News and Notes

Upper Atmosphere Symposium and Conference

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Under the auspices of the California Institute of Technology, the Naval Ordnance Test Station, and the Office of Naval Research, Department of the Navy, a symposium on upper atmosphere physics was held at the California Institute of Technology, Pasadena, on May 15. This was followed by a two-day conference on this subject at the Naval Ordnance Test Station (Inyokern) China Lake, California.

These meetings reflect, in general, the interest in this field in the Southern California area and, in particular, the influence of three outstanding European scientists who are in residence there. Sidney Chapman, of Oxford University, who has contributed extensively in many problems of the upper atmosphere, began a one-year stay at the California Institute of Technology in April, under an arrangement made possible by W. H. Pickering and his Signal Corps project. Marcel Nicolet, chief of the Department of Radiation, Royal Meteorological Institute of Belgium, and David R. Bates, of University College, London, have been actively associated with the ONR-sponsored light-of-the-night-sky research program under C. T. Elvey and F. E. Roach at the Naval Ordnance Test Station. Dr. Nicolet is noted for his work on the ionosphere, and Mr. Bates has made outstanding contributions concerning the photochemical reactions in the upper atmosphere.

The symposium consisted of nine papers which covered the field from the structure of the atmosphere to cosmic rays at very high altitudes. Approximately 80 people attended. Dr. Chapman spoke on "Theories of the Aurora," Dr. Nicolet on "Formation of the Ionized Layers," and Mr. Bates on "Basic Reactions in the Night Sky Emission." J. A. Van Allen, of the Applied Physics Laboratory, presented experimental results which have been obtained with rockets in his paper on "Cosmic Rays at Very High Altitudes," and A. B. Meinel, of Yerkes Observatory, gave an account of his recent experimental work in a paper entitled "OH Emission Bands in the Spectrum of the Night Sky," and also read a paper on the same subject by Gerhard Herzberg, of the Canadian National Research Council. R. Penndorf, of the Air Force Cambridge Research Laboratory, J. Kaplan and S. W. Kash, of the University of California at Los Angeles, and W. W. Kellogg, of UCLA and the Rand Corporation, also presented papers.

Perhaps the most significant contributions that were reported for the first time in this meeting had to do with the interpretation of Dr. Meinel's experimental identification of the rotational bands of OH in the "airglow," the night sky radiation other than the aurora, the zodiacal light, and the twilight. This interpretation was exhaustively treated by Bates and Nicolet and independently by Herzberg. It appears that the basic reaction responsible for the OH lines is the one between atomic hydrogen and ozone at an altitude of about 70 km. This height has been confirmed experimentally by Dr. Roach, using a specially designed recording photometer, which sweeps the sky in a series of azimuths. The atomic hydrogen comes from the dissociation of water vapor by sunlight.

On May 16–17 about 20 of these scientists held informal round table conferences on upper atmosphere physics at the Naval Ordnance Test Station. Three sessions were held under the chairmanship of C. T. Elvey, Sidney Chapman, and J. L. Greenstein, of the California Institute of Technology. The discussions included the altitudes of nocturnal and twilight emissions and of the aurora, the identification of spectral lines in the airglow and the aurora, the temperature, density, and other aspects of the composition of the atmosphere, the entry of corpuscles into the atmosphere and their emission from the sun, the theories of the aurora, the solar ultraviolet absorption in the atmosphere, and the specific reaction mechanisms in the upper atmosphere. Besides the scientists already mentioned, those who attended this conference included M. A. Tuve and L. V. Berkner of the Carnegie Institution of Washington, Oliver Wulf, B. Gutenberg, and M. H. Nichols of CIT, Marcus O'Day, of the Cambridge Research Laboratories, G. L. Weissler, of USC, Fred Rogers, Jr., and E. V. Ashburn of NOTS, and W. N. Arnquist.

