News and Notes

Atmospheric Turbulence Discussion

F. N. Frenkiel

U. S. Naval Ordnance Laboratory, White Oak, Maryland

A round-table discussion on atmospheric turbulence was held on May 3 in the Naval Ordnance Laboratory at White Oak, Md. The purpose of the discussion was to establish a contact among scientists, as well as among laboratories, interested in the development of the basic knowledge in atmospheric turbulence.

Among those present were: G. W. Brier, H. B. Byers, K. L. Calder, P. E. Church, P. Donely, E. G. Droessler, H. L. Dryden, F. N. Frenkiel, J. Gerhardt, Mrs. K. Hafstad, E. W. Hewson, Col. B. C. Holzman, A. M. Kuethe, H. Lettau, R. B. Montgomery, H. M. Mott-Smith, Comdr. L. G. Pooler, H. F. Poppendiek, G. B. Schubauer, M. E. Smith, B. L. Snavely, V. E. Suomi, O. G. Sutton, and H. Wexler.

Atmospheric turbulence was described as the irregular fluctuations of physical quantities (such as velocity, pressure, and temperature) in functions of both time and space. These fluctuations cover a wide range of scales from very small eddies to the general circulation of the atmosphere.

It was emphasized that the great development of the statistical theory of turbulence and of experimental techniques used by the fluid dynamicists opens new possibilities in the study of atmospheric turbulence. There was general agreement that coordination in the work on atmospheric turbulence is desirable. More particularly, there seems to be a need to use the same scientific language in the treatment of this subject.

The work done and planned in various universities and government laboratories was described and discussed by the participants. The lack of data concerning atmospheric turbulence is obvious, and there is a need for further development of instruments measuring turbulence characteristics. It was recommended that one or more model instruments having clearly defined characteristics be chosen and used to measure turbulence at a number of meteorological stations.

Information on atmospheric turbulence is needed for various applications. Some scientists interested in their own applications use their particular scientific language, and their ideas and results fail to come to the attention of their colleagues. The two books on the subject (the authors of both books, H. Lettau and O. G. Sutton, attended the round-table discussion) are valuable in the coordination of these results, but there is also an urgent need to coordinate the research itself.

Some of the applications of atmospheric turbulence were discussed at the meeting. Reference was made to the twofold effect of turbulence on aircraft in flight. Small-scale turbulence influences the nature of the flow by acting on the transition of the laminar boundary layer in a turbulent boundary layer, and the macroscopic turbulence is of importance in the stability and the maneuverability of an airplane. The nature and magnitude of gusts that may be encountered in flight have to be taken into account in the structure of aircraft.

There is much concern in the correlation between atmospheric turbulence and the scattering and propagation of microwaves. The need for more information on this subject is felt by the radar scientists.

Turbulence both near the ground and in the upper atmosphere is of great interest. The extension of theoretical and experimental work is needed in such matters as air-sea interchange problems, evaporation, and convection. The role of turbulence in the diffusion of air pollutants, as well as the other fundamental meteorological quantities such as moisture and heat, has to be more fully investigated.

The round-table discussion was organized by F. N. Frenkiel (chairman), E. G. Droessler, and H. Wexler.

About People

Hamilton Anderson, professor of pharmacology and chairman of the department at the University of California School of Medicine, San Francisco, will serve as dean of the Medical School of the American University of Beirut, Lebanon, during the academic year 1950–51. During his stay Dr. Anderson will pursue his study of parasitic diseases.

E. Bruce Ashcraft has been appointed advisory engineer for the Chemical Department of the Westinghouse Research Laboratories in Pittsburgh. Dr. Ashcraft returns to the laboratories after a four-year absence, during which he supervised research at the Oak Ridge National Laboratory, the Argonne National Laboratory, and the Westinghouse Atomic Power Division.

James A. Beal has been appointed head of the Division of Forest Insect Investigations, USDA. Dr. Beal is returning to the department from Duke University School of Forestry, where for the past 11 years he has taught forest entomology and conducted research on forest insect problems in the Southeast. He succeeds **F. C. Craighead,** who retired last May after serving 27 years as leader of the division.

Pierre Dorolle, formerly director of health services in Indo-China, has been appointed deputy director general of the World Health Organization. Dr. Dorolle, a specialist in

tropical medicine, began serving in Indo-China in 1925. He was interned by the Japanese in 1945. After his liberation he reorganized Indo-China's medical services and arranged for their transfer to the new governments of Viet Nam, Cambodia, and Laos after World War II.

Walter N. Elsasser, of the University of Pennsylvania, has accepted a professorship in physics at the University of Utah. He will take charge of the work in theoretical physics and is planning to continue his theoretical study of the physics of the atmosphere.

Morris M. Leighton, chief of the Illinois State Geological Survey, will serve on the Advisory Committee to the U. S. Geological Survey for an additional 5-year period following 8 years' previous service.

John F. McMillan, assistant professor of biology, College of St. Thomas, St. Paul, Minnesota, will become acting chairman of the Department of Biology this month.

Ch. H. Voelker, head of the Department of Physics, Washington College, Chestertown, Maryland, has been appointed research geophysicist by The Johns Hopkins University, to work on a part-time basis. The research, to be carried on with the Chesapeake Bay Institute at Annapolis, is in the field of oceanography, and is concerned with the hydrodynamics of Chesapeake Bay and its estuaries.

Joseph S. Wade, entomologist in the U. S. Department of Agriculture, retired July 31 at the age of 70, after more than 37 years of service in the Division of Cereal and Forage Insect Investigations, Bureau of Entomology.

Fred L. Whipple, astronomer at Harvard College Observatory, has been appointed a member of the Panel on the Atmosphere, Committee on Geophysics and Geography, Research and Development Board, Department of Defense. Dr. Whipple will succeed **H. W. Wells,** scientific observer with the Department of Terrestrial Magnetism, Carnegie Institution of Washington, who has served on the panel since its formation in December, 1948.

F. B. Wiley, chairman of the Department of Mathematics, Denison University, has retired with the title of professor emeritus and has accepted the position of chairman of the Mathematics Department of Ashland College, Ashland, Ohio.

Visitors

Man Mohan Singh, medical scientist at the Medical College at Amritsar, Punjab, India, is in the U. S., as a representative of his government, to observe American methods of teaching and research. Dr. Singh was at the University of California Medical School until September 1. He is now making a tour of medical centers including the Mayo Clinic, the Rochester Medical Center, and institutions in the New York City area.

Knut Lindblom, of the Karolinska Institute, Stockholm, will give the annual Leo G. Rigler lecture in radiology at the University of Minnesota, November 2. Dr. Lindblom will speak on "Backache." The lecture will be given in connection with a course in neuroradiology October 30–November 3 at the University Center for Continuation Study.

Recent visitors at the National Bureau of Standards were **Walter Dieminger,** director, Institut fur Ionospharenforschung, Lindau, Germany; **L. Harang,** physicist, Norwegian Defense Research Establishment, Oslo; **D. F. Martyn,** Commonwealth Scientific and Industrial Research Organization of Australia; **Peter M. Millman,** Dominion Observatory, Ontario; **Niels Venor,** civil engineer, Association of Danish Engineers, Viborg; **Nils Svartholm,** Nobel Institute for Physics, Academy of Sciences, Stockholm; **K. Weeks,** Cambridge University, England; **Hong Ki Yun,** chief, Chemistry Section, Bureau of Industry, Department of Commerce and Industry, Korea; **Bashir Ahmad** and **Niaz Ahmad** from Punjab University, Pakistan; **Pierre V. Donzelot,** director of higher education