as much impressed with the details of glaciation, which must

still be worked out, as with the vast amount of expert work already done.

Kirk Bryan, vice-president of the American Association and chairman of the section, presided over the two sessions held on Wednesday, June 21. Paleozoic stratigraphy and sedimentation furnished the theme of the morning meeting, and several of the papers dealt with new methods of attacking old problems in stratigraphic research and in sedimentary petrology. In the afternoon, the Section on Anthropology (H) met briefly with Section E to hear the paper by Kirk Bryan and Louis L. Ray on "Quaternary Chronology and the Antiquity of the Folsom Culture." W. C. McKern occupied the chair, while Dr. Bryan presented the geologic facts of correlation which have led him and Dr. Ray to date the Folsom Culture provisionally as 25,000 years old. Geomorphic and geographic papers filled in the balance of an interesting and varied afternoon, in which members of the Association of American Geographers officially participated.

As a sequel to the stratigraphic session on Wednesday morning, members of Section E were provided on Thursday with an opportunity to study the Silurian and Devonian formations of the Milwaukee region. Under the expert guidance of Ira Edwards, the field party discovered that the thick mantle of glacial drift has not buried all the rocks which form the foundation of southeastern Wisconsin.

On Friday the Section on Engineering (M) and the American Society of Agricultural Engineers joined with the geologists and geographers in a symposium on "Soil Conservation and Land Utilization in the Great Lakes Region." E. F. Bean, state geologist of Wisconsin, and L. R. Schoenmann, of Michigan State College, presided, respectively, over the morning and afternoon sessions, in which problems of soil conservation were analyzed from the point of view of the engineer, the geologist, the forester, the agronomist and the agriculturist. The fourteen speakers were drawn from federal, state and educational institutions in Ohio, Indiana, Michigan, Wisconsin, Minnesota and the Prairie Provinces of Canada; hence the problems were viewed from all geographic angles, as well as from all professional standpoints. The size of the audience was not commensurate with the significance of the symposium, but those present participated actively in discussions which prolonged the meeting considerably beyond the scheduled hour for adjournment.

Because of small registration and the geological interests of those registered, the post-convention field excursion under the leadership of E. F. Bean was considerably modified. The proposed itinerary was shortened to include the drift margin between Madison and Baraboo, the Cambrian and pre-Cambrian geology of the Baraboo Range and the erosional features of the Wisconsin Dells. The party disbanded on June 25 with genuine regret that the full field program had not been followed.

In developing the Section E program, the secretary was materially aided by John R. Ball, F. T. Thwaites, E. A. Norton, Louis A. Wolfanger, F. M. Feiker, E. F. Bean, Ira Edwards and others. In view of the quality of the papers, the attendance was somewhat disappointing, for only 90 persons were present at one or more meetings, and the attendance at individual sessions did not exceed forty.

SECTION ON ZOOLOGICAL SCIENCES (F)

(From report by George A. Baitsell)

The program of the Section on Zoological Sciences (F) at the Milwaukee meeting was limited to two important symposia. One symposium, on "The Relation of Genetics to Geographical Distribution and Speciation," was under the chairmanship of L. J. Cole, of the University of Wisconsin, and the other one, "Regeneration," was under the chairmanship of J. W. Buchanan, of Northwestern University. Both of these symposia were of such interest as to attract unusually large audiences, the total attendance for the two days being somewhat over 100. It is expected that the papers presented in the two symposia will be published at an early date.

The papers presented were as follows:

Genetics Symposium:

1. Speciation in fishes. C. L. Hubbs, University of Michigan.
2. Some factors in the geographical distribution and speciation of Peromyscus. L. R. Dice, University of Michigan.
3. The geographical distribution of gall wasps. A. C. Kinsey, Indiana University.
4. Inter-racial crossing and mutation. A. H. Sturtevant, California Institute of Technology.
5. Speciation from the point of view of genetics. M. R. Irwin and R. W. Cumley, University of Michigan.