Many recommendations for further work were made during the course of these meetings. It was generally agreed that rockets should be used more extensively as vehicles for carrying instrumentation to high altitudes and that the study of the night sky emissions should continue, because of the directness of such approaches in contrast to such indirect methods as the propagation of sound or the scattering of light by particles. Also, the cost of useful rocket flights is becoming more reasonable with the development of smaller rockets. Rockets can also be used to carry tracer substances to appropriate altitudes for release in order to study the effects produced; for example, Dr. Roach has deduced that the sodium radiation of the night sky comes from an altitude between 250 and 300 km, whereas Mr. Bates predicts theoretically that this radiation should come from about 70 km. In discussing this situation, no way could be found to harmonize theory and experiment. Consequently, an experiment was recommended to release sodium vapor from a rocket at these altitudes in order to observe the enhancement, if any, of this radiation with instrumentation on the ground. In addition, it was con-

sidered that appropriate photometers should be mounted in rockets so as to study directly the natural emissions themselves as a function of altitude. In discussing the aurora, the most important recommendation was to make more height determinations by the two-station triangulation method for correlation with spectroscopic data.

All the members of this conference had very favorable reactions concerning its value. The meeting attempted to review not only the ideas that have become reasonably well established, but also the problems that are puzzling workers in this field and the schemes that are evolving in regard to new problems to be tackled or new ways of undertaking old problems. Many people felt that other meetings of this character should be encouraged, especially in those fields that have received marked stimulation as a result of the instrumentation developments of the past few years. It was considered that the size of the meeting had much to do with its character. With the number involved, it was possible to maintain an informal atmosphere; on the other hand, the representation in the field of upper atmosphere physics was sufficiently broad for all problems that came up. The dinner given by the commanding officer of NOTS served to develop personal relationships and to provide an opportunity for numerous personal discussions, many of which were continued in the ensuing sessions.

About People

Gerald Berman, of Toronto, Ontario, has been appointed instructor of mathematics at Illinois Institute of Technology, and **William E. Thompson,** associate research mechanical engineer, Cornell Aeronautical Laboratory, Buffalo, New York, has been appointed instructor in mechanical engineering.

Bart J. Bok, associate director of Harvard College Observatory, who is spending the year at the observatory's southern station in South Africa, delivered the Rubbi Lecture at Stellenbosch University. Later he addressed the Stellenbosch Student Society on "The Milky Way," and a joint meeting at Capetown on "The Age of the Universe." The Rubbi Lecture, given in Dutch, was on the dynamics of star clusters.

Norris E. Bradbury, director of the Los Alamos Scientific Laboratory since October, 1945, has been appointed professor of physics at the University of California, Berkeley. Dr. Bradbury will continue as director of the laboratory at Los Alamos.

Robert Broh-Kahn, formerly assistant director of the May Institute for Medical Research, Cincinnati, has been appointed assistant medical director of Bristol Laboratories, Syracuse, New York. For the past two years Dr. Broh-Kahn was also assistant professor of experimental medicine at the College of Medicine, University of Cincinnati.

R. Keith Cannan, professor of chemistry at New York University, will become chairman of the Committee on Growth, of the National Research Council, to succeed **Milton C. Winternitz,** new head of NRC's Medical Sciences Division. **Hayden C. Nicholson** is resigning as executive secretary of the committee, to go to the University of Arkansas as dean of the School of Medicine.

D. Frank Holtman, who has spent the past year as chief of the Microbiology Branch, Biological Department, Chemical Corps, Camp Detrick, Maryland, has returned to his position as professor and head of the Department of Bacteriology, University of Tennessee.

Marion J. Partridge has been appointed assistant supervisor in the Physical Therapy Section, Department of Physical Medicine and Rehabilitation, at the University of Illinois Research and Educational Hospitals. Miss Partridge was a member of the staff of the Veterans Administration Hospital, Castle Point, New York.

