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

Edited by DR. F. R. MOULTON

PERMANENT SECRETARY

FROM June 17 to June 22, inclusive, the American Association for the Advancement of Science and the Pacific Division of the Association held a joint meeting in Seattle, Washington. This was the one hundred sixth meeting of the association and the twenty-fourth meeting of the Pacific Division. The Pacific Division met in Seattle in June, 1936; this was the first meeting of the association in the state of Washington.

To the residents of the eastern part of the United States, and even to those of the Middle West, Seattle seems to be very remote and not easily accessible. It is indeed distant from these regions, counting distances as they were counted only a few years ago. But

ribbons of concrete, streamlined trains and airplanes have reduced distances so much that 89 members from east of the Rocky Mountains registered at the meeting. The attractions were not only a delightful climate and some of the finest scenery in the world but excellent scientific programs.

To expect anything less than a good meeting of the association in Seattle would be to ignore essential factors. Seattle is a city of nearly 400,000 inhabitants; a city which, like ancient Rome, sits on seven hills. The University of Washington has more than 12,000 students. Westerners are used to wide open spaces and are accustomed to travel, as is illustrated

by the fact that although nearly 1,000 miles stretch between San Francisco and Seattle, there were 164 registrants at the meeting from California. There were Canadians from Alberta and Manitoba, as well as from nearer British Columbia, 28 of whom registered. In all there were 673 registrants, compared with 331 at the meeting held in Milwaukee, Wisconsin, in June, 1939.

At the Seattle meeting 27 affiliated and associated societies participated in the programs and a total of 644 addresses and papers were delivered or read. These addresses and papers ranged widely over the fields of the physical, biological and social sciences. Especially in the natural sciences, each of them recorded some increase in knowledge of a universe that its author was finding to be orderly and understandable. While the scientists were thinking of science there was only happiness in their hearts. But when they read the European news in the daily press a cold fog settled over them. What a commentary on "the Lords of Creation" that they find order in all the universe, both physical and biological, except in the domain of their own minds and actions! Perhaps the restlessness, ambition, greed and ruthlessness that lead from time to time to conquests are among the qualities of our race that have enabled it to rise above and dominate all other species. It is the hope and possibly the promise of science that it will be able to point out other and even more rapid ways to human progress. It can not be expected, however, that any deep-seated human characteristics will rapidly be changed. And is it not true that the ability to change implies the possibility of taking a road toward disaster as well as toward success? Can there be a capacity for happiness without there being at the same time a capacity for suffering?

Fortunately, in the Seattle region there are almost unparalleled opportunities for profitable and enjoyable excursions by scientists. Many groups under competent leaders visited the forests, the arms of the ocean or the mountains. In addition to increasing their knowledge of their own specialties, the participants in these excursions enlarged their perspectives in space and time and enjoyed the healing effects of mountains and sea and growing things.

The excursions were only one of the provisions made for the comfort, entertainment and advantage of visitors by a very competent and efficient Local Committee on Arrangements under the able chairmanship of Dr. A. F. Carpenter, executive officer of the department of mathematics of the University of Washington. The duties of the committee were largely assigned to a number of special committees: Excursions, H. A. Coombs, *chairman*; Finance, H. E. Smith, *chairman*; Meeting Places and Equipment, M. H. Hatch, *chair-*

man; Program, D. H. Loughridge, *chairman*; Publicity, B. H. Christian, *chairman*; Reception and Entertainment, H. P. Riley, *chairman*, and Transportation, A. V. Eastman, *chairman*. The officers of the association and all who attended the meeting in Seattle owe a debt of gratitude to these committees and to the University of Washington.