Regeneration Symposium:

1. The histological basis of regeneration and re-association in lower invertebrates. W. C. Curtis, University of Missouri.
2. The environmental control of regeneration in Euplanaria. Olin Rulon, Wayne University.
3. Regeneration in protozoa; a study of morphogenesis. William Balamuth, University of California.
4. Aspects of regeneration in Annelids. L. H. Hyman, American Museum of Natural History.

At the close of this symposium, Dr. Curtis presented a tribute to the late Dr. H. V. Wilson, of the University of North Carolina, in which he emphasized the outstanding quality of Dr. Wilson's personal character and scientific research.

SECTION ON BOTANICAL SCIENCES (G) AND AMERICAN SOCIETY OF PLANT PHYSIOLOGISTS

(From report by W. E. Tottingham, W. J. Hamilton, Jr., and Berch Henry)

The American Society of Plant Physiologists (F. P. Cullinan, *secretary*) cooperated with Section G of the association in conducting a symposium on "Photoperiodism," on Tuesday forenoon. A. E. Murneek, past president of the society, presided, and 50 persons attended. W. F. Loehwing presented an introductory statement of the current status of this concept, emphasizing the need of modification in ideas concerning "flowering" and its associated physiology. The significance of the appearance of flower primordia and differentiation of sexual parts was stressed. Differences of photoperiodic requirement for the inception of these developmental phases were noted and the inadequacy of the hormone concept to account for sexual differentiation was pointed out. Karl C. Hamner discussed the photoperiodic responses of several species in relation to the theory of hormone function in the flowering of plants. He presented evidence that, according to species, flower development may be initiated in either light or darkness or in combination of the two. Melcher's concept of the functioning of at least two hormones in the responses of Hyoscyamus was considered possibly applicable to the species here concerned.

R. H. Roberts reported that anatomical studies offer evidence for structural characteristics which follow blossom induction. He suggested that these may account for continuance of effects from short-term photoperiodic treatment. Inducing of blossoming by cooling a portion of the stem was interpreted as indicating that this organ may participate with the leaves in causing flowering.

A brief program of general papers was presented in the afternoon with W. F. Loehwing, president of the society, presiding. There was an attendance of 35. R. B. Harvey described procedure for determining ethylene in stored apples and pointed out the relation of this compound and associated products to the climacteric or tissue-breakdown phase of metabolism.

R. H. Landon described the preservation of strawberries and raspberries by addition of 20 to 30 per cent. carbon dioxide to the atmosphere of the storage room. In general the firmness and flavor of the fruit were retained to remarkable degrees.

Orville Wyss (sponsored by P. W. Wilson) presented a paper on the exudation of nitrogenous compounds from the root nodules of leguminosae. Illustration of the development of associated non-leguminous plants and findings from the determination of nitrogen in the tissue were shown as evidence.

On Wednesday the society convened with the Botanical Society of America, the American Phytopathological Society, the American Society of Plant Taxonomists and the Mycological Society of America at the University of Wisconsin in Madison. In the forenoon these groups were welcomed by President C. A. Dykstra and Dean E. B. Fred, with E. M. Gilbert presiding. Informal responses were made by representatives of the bodies concerned. In the afternoon an invitation program arranged by the Society of Plant Physiologists consisted of addresses by G. F. Thornton on "The Rôle of the More Abundant Mineral Elements," and by B. M. Duggar on "Aspects of Radiation as Applied to Some Physiological Problems." Forty persons were in attendance. The remainder of the afternoon was devoted to inspection of equipment in the research laboratories of the division of plant physiology of the university. At an informal dinner arranged by the Phytopathological Society colored and motion pictures of fungi and flora of Wisconsin were shown by a representative of the Wisconsin Conservation Commission. On Thursday afternoon the following program was presented before a largely attended joint session of the several societies, with I. E. Malhus presiding.