S. R. M. Reynolds, of the Department of Embryology, Carnegie Institution of Washington, will be at the Nuffield Institute for Medical Research, Oxford, after September 5. He will work with staff members in research on the character of blood flow in umbilical arteries and veins, until July, 1951.

E. W. R. Steacie has been appointed vice president of the Canadian National Research Council. Dr. Steacie will be responsible for the coordination of all scientific activities of the organization, and for integration of research throughout its laboratories. He will continue his present research in chemical kinetics as director of the Division of Chemistry.

Cecil Legriel Wittson has been appointed professor of neurology and psychiatry at the University of Nebraska College of Medicine and director of the Nebraska Psychiatric Unit, a teaching unit of the College of Medicine and the School of Nursing. Dr. Wittson was formerly associated with the Central Islip State Hospital, New York.

Visitors

A. Tybjaerg Hansen, of the Rigs Hospital, Copenhagen, an international authority on the intravascular pressures in vascular disease, visited Walter Reed General Hospital and Army Medical School, Washington, D. C., August 1–10.

C. C. Hu, professor of pomology, Taiwan University, Taihoku, Formosa, is a visitor at the University of California's College of Agriculture Agricultural Experiment Station, Riverside. Dr. Hu, a specialist in citrus and subtropical fruits, will spend a year in this country studying citrus fruits.

Grants and Awards

The Wisconsin Alumni Research Foundation, which administers patents obtained on discoveries made by University of Wisconsin scientists, has made a grant of $633,008 to the university to be used for research grants-in-aid, symposia and conferences, scientific apparatus, research

assistants, the Charles Sumner Slichter professorship, the University of Wisconsin Press, and for amortization of special building loans.

The 1950 Joseph Goldberger Award in Clinical Nutrition, made annually by the American Medical Association, has been presented to Fuller Albright, associate professor of medicine at Harvard Medical School. Dr. Albright received the award for his work in metabolism.

Creighton University School of Medicine, Omaha, Nebraska, has received a grant of $6,000 from the **Office of Naval Research,** for an investigation of the effect of methyl blue on respiration of mammalian erythrocytes, using the Warburg technique, and $500 from the **Council on Pharmacy and Chemistry of the American Medical Association,** for study of the effect of anticonvulsants on metabolism of the brain, also using the Warburg technique. Both investigations will be carried on by H. C. Struck, assistant professor of physiology and pharmacology.

The Elliott Cresson Medal of the Franklin Institute, Philadelphia, has been awarded to Basil F. J. Schonland, president of the South African Scientific and Industrial Research Organization, Johannesburg, for research in atmospheric electricity and experimental investigations of lightning.

Fellowships

The National Research Council's Committee on Growth, acting for the American Cancer Society, is accepting applications for grants and fellowships. Applications for new grants will be accepted until *October 1*; final decisions will be made early next year and will become effective July 1, 1951. Investigators now receiving grants will be notified individually regarding applications for extension.

Fellowships in Cancer Research of the American Cancer Society, and Damon Runyon Clinical Research Fellowships, financed by a grant from the Damon Runyon Memorial Fund to the American Cancer Society, are available. Fellowship applications may be submitted at any time. Those received before November 1 will be acted upon by the committee in December; those received between November 1 and March 1 will be acted upon in April. Fellowships will ordinarily begin July 1, although this date may be changed at the request of the applicant. All communications should be addressed to the Executive Secretary, Committee on Growth, NRC, 2101 Constitution Avenue, Washington 25, D. C.

During the past year the American Cancer Society, on recommendation of the Committee on Growth, has awarded grants and fellowships approximating $2,000,000. A program of similar magnitude is planned for the coming year.