REGISTRATION

There were about 1,100 persons in attendance at the various scientific sessions, exclusive of the general sessions to which the public was invited. The total registration was 673, distributed as follows: Alaska, 1; Arizona, 6; California, 164; Colorado, 3; Connecticut, 2; District of Columbia, 7; Hawaii, 3; Idaho, 28; Illinois, 8; Indiana, 2; Iowa, 1; Louisiana, 1; Maryland, 1; Massachusetts, 3; Michigan, 1; Minnesota, 5; Missouri, 2; Montana, 16; Nebraska, 2; Nevada, 6; New Hampshire, 1; New Jersey, 3; New York, 11; North Dakota, 1; Ohio, 9; Oklahoma, 1; Oregon, 116; Pennsylvania, 5; South Dakota, 1; Tennessee, 1; Texas, 2; Utah, 7; Washington, 216; Wisconsin, 6; Canada, 28; France, 1; Peru, 1; Philippines, 1.

GENERAL SESSIONS

On Tuesday evening, June 18, Dr. Lewis M. Terman, president of the Pacific Division and distinguished head of the department of psychology of Stanford University, delivered an address on "Psychological Approaches to the Biography of Genius." Dr. Albert F. Blakeslee, president of the association, presided and introduced Dr. Terman. A large and appreciative audience listened attentively to Dr. Terman's discussion of his long-continued investigations of exceptionally talented persons.

On Wednesday afternoon, June 19, Dr. Donald Milton Erb, president of the University of Oregon, delivered an excellent address under the sponsorship of Pi Gamma Mu, a national social science honor society, on "Perspective in the Social Sciences." Dr. S. Howard Patterson, national president of Pi Gamma Mu, presided.

On Wednesday evening, June 19, Dr. Edwin P. Hubble, astronomer of the Mt. Wilson Observatory, delivered the ninth Hector Maiben Lecture, an illustrated address on "Problems in Nebular Research." Dr. Albert F. Blakeslee, president of the association, presided and introduced Dr. Hubble, who discussed his investigation of exterior galaxies and the apparently adverse evidence he has secured on the theory of an expanding universe.

On Thursday evening, June 20, Mr. S. E. Hutton, of the Bureau of Reclamation, U. S. Department of the Interior, delivered an illustrated address on "The Columbia Basin Reclamation Project and the Con-

struction of the Grand Coulee Dam." Dr. Albert F. Blakeslee, presided.

SYMPOSIA

Fourteen principal symposia were presented at the meeting, ranging in subject-matter from cosmic rays to virus diseases of fruit trees. They were as follows:

1. *Cosmic Rays*, organized by American Physical Society. Scheduled participants in the symposium were Hans A. Bethe, Arthur H. Compton and Robert A. Millikan.

2. *Sources of Stellar Energy*, organized jointly by American Physical Society and Astronomical Society of the Pacific; papers by G. M. Volkoff and Dean B. McLaughlin.

3. *Nuclear Moments*, organized by American Physical Society; papers by N. F. Ramsey and J. R. Zacharias.

4. *The Present Crisis in the Quantum Theory of Fields*, an informal symposium organized by American Physical Society. Discussion was led by J. R. Oppenheimer.

5. *The Photoelectric Cell in Astrophysical Research*, organized by the Astronomical Society of the Pacific; 5 papers.

6. *Alaska—its Resources and its Problems*, organized by Section on Geology and Geography and Geological Society of America. The symposium consisted of two sessions at which 11 papers were read.

7. *The Species Problem*, presented under the joint auspices of the Section on Zoological Sciences, the Section on Botanical Sciences and the Western Society of Naturalists. The symposium was presented in two sessions, Robert C. Miller presiding, at each of which four papers were read.

8. *Salmon Problems on the Pacific Coast of North America*, organized by American Society of Ichthyologists and Herpetologists, Western Division. The symposium was presented at two sessions, W. M. Chapman, presiding, at each of which four papers were read.

9. *Aquatic Botany*, organized by Section on Botanical Sciences, Botanical Society of America, Pacific Division, and American Society of Plant Physiologists, Western Section. The symposium, at which George B. Rigg presided, consisted of six papers.

10. *Recent Investigations of the Characteristics of the Photosynthetic Process*, organized by Section on Botanical Sciences, Botanical Society of America and American Society of Plant Physiologists. The symposium was presented in two sessions, H. A. Spoehr presiding, at the first of which four papers were read and at the second of which three papers were read.