1. Physiological differentiation of sex in dioecious angiosperms. J. Fisher Stanfield, Chicago Teachers College, Chicago, Ill.
2. New species of plant microfossils from the Des Moines Series of Iowa. L. R. Wilson, Coe College, Cedar Rapids, Iowa.
3. Genetics of pollen tube growth in Datura. J. T. Buchholz, University of Illinois, Urbana, Ill.
4. Phylogeny of the Gramineae. Paul Weatherwax, University of Indiana, Bloomington, Indiana.

The remainder of activities through Friday consisted of field trips, inspection of laboratories and social gatherings. Effective arrangements for the entertainment of visitors had been arranged by a committee, of which N. C. Fassett was chairman. Abundant non-technical interests were provided for the ladies, a tea on Wednesday afternoon and picnic of all attendants of the several groups on Thursday being high spots among the events.

The Ecological Society of America (W. J. Hamilton, Jr., secretary) held its summer meetings in conjunction with the A. A. A. S. at Milwaukee, June 19 to 24, at which eight papers were presented. On Tuesday morning the society had one session, C. F. Korstian presiding, at which papers were presented by Edward Haskell, Eldon J. Strandine and Theodore M. Sperry. During the afternoon, members of the society met with the Section on Social and Economic Sciences in a symposium on "Population Problems and Planning in the Northern Lake States."

On Wednesday morning a symposium on "Socio-economic Approach to Land Use" was well attended.

Aldo Leopold presented a paper on "The Relation of Game Management to Land Use." The second paper was by K. C. McMurry on "Geography and Land Use." The third paper was given by George S. Wehrwein on "The Economist's Approach to the Problem of Ecology," while the final paper was presented by Raphael Zon on "The Broader Social Implications of Land Use in the Cutover Region." Discussion of the papers was led by L. R. Schoenmann, presiding officer.

The Thursday morning session, held jointly with the Section on Social and Economic Sciences (K), dealt with the status of population mobility and on the application of culture area concept and research studies.

A three-day joint field trip with the Society of American Foresters was participated in by about 100 persons. The field trip, covering a distance of approximately 600 miles, gave the ecologists and foresters opportunity to see forest plantings, commercial selective logging, some Forest Service salvage logging of cutover areas, a Forest Service nursery and the virgin timber and selectively logged area on the Menomonie Indian Reservation, which is one of the finest remaining hardwoods in the Lake States.

SECTION ON ANTHROPOLOGY (H)

(From report by Wilton Marion Krogman)

At the Milwaukee meeting 17 papers were presented before the section, the attendance being about 15 persons. The major portion of the program centered about the theme of the pre-history of man in North America and subsequent acculturation. Earl Count stated that the earliest physical type of the American Indian was not basically Mongoloid, but contained elements more closely related to the present-day peoples of Australia-Melanesia. A series of papers was devoted to the analysis of presumed early material from Lake Pelican, in Minnesota. T. E. Evans reported on jaws, F. J. Borelli on teeth, P. B. Candela on blood-grouping, J. E. Hill on associated mammalian remains and Mrs. Gertrude S. Evans on associated artifacts. Certain "primitive" characters of jaws and teeth were pointed out; the blood-group was ascertained to be *A;* the mammalian remains were found to be identical with living forms of muskrat and pocket-gopher; the artifacts were very doubtfully related to "Yuma-Folsom" types. In all, there was no reason to consider the material as of any great antiquity. A. E. Whiting discussed the origin of Indian corn, concluding that it might have arisen from any wild-growing form within the area where corn was found at the time of the discovery of America. H. C. Shetrone reported on representations of the human form found in Ohio prehistoric art, giving some idea of physical type and of costume. Mrs. Gretchen Cutter outlined the archeological sequence at a specific site from Will County, Illinois, as Middle Mississippi in earlier levels, Woodland in later. Miss Frances Densmore showed how the ceremonies of the modern Indians demonstrate acculturation, in that they blend traits of aboriginal religion with Christian doctrines. At the Wednesday afternoon session the section met jointly with the Section on Geology and Geography to hear the paper by Kirk Bryan and L. L. Ray on the glaciology of the Southern Rockies with special reference to the antiquity of the Folsom culture at the Lindenmeier, Colorado, Site. The age was given as the third Wisconsin substage (Corral Creek Moraine), 25,000 years old, according to the Antevs chronology. Henry Field presented the results of his extensive study of the modern peoples of Persia: basically long-headed Mediterraneans, with evidence that roundheads (Proto-Alpines and Armenoids) came in at an early historic date. The section is indebted to Dr. S. A. Barrett and his staff for cordial hospitality and the opportunity to inspect the fine displays in the Milwaukee Museum, in which the sessions were held.