Colleges and Universities

Northwestern University will sponsor a series of weekly lectures on inorganic chemistry during the fall quarter, to be given at Lincoln Hall. The lectures will constitute a noncredit course, and will be open to all, for the usual course fee. Speakers on the program and the dates of their lectures are: September 26—J. W. Kennedy, Washington University, St. Louis; October 3—W. A. Weyl, Pennsylvania State College; October 10—Michael Fleischer, U. S. Geological Survey; October 17—G. H. Cady, University of Washington; October 24—W. M. Latimer, University of California, Berkeley; October 31—A. B. Burg, University of Southern California; November 7—Linus Pauling, California Institute of Technology; November 14—J. J. Grebe, Dow Chemical Company; November 21—Jacob Kleinberg, University of Kansas; and November 28—G. W. Watt, University of Texas.

The Johns Hopkins University has received $10,000 from Charles F. Kettering, research consultant of General Motors Corporation, to establish a postdoctoral research fellowship in the McCollum-Pratt Institute for a three-year period. The fellowship will be used to support the work of a young scientist for research and training in the field of trace elements.

Indiana University recently established a Graduate Institute for Applied Mathematics, which at present will deal primarily with problems in gas dynamics, hydrodynamics, and turbulence. Students entering the institute are required to have at least one year of graduate work in mathematics, and the M.A. degree is desirable. Research assistantships are open to students who wish to study for the Ph.D. degree. C. A. Truesdell, of the Naval Research Laboratory, Washington, D. C., will be visiting professor for 1950–51. Further information may be obtained from T. Y. Thomas, Head, Graduate Institute for Applied Mathematics, Indiana University, Bloomington.

The University of Tennessee College of Medicine has made the following appointments to its staff: Sigfrid Zitzlsperger, instructor in anatomy; Fern W. Smith, assistant professor of anatomy; Frederick Meyers, instructor in pharmacology; James E. Alexander, assistant in medicine; McCarthy DeMere, Edward French, and William T. Tyson, Jr., assistants in surgery. John Ifft, Boston University College of Medicine, is visiting associate professor of anatomy this summer.

Meetings and Elections

The Medical Women's International Association will hold its sixth congress in Philadelphia, September 10–16, at Women's Medical College of Pennsylvania, which is celebrating its centennial. Ninety-five women medical delegates from 15 foreign countries are expected to attend.

A national noise abatement symposium, sponsored jointly by the National Noise Abatement Council and the Armour Research Foundation of Illinois Institute of Technology, will be held October 20, in Chicago. Haldon A. Leedy, director of the foundation, is chairman of the program committee.

The Royal Society of Canada held its annual meeting at the Royal Military College, Kingston, Ontario,

June 5–7. Officers for 1950–51 are: president, J. J. O'Neill, McGill University; honorary secretary, Séraphin Marion, National Archives, Ontario; honorary executive secretary, W. H. Cook, Canadian National Research Council; president, Section III, H. G. Thode, Ontario; president, Section IV, P. S. Warren, University of Alberta; and president, Section V, L. S. Simard, University of Montreal.

The Connecticut Agricultural Experiment Station, oldest in the country, will celebrate its 75th anniversary in New Haven, Connecticut, September 28–29. Some 3,000 scientists, agriculturists, and officials of government, universities, experiment stations, and industry have been invited to attend.

Open house will be held for delegates and the public on Thursday, the 28th, and will include special demonstrations of work carried on at the station. Detlev W. Bronk, president of Johns Hopkins University, and Arnold Nicholson, managing editor of *Country Gentleman*, will address the visitors.