11. *Social and Economic Problems of the Pacific Northwest in Relation to their National Setting*. This symposium, organized by the Section on Social and Economic Sciences, consisted of 5 sessions as follows: (a) Population Trends with special Reference to the Pacific Northwest (J. F. Steiner, chairman; 5 papers); (b) Migration and Settlements: Patterns and Trends (John B. Appleton, chairman; 7 papers); (c) The Economy of the Pacific Northwest in its National Setting (Donald Milton Erb, chairman; 6 papers); (d) Standards of Living and Em-

ployment: Problems of Community Insecurity (W. F. Ogburn, chairman; 5 papers); and (e) Employer-Employee Problems and Relations (Wayne L. Morse, chairman; 7 papers).

12. *Forest Influences and Land Use Problems*, organized by Ecological Society of America and Society of American Foresters. The presiding officers were C. S. Cowan and John H. Hanley; 4 papers.

13. *Virus Diseases of Fruit Trees*, organized by American Phytopathological Society. Symposium consisted of two sessions, 6 papers read at the first and 5 at the second.

14. *Phosphate Nutrition and Phosphate Fertilization*, organized by Western Society of Soil Science and American Society of Plant Physiologists, Western Section. H. D. Chapman, chairman; 4 papers.

SCIENTIFIC SESSIONS

AMERICAN MATHEMATICAL SOCIETY

(From report by T. M. Putnam)

The feature of the program of the society was a joint session with the American Physical Society, at which John von Neumann presented a paper "On Operator Rings and Dimensions." There were two other sessions, at which 15 papers were presented before an audience of 52 persons. The society held a joint dinner with the Section on Mathematics.

AMERICAN PHYSICAL SOCIETY

(From report by Paul Kirkpatrick)

The society organized 2 symposia, participated with the Astronomical Society of the Pacific in a third symposium and held a joint session with the American Association of Physics Teachers for a program on "Training of Physicists at the Graduate Level." The program consisted of 60 papers, and 225 different persons attended one or more sessions. The society held a luncheon at which Karl K. Darrow and Frederick Bedell spoke.

AMERICAN ASSOCIATION OF PHYSICS TEACHERS

(From report by A. A. Knowlton)

In addition to the joint session with the American Physical Society, the society held three sessions at which 4 invited and 17 contributed papers were presented. An interesting feature of the first session was an illustrated lecture by E. C. Watson on "The Life and Work of William Gilbert as Portrayed in Old Prints."

AMERICAN METEOROLOGICAL SOCIETY

The society held 4 sessions at which 22 papers were presented, many of them pertaining to meteorological problems of the Pacific Northwest.

AMERICAN CHEMICAL SOCIETY

The society held 4 sessions at which 32 papers were

presented, 8 at each session. The meeting was a Western Intersectional Meeting of the society under the chairmanship of H. V. Tartar.

ASTRONOMICAL SOCIETY OF THE PACIFIC

(*From report by T. S. Jacobsen and N. U. Mayall*)

In addition to presenting a symposium on "The Photoelectric Cell in Astrophysical Research" and organizing a symposium and holding a joint session with American Physical Society on "Sources of Stellar Energy," the society held 3 sessions, at which 17 papers were presented. It also held an evening session, at which R. M. Petrie, of Victoria, B. C., Canada, delivered a lecture on "Solar Kinematography" illustrated by motion pictures taken at the McMath-Hulbert Observatory. The speakers at a dinner of the society were Paul W. Merrill and Joel Stebbins.

SECTION ON GEOLOGY AND GEOGRAPHY AND GEOLOGICAL SOCIETY OF AMERICA

(*From report by Howard A. Meyerhoff*)

In addition to presenting a symposium on "Alaska—its Resources and its Problems," in two sessions at which 11 papers were read, the section and the society held 4 sessions at which 42 papers were presented and organized a 300-mile petrologic field excursion, under the leadership of G. E. Goodspeed, a 150-mile glacial field excursion, under the leadership of J. Hoover Mackin, and a 3-day Cascade-Columbia Plateau field excursion, under the leadership of Richard F. Flint, Richard E. Fuller, G. E. Goodspeed, J. Hoover Mackin and A. C. Waters. About 110 persons attended the sessions of the section.