SECTION ON PSYCHOLOGY (I)

(From report by Hulsey Cason, secretary pro tem)

The program of the Section on Psychology included two sessions of six papers each and two symposia. The sessions were of high quality, and the average attendance was about 30 persons.

Of special interest in the session on General Psychology was the strong paper by Dean Edward A. Fitzpatrick, of Marquette University, on "The Scholastic Self." This paper and the animated discussion which followed brought out in clear relief the shortcomings of our modern system of educational regimentation, the principal failing of the schools being in the direction of the psychological influences on the students themselves. The general conclusion reached by Laird T. Hites and Howard Becker on the family and marriage courses in universities was that these courses should include materials from various academic fields and that they should not be given from the limited point of view of a single university department.

A very profitable symposium on "Measuring Attitudes" was conducted by Stephen M. Corey. The discussion by Mr. Corey and H. H. Remmers brought out the need for a clearer concept of attitudes and for additional clarity in the use of statistical measures.

Of special interest and scientific value was the symposium on "Neuromuscular Tension," the speakers being Edmund Jacobson, Earl Fowler and Maurice H. Krout, of Chicago, and Walter B. Cannon, of the Harvard Medical School. Dr. Jacobson and the other participants in the symposium presented much evidence showing the intimate interrelation of various organic functions and the practical medical value of the method of progressive relaxation.

SECTION ON SOCIAL AND ECONOMIC SCIENCES (H)

(From report by E. P. Hutchinson)

The Milwaukee program of the section contained two separate sessions on economics, a luncheon meeting with Pi Gamma Mu and two symposia. Of these two latter, one dealt with "Population Problems and Programs in the Northern Lake States"; the other, the third in the Science and Society series, with "The Economic System in Relation to Scientific Progress."

The population symposium, held under the auspices of the Population Association of America, was designed to give an understanding of the nature and origin of the existing problems and to review the measures undertaken to meet them. A total of 20 papers, divided into seven sessions, were contained in the symposium. In the introductory session of Tuesday morning Glenn T. Trewartha traced the history of the settlement of Wisconsin, outlining the transition from exploitation to occupation of the area and the attendant changes in the pattern of population distribution. W. B. Dick identified the principal places of origin of the earliest settlers as the Genesee Valley, New York, and certain portions of the adjacent states, and traced the favored routes of in-migration. Using census data for the period 1850 on, Guy-Harold Smith demonstrated the growth and changing distribution of population in Wisconsin, emphasizing the clustering movement which succeeded the early occupation, and predicted a continuation of this trend.

Following this historical introduction, E. M. Davis interpreted the changes of population and its distribution in terms of the changing economy of the area, indicating the demographic concomitants of the rise and fall of the lumbering industry, of the coming of railroads, etc. Stanley D. Dodge indicated the dependence of the population capacity of an area on the prevailing form of land use or economy and means of estimating this capacity. Raphael Zon emphasized the undesirability of a lively exploitive economy in the northern cutover area, and the desirability of local utilization of revenues.

Following an outline of population trends in Wisconsin by Samuel Teper, George Wehrwein discussed the work of the Wisconsin State Planning Board, emphasizing the importance of rural zoning as a direct means of regulating population distribution and the necessity of such a means of preventing universal settlement. M. W. Torkelson presented the recommendations of the Regional Committee for the economic rehabilitation of the cutover area, these being for reforestation and for the relocation of the inhabitants into comfortable and efficient settlements.