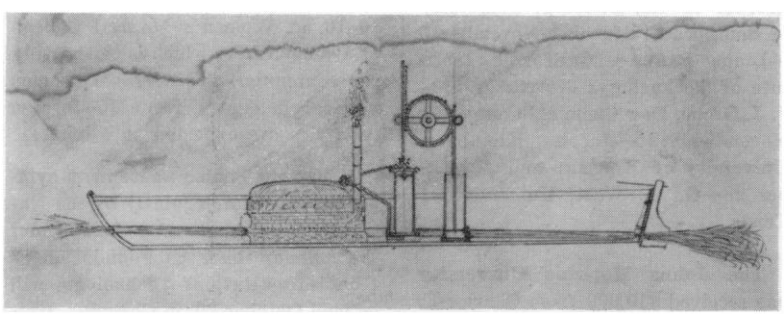
A symposium on "The Research Institute in Modern Society" will be held on Friday, with Edmund W. Sinnott, director of the Sheffield Scientific School and dean of the Graduate School at Yale University, serving as moderator. Various aspects of the topic will be discussed by George O. Curme, Jr., vice president in charge of chemical research, Union Carbide and Carbon Corporation, New York City; Selman W. Waksman, head of the Department of Microbiology, New Jersey Agricultural Experiment Station; Alexander Wetmore, secretary, Smithsonian Institution; and Elvin C. Stakman, chief of the Division of Plant Pathology and Botany, University of Minnesota. Their respective subjects will be industrial research, governmental institutes, endowed institutes, and universities. Speakers at the Friday evening dinner will include Chester Bowles, governor of the state and chairman of the station's Board of Control, who will serve as toastmaster; C. R. Orton, director emeritus, West Virginia Agricultural Experiment Station, representing the Association of Land-Grant Colleges and Universities; Dr. Bronk, representing the National Academy of Sciences; Walley Taylor, assistant agricultural attaché, British Embassy, representing the Rothhamsted Experimental Station of England; George A. Baitsell, professor of biology, Yale University, representing the AAAS.

A national collection of industrial bacteria was begun at the Chemical Research Laboratory, Department of Scientific and Industrial Research, London, early this year. It contains some 350 types, including the nonpathogenic cultures formerly held by the National Collection of Type Cultures at Colindale, England. The laboratory will maintain any organism that has ceased to be of interest, but which may be wanted later. It will also maintain any organism that should be duplicated. Most of the nonpathogenic bacteria supplied up to now by Colindale can be obtained from the Chemical Research Laboratory, and the laboratory will try to procure any type of nonpathogenic culture that it does not hold. It is hoped that the collection will become comprehensive. Gaps are being filled by obtaining cultures from laboratories in England and other countries. Particular emphasis will be given to assay organisms.

Cultures held in the collection will be included in the *United Kingdom List of Species*, to be published in 1951. Inquiries and requests for cultures should be addressed to the Director, Chemical Research Laboratory, Teddington, Middlesex, England.

The Alaska field station of the Public Health Service (*Science*, April 28, p. 480) has been officially named the **Arctic Health Research Center,** with headquarters at Anchorage. Investigations to date have revealed echinococcosis infection in both wild and domestic animals, trichinosis among arctic marine animals and carnivora, and a high incidence of fish tapeworm among natives in fish-eating areas. Research will be continued on these problems, and control measures are being worked out, particularly in regard to many previously unstudied biting insects of the region. Jack C. Haldeman is officer in charge.

The U. S. Department of Agriculture has sent Franklin S. Harris, president emeritus of Utah State Agricultural College, and Hoyt Turner, specialist in agricultural extension and education, to Tehran to assist the government of Iran in a program of agricultural improvement. Dr. Harris was agricultural advisor to Iran in 1939–40. Conservation and better use of limited water supply, control of pests and diseases of crops and livestock, increased fertility of the land, better utilization, transportation, and marketing of farm produce, introduction of improved crops and livestock, and use of labor-saving methods on farms will be studied.



This eighteenth-century drawing by John Fitch of a jet-propelled boat is one of more than 150 items in the "Milestones in American Achievement" exhibition that opened at the Library of Congress on July 18. The contributions of 34 scientists, and of other prominent Americans, ranging from Henry Adams to John Peter Zenger, and extending from the discovery of America to the end of World War I, are represented by some memento taken from the collections of the Library. As part of Washington's Sesquicentennial Celebration, the exhibition will be on view until December 31, 1950, and a catalogue of its contents will be issued this fall.