AMERICAN GEOPHYSICAL UNION, SECTION OF HYDROLOGY

(*From report by George G. West*)

The society held 3 sessions, at which the respective chairmen were Phil E. Church, J. C. Stevens and O. W. Monson, and at which 5, 3 and 4 papers, respectively, were read. At a joint luncheon on the first day with Western Interstate Snow Survey Committee and American Meteorological Society, Ukitiro Nakaya, of Hokkaido University, Japan, exhibited a sound film on "Formation of Snow Crystals in the Mountains and in the Laboratory in Japan." At a second joint luncheon the Washington Water Power Company exhibited a motion picture on "From the Snow Field to the Home." At a joint dinner with the Western Interstate Snow Survey Committee a motion picture on Snow Surveys was shown. An interesting feature of the meeting of the society was an exhibit of instruments used in the collection of hydrologic data.

OCEANOGRAPHIC SOCIETY OF THE PACIFIC

The society held a conference on "The Distribution and Cycle of Organic Matter in the Ocean."

ASSOCIATION OF PACIFIC COAST GEOGRAPHERS

The society, in its sixth annual meeting, held 6 sessions, at which 31 papers were presented, and a dinner, at which Peveril Meigs, president of the society, delivered an address on "Exploring American Orchards" and at which a motion picture on "Wheat Farming and Conservation in the Palouse" was shown. The society joined in an excursion around Seattle Harbor.

WESTERN INTERSTATE SNOW SURVEY CONFERENCE

The society held 4 sessions, at which 23 papers were presented. The first was on "Forecasting," R. A. Work, *chairman*; the second, "Equipment," R. C. Farrow, *chairman*; the third, "Activities," O. W. Monson, *chairman*, and a fourth session for the reading of miscellaneous papers. In addition, the society held a dinner, H. P. Boardman, presiding, at which a color motion picture on "Snow Surveying in the Central Sierra" was shown by Walter Herz and at which 9 speakers participated in a discussion of "Accuracy of Forecasts in Pacific Northwest in 1938-1939."

SECTION OF ZOOLOGICAL SCIENCES

(*From report by George A. Baitsell*)

The section held two joint sessions with the Section on Botanical Sciences and Western Society of Naturalists, at which a symposium on "The Species Problem" was presented under the chairmanship of Robert C. Miller. About 100 persons were in attendance at the reading of the papers and about 125 at the Biologists' dinner.

AMERICAN SOCIETY OF ECONOMIC ENTOMOLOGISTS, PACIFIC SLOPE BRANCH

(*From report by Roy E. Campbell*)

The society held a joint session with Northwest Association of Horticulturists, Entomologists and Plant Pathologists, American Phytopathological Society and American Society for Horticultural Science, Don C. Mote, presiding, at which 11 papers were presented. It also held 3 other sessions, at which 30 papers were read. The sessions of the society were attended by about 125 persons.

AMERICAN SOCIETY OF ICHTHYOLOGISTS AND HERPETOLOGISTS, WESTERN DIVISION

(*From report by Margaret Storey*)

In addition to the symposium on "Salmon Problems on the Pacific Coast of North America," presented in 2 sessions, the society held 2 sessions for the reading of general papers and conducted an excursion to commercial establishments on the Seattle waterfront and frozen fish exhibit. Fifteen papers were presented, and the attendance on the programs of the society was over 150.

PACIFIC NORTHWEST BIRD AND MAMMAL SOCIETY

(*From report by Arthur Sivilha*)

The society, at its twentieth annual meeting, held 2 sessions at which 12 papers were presented and joined in an open meeting with American Society of Ichthyologists and Herpetologists.

THE SECTION OF BOTANICAL SCIENCE AND THE
BOTANICAL SOCIETY OF AMERICA,
PACIFIC DIVISION

(*From report by Ira L. Wiggins*)

The section and the society joined with American Society of Plant Physiologists in the symposium on "Aquatic Botany" and "Recent Investigations of the Characteristics of the Photosynthetic Process," mentioned previously under "Symposia," 3 sessions, at which 21 papers were read, a 2-day excursion to the Olympic Peninsula and a joint excursion with American Society of Plant Physiologists to Friday Harbor.