The third of the projected series of conferences on "Science and Society" was on "The Economic System in Relation to Scientific Progress." It consisted of four general sessions, at the first of which George W. Edwards delivered an address on "The Capitalistic System and How it Evolved," followed by Rufus S. Tucker, who spoke on "Free Enterprise and Scientific Development." At the second session Charles F. Roos presented a paper on "The Application of Natural Science Methodology to Economic Studies," and H. G. Moulton delivered an address on "Economics and its Dynamic Aspects." The speakers at the third session were Leverett S. Lyon, on "The Role of Government in the Economic System," and James W. Bell, on "Government Finance and Economic Stability." The final session consisted of a paper by Charles H. Judd, on "Present Relations of Government to Science," and another by William F. Ogburn, on "Should the Government Finance Non-governmental Research Activities?"

SECTION ON MEDICAL SCIENCES (N) AND SUBSECTION ON PHARMACY

(From reports by Malcolm H. Soule and Glenn L. Jenkins)

Of the 50 papers prepared for the Section on Medical Sciences (Malcolm H. Soule, reporting) 18 were devoted to various subjects of general interest, ranging from such topics as the cause of cancer to the use of helium in encephalography, and 32 were contributions to a Symposium on "The Gonococcus and Gonococcal Infection." The first session, held on Monday afternoon, was introduced with a group of three reports on the problems of lead and arsenic in the body. Humanity living in a big city is always exposed to small quantities of lead from gasoline fumes discharged by automobiles; hence information as to its possible action is desirable. In one study the blood and urine of 165 lead workers were examined for the effects on the blood picture and the presence of the heavy metal, two thirds of these individuals having had continued exposure to inhalation of lead dust in the storage battery industry for periods of from 5 to 20 years. In the findings distinction was drawn between lead absorption and lead intoxication, the former being a warning of possible future lead intoxication; the latter condition, while an agonizing experience, being easily relieved by intravenous calcium treatment.

One of the benefits of microbic life to mankind was brought out in a paper dealing with the coagulation of the blood. Since newborn infants have no prothrombin in their systems, they are unusually susceptible to death from hemorrhage. Prothrombin is formed from vitamin K. Bacteria introduced into the body shortly after birth, in the ordinary course of exposure, synthesize vitamin K, which in turn is converted into prothrombin, and in this manner nature provides a real barrier against post-natal bleeding.

The activities of the Milwaukee Convalescent Serum Center, which is one of the outstanding units of its kind in the country, were described. During the past five years human convalescent scarlet fever serum has been prepared and used in the prophylaxis and treatment of scarlet fever. In a few instances this material has been employed in other infections caused by hemolytic streptococci. Patients with erysipelas have responded favorably in every instance following the administration of the serum.

The symposium, "The Gonococcus and Gonococcal Infection," was jointly sponsored by the American Neisserian Medical Society and Section N. Four sessions, which ran consecutively, were held on Tuesday afternoon, Wednesday morning and afternoon and Thursday morning, the average attendance being 60.

The program on Tuesday focused attention on the biology of the gonococcus. This micro-organism was discovered in pus from infected individuals just 60 years ago, and its causal relationship to one of the most wide-spread maladies of man was accepted, although it was some time before the germ was cultured on artificial media. During the intervening years the delicate nature and the fastidious requirements of the organism have been repeatedly confirmed, but little has been added to our knowledge of the mechanism by which the associated disease is produced. The discussion favored a belief in the synthesis of toxins, but the nature of these metabolites is enigmatical. Possibly the crux of the problem is that the technique of toxin production under artificial conditions is fraught with many difficulties, and all procedures with this end in view must be carefully standardized in order to obtain data that are in essential agreement. Research with this organism is complicated by the lack of a suitable susceptible laboratory animal. To date no investigator has produced, except in humans, an infection which simulates in a satisfactory degree the ordinary disease as it occurs in man. Such experiments are naturally limited and difficult to control. The existence of natural immunity in certain individuals is recognized, but the attempts at stimulating artificial immunity by the introduction of any of the biologicals available at present has been uniformly disappointing.

On Wednesday morning 9 papers were contributed to the problem of diagnosing gonococcal infection and the criteria for its cure. The disease in males lends itself to rather easy diagnosis, but in females the problem is complicated. The examination of stained smears of specimens from suspicious areas is of considerable aid, but cultural studies are recognized as essential for the diagnosis in doubtful instances and as a criteria for cure. Such procedures must be carried out at repeated intervals by well-trained workers. Three papers on gonococcal arthritis, meningitis and proctitis completed the morning program.

Sulfanilamide and related compounds received, as was to be expected, considerable attention in the symposium. It was agreed that in some types of gonococcal infection, such as ophthalmia neonatorum, the use of this drug is followed by almost miraculous cures. In other manifestations the results are good but not as striking. In a limited number of patients the use of the chemicals seems to delay therapeutic progress, possibly the strain of germ involved having become drug-fast. Encouraging reports were given following the administration of sulfapyridine, this compound having certain advantages over sulfanilamide. The mechanism by which any of these drugs exerts its beneficial action was discussed at great length, but the available data permitted of no conclusions. The final paper on the symposium was devoted to the administrative problems in the control of gonococcal infection.

The symposium, the most comprehensive ever held on this subject, was an outstanding success. The discussions afforded an opportunity for an interchange of experiences in using the present laboratory aids for diagnosis and served the very practical purpose of stimulating a most critical attitude in evaluating the reports of the results of treatment with the newer chemical compounds.

Two sessions of the Subsection on Pharmacy (Glenn L. Jenkins reporting) were devoted to a symposium on the vitamins with particular reference to their standardization.

Aaron Arnold, in his report on thiamin, pointed out that interfering substances limit the value of the chemical methods of determination and that the biological method based on growth is the most reliable procedure. Simpler and more rapid methods for the determination of thiamin and new criteria of its functions will make it possible to determine whether the level for optimum nutrition is appreciably above the requirement level. P. H. Phillips, in comparing the methods for the assay of riboflavin based on fluorescence, color and photolysis, and growth promotion, pointed out that the bio-assay method is the most accurate method now known, but that the colorimetric method offers much promise when applied to the degradation products of this vitamin. Methods using micro-organisms are economical, rapid and accurate for the determination of trace levels. Evidence has been obtained which indicates that riboflavin may be necessary for the deaminization of amino acids and the formation of urea in the liver. It plays an important rôle in nerve nutrition in chicks which exhibit neuromalacia on low riboflavin diets and recover rapidly when the deficiency is supplied by the administration of riboflavin. C. A. Elvehjem reviewed the procedures which led to the isolation of nicotinic acid fraction of the Vitamin B complex. He showed that while chemical procedures, bacterial growth methods and bio-assays offer possibil-

ities, the most reliable assay procedure at present is the curative method applied to dogs in which black tongue has been induced by feeding a suitable nicotinic acid deficient basal ration. It was emphasized that a chemical method of assay is greatly needed so that our knowledge of the distribution of nicotinic acid, as well as other factors in foods, may be made known. When this knowledge is available it will be possible to modify the diet, particularly in areas where pellagra is prevalent, and fortify the diet with nicotinic acid if necessary to prevent the disease. W. D. Woolley discussed the chick antidermatitis factor and pantothenic acid of the vitamin B complex. The assay of the former is best carried out on chicks by noting the growth and prevention of dermatitis as compared to chicks on a basal diet. A method for the determination of pantothenic acid which is rapid, economical and accurate has been devised. It is based on the discovery that pantothenic acid is essential for the growth of a wide variety of hemolytic streptococci. An assay by this method can be completed in 24 hours and it excels the animal method in precision. All the authors of papers pertaining to the *vitamin B complex* emphasized the need for chemical methods of assay and for methods of assay which would permit the determination of the concentration of vitamins in the blood.