AMERICAN PHYTOPATHOLOGICAL SOCIETY, PACIFIC
DIVISION

(*From report by C. E. Yarwood*)

In addition to presenting a symposium on "Virus Diseases in Fruit Trees," the society held a joint session with American Association of Economic Entomologists, American Society for Horticultural Science and Northwest Association of Horticulturists, Entomologists and Plant Physiologists, at which 5 papers were presented, and 4 sessions of its own, at which 30 papers were read.

AMERICAN SOCIETY OF PLANT PHYSIOLOGISTS,
WESTERN SECTION

(*From report by J. Van Overbeek*)

The society participated with other societies in symposia on "Phosphate Nutrition and Phosphate Fertilization," "Aquatic Botany" and "Recent Investigations of the Characteristics of the Photosynthesis Process" (see "Symposia," *ante*), held a joint session, under the chairmanship of William M. Atwood, with American Society for Horticultural Science, at which 7 papers were read, two sessions under the chairmanship of A. S. Crafts, at which 6 papers were read, and conducted a trip to the Oceanographic Laboratories of the University of Washington at Friday Harbor, San Juan Islands. A total of 27 papers was presented in the programs of the society which were attended by about 100 different persons.

ECOLOGICAL SOCIETY OF AMERICA

(*From report by H. de Forest*)

In addition to joining with Society of American Foresters in the symposium, "Forest Influences and Land Use Problems," the society held two sessions,

one under the chairmanship of H. de Forest and the other under the chairmanship of Frederick A. Davidson, at which 10 papers were read.

WESTERN SOCIETY OF NATURALISTS

The society participated in the symposium on "The Species Problem."

SECTION ON ANTHROPOLOGY

(*From report by Erna Gunther*)

The section held two sessions, Erna Gunther and Verne F. Ray, presiding, at which 6 papers were presented. The attendance at the sessions was about 30 persons.

SECTION ON PSYCHOLOGY

(*From report by Leonard Carmichael*)

Under the excellent guidance of John E. Corbally and with the assistance of Stevenson Smith and Edwin R. Guthrie, a program was worked out for the section jointly with the Section on Education.

The first (morning) session was about equally divided between papers in psychology and education. At the joint luncheon of the sections which followed, the secretaries discussed the relationship between psychology and education and the other sciences represented in the A.A.A.S.

In the afternoon a panel discussion on the utilization of community resources for educational purposes was participated in by 6 experts in this field. The section also cooperated with the Society for Research in Child Development in 2 programs. The first of these consisted in the presentation of 5 papers in the field of the physical and mental development of young children. "The Application of Research to Practical Work with Children" was the topic of a panel discussion in the other general meeting of this society.

SOCIETY FOR RESEARCH IN CHILD DEVELOPMENT

(*From report by Stevenson Smith*)

The society held 2 sessions, one at which 5 general papers were read, and a panel discussion on "Application of Research to Practical Work with Children." Attendance, 88.

SECTION ON SOCIAL AND ECONOMIC SCIENCES

(*From report by E. P. Hutchinson*)

The section program, prepared by a local committee under the chairmanship of Kenneth O. Warner, of the Northwest Regional Council, consisted of a symposium on social and economic problems of the Pacific Northwest. The 5 sessions dealt in succession with population trends in the area, the pattern of migration and settlement, economic problems of the Northwest in relation to the national setting, the local standard of living and lastly the labor situation. Among the par-

ticipants in the discussion were J. F. Steiner, John B. Appleton, Paul Landis, Richard A. Lester, Donald M. Erb and W. F. Ogburn, together with representatives of various state and federal agencies. The symposium began with a statement of the size and composition of the population of the area and the extent of the problem of dependency. From there it proceeded to a consideration of the migration trends and the prospects for future growth, surveyed the outlook for the economy of the area, considered the existing standard of living as compared to that of other sections of the country, and concluded with a discussion of employer-employee relations.