A. Black critically examined the factors which influence the accuracy of vitamin A assays. He pointed out that the biological methods measure the combined vitamin A activity of the various compounds which may become available as vitamin A to the rat and that the method is not specific for any particular kind of vitamin A. Methods based on the measurement of the absorption of light by means of spectrophotometers have been widely used and are the most accurate and give the most information about the sample.

Vitamin E, the anti-sterility vitamin, was reviewed as to its sources, isolation, chemistry, physiological activity and assay by Mrs. Flemintine P. Dann. The production of pure alpha tocopherol (Vitamin E) offers promise of leading to a more quantitative method than the present bio-assay.

SECTION ON AGRICULTURE (O): SOCIETY OF AMERICAN FORESTERS

(From report by Henry E. Clepper)

The Society of American Foresters met in five sessions, one of which was a joint session with the Ecological Society of America. Twenty-two papers were presented covering research with chemicals in forest fire control, the utilization of forest products, forest recreation, reforestation, forest management, selective logging, land planning and land use, soil conservation, game management and a discussion of the social and economic problems of forestry in the Lake States.

The foresters' banquet was held at the Milwaukee Athletic Club.

Four days were devoted to field trips. Visits were made to the Forest Products Laboratory, Madison, Wis., to the Goodman Lumber Company operations, the Nicolet National Forest and the Menomonie Indian Reservation.

Approximately 100 members of the Society of American Foresters attended the sessions. In addition, about 20 non-members participated in the field trips.

SECTION ON EDUCATION (Q)

(From report by H. H. Remmers)

The Section on Education (Q) held three sessions at which 17 papers were scheduled. Owing to unforeseen circumstances two of the speakers were unable to appear. The attendance at the meetings ranged from 20 to 46, with an average slightly over 30 for the various sessions. The general theme of the three sessions was the education of the emotions.

In the first morning session Miss Margaret Joseph, of Shorewood High School, Milwaukee, presented an interesting study on "The Factor of Interest in the Teaching of Mathematics." Her data indicated that if pupils in the lower fourth of the distribution on scores of a group intelligence test and a reading test were not required to take high-school mathematics, there would be practically no failing students in mathematics. A paper on "Interests and Attitudes of Junior High School Pupils," by W. Clark Trow, of the University of Michigan, presented an interesting longitudinal study of which the implications for guidance were made strikingly clear. H. Meltzer, of the Psychological Service Center, St. Louis, Mo., presented an important paper on "Educational Implications of a Study of Race Attitudes of School Children." In general, the data showed less differentiation of children's attitudes toward races than do those of adults, and also a significant change over the period from 1934 to 1938 in the same population of school children, the change being in general one of a relatively less favorable attitude toward totalitarian countries and a more favorable attitude toward the democracies. Numerous factors were shown to condition the racial attitude, such as home, neighborhood, companions, etc. Human tragedies as the result of inadequate sex education were delineated by Robert S. Drews in a paper under the title "Evaluation of Adult Neuroses in the Light of Inadequate Sex Education." In the discussion the relative inadequacy of both educators and physicians in terms of the training programs for each were brought out. The final paper in the first morning session was by Roy C. Bryan, Western State Teachers College, Kalamazoo, Michigan, on "Evaluation of Student Reaction to Secondary School Teachers." Dr.

Bryan stressed the importance of the emotional factors in all learning and the way in which emotionalized attitudes toward the teacher may condition the learning and adjustment of the pupil.

The first paper of the afternoon session was on "The Use of Music in an Educational Program of Mental Hygiene," by Dr. O. Irving Jacobson, of Shurtleff College, Alton, Illinois. Dr. Jacobson's experiment concerned a galvanometric study of 16 subjects subjected to different types of music. While no conclusions could be drawn from the relatively limited data, a number of very interesting leads for further research appeared. The second paper, "Some Educational Implications of the American Youth Commission Study of Civilian Conservation Corps Camps," by Kenneth Holland, associate director of the American Youth Commission, Washington, D. C., presented a picture of the uniqueness of the educational problems in CCC Camps and the relative emotional and educational adjustment which the enrollees make. The third paper, by Stanford C. Ericksen, University of Arkansas, on "An Experimental Investigation of Student Motives: Why Do Students Want to Make Good Grades?" showed that motivation in learning in college varies with sex of the student, the curriculum, the class, membership in Greek letter fraternities, etc. That more realistic and wholesome attitudes toward problems of marriage are being developed was shown in an interesting paper by E. F. Van Buskirk, of Stephens College, under the title, "Interests and Attitudes of College Women in Regard to the Biological Basis of Marriage and Some of its Social Implications." The final paper in the afternoon session was presented by Miss Mildred B. Mitchell, of the Psychopathic Hospital of the State University of Iowa, under the title, "The Revised Stanford-Binet Test for Adults." The tests were shown to be considerably more discriminative than the 1917 edition.

The final morning session was introduced by a paper by J. H. Farley, of Lawrence College, under the title "Modern Higher Education, Comprehensive Reflective Thinking and the Factors of Emotion, Interests and Ideals." This paper was a critical examination of the outcomes of modern higher education in terms of student thinking and emotional adjustment. The second paper, by E. I. F. Williams, of Heidelberg College, on "Constructive Emotions as Resources in Teaching," summarized in excellent fashion some of the more significant experimental findings with reference to the education of the emotions and brought out important educational implications of these findings. "Adjustment *vs.* Mental and Physical Health in Freshman Medical Students," by Leo P. Clements, of Creighton University, considered the unhygienic nature of the medical curriculum when viewed in the light of serious emotional and physical maladjustment of students. A paper by F. C. Dana, of Iowa State College, on "Engineering Problems Courses as Aid to Discovering Interests and Aptitudes of Students," reviewed the experience at Iowa State College over a period of more than 20 years with such a course, and described the methods and means of detecting the characteristics of students in the interests of their educational-vocational guidance by means of this course. The final paper on "General Semantics and the Control of Affective Processes in Education" was presented jointly by Miss M. Kendig, of the Institute of General Semantics, in Chicago, and by C. B. Congdon, psychiatrist at the University of Chicago. A growing interest in the problems of semantics as related to emotional adjustment made this paper particularly timely.

OBITUARY

HARRY VICTOR ATKINSON
1887–1939

ON May 7, 1939, at Vermillion, S. D., death from a cerebral hemorrhage cut short the career of Professor Harry Victor Atkinson in his fifty-second year. He was born at Van Wert, Ohio, on February 12, 1887. Fundamentally trained in chemical engineering at Ohio State University (B.S., 1911), he continued in that field only three years. Supported by an instructorship in physiological chemistry at the Northwestern University School of Medicine (1914–17), he undertook the study of physiology and allied sciences at that institution and at Rush Medical College. From 1917 to 1920, he was instructor of physiology at Cornell Medical College, a position that was interrupted by nine months' service overseas in the Chemical Warfare Service. Working under an instructorship in pharmacology, he completed his work for the doctorate degree in pharmacology at the Medical School of the University of Illinois (1922).

His academic career reflects the esteem in which he was held by the members of his profession. He was, successively, associate professor of pharmacology, Texas, 1922–24; professor of pharmacology, Texas, 1924–26; associate professor of pharmacology, Iowa, 1926–28; and professor of physiology and pharmacology at the University of South Dakota from 1928 until his untimely death. Of his nineteen publications, he will be particularly remembered for his work on the conversion of protein to fat in the dog and his studies on the chemical changes in the blood during anesthesia. He held membership in the American Society for Pharmacology and Experimental Therapeutics, the Society for Experimental Biology and