INSTITUTE OF THE AERONAUTICAL SCIENCES

The program of the society consisted of 2 sessions, under the chairmanship of Frederick Kurt Kirsten, for the presentation of papers and a dinner at which the Musick Memorial Trophy for 1940 was presented. Wolfgang B. Klemperer exhibited interesting color motion pictures of "High Altitude Flight without Power," and a color sound film on "Transpacific Flight" was shown. During the presentation of the important paper on "High Altitude and its Effects on the Human Body," by Drs. Randolph Lovelace, William M. Boothby and O. O. Benson, Dr. Lovelace entered a decompression chamber in which the atmospheric pressure was reduced to that at an altitude of 33,000 feet, from which he was returned to normal pressure in less than a minute.

SOCIETY OF AMERICAN BACTERIOLOGISTS, SOUTHERN CALIFORNIA BRANCH AND NORTHERN CALIFORNIA-HAWAIIAN BRANCH

(*From report by Ernest C. McCulloch*)

The society had a program of 20 papers, 17 of which were read at two sessions. The attendance was about 55. Notable papers were "A Study of Living Forms of Infectious Myxoma by High Power Microscopy," by R. E. Hoffstadt, and "Carbon Dioxide Assimilation by Propionic Bacteria Studied by the Use of Radioactive Carbon," by S. F. Carson.

SOCIETY FOR EXPERIMENTAL BIOLOGY AND MEDICINE, PACIFIC COAST BRANCH AND SOUTHERN CALIFORNIA BRANCH

(*From report by Walton Van Winkle, Jr.*)

The society held 2 sessions at which 29 papers were presented. The attendance was about 75.

AMERICAN SOCIETY FOR HORTICULTURAL SCIENCE, WESTERN SECTION

(*From report by C. L. Vincent*)

The society held 5 sessions under the general chairmanship of E. L. Overholser, one being a joint session with Northwest Association of Horticulturists, Ento-

mologists and Plant Pathologists, American Phytopathological Society and American Association of Economic Entomologists. At the sessions of the society 29 papers were read and the attendance was about 120.

SOCIETY OF AMERICAN FORESTERS

(*From report by G. D. Marchworth*)

The society held four sessions at which 15 papers were presented and which were attended by about 75 persons. The subject for consideration at the first session was "Forest Resources," William H. Price, *chairman*. The second session, under the chairmanship of Lyle F. Watts, was devoted to "Cutting Practices in Various Northwest Forest Types"; the third, under the chairmanship of Hugo Winkenwerder, to "Utilization Problems of the Northwest; and the fourth, with C. S. Cowan serving as chairman, to "Forest Influences and Land Use Problems." A field trip of 26 persons was taken to the Cedar River Water Shed (Seattle's Municipal Forest) and the operations of the Cascade Logging Company.

WESTERN SOCIETY OF SOIL SCIENCE

(*From report by L. T. Kardos*)

In addition to participating in the symposium on "Phosphate Nutrition and Phosphate Fertilization," the society held 3 sessions, at which 20 papers were read. Its programs were attended by a total of about 100 persons. The symposium was followed the next day by a round table discussion, under the chairmanship of R. A. Walker, of "Coordination of Research Programs in Western Phosphate Utilization."

NORTHWEST ASSOCIATION OF HORTICULTURISTS, ENTOMOLOGISTS AND PLANT PATHOLOGISTS

The society participated with entomologists, phytopathologists and horticulturists in a discussion of the use of statistical methods. A paper on "Relations of Plant Viruses to the Tissues of Hosts," by Katherine Esau, was especially important. The society held a demonstration program at the Western Washington Experiment Station at Puyallup as a part of a field trip with the Pacific Division of the American Phytopathological Society to various orchards, vegetable farms and berry fields. The total attendance was 118.

SECTION ON EDUCATION

(*From report by John E. Corbally*)

The section held two sessions with the Section of Psychology (see report of the section, *ante*). The general topic considered at the first session was "Learning Attitudes," and "The Utilization of Community Resources for Educational Purposes" at the second. About 200 persons attended the first session and 150 the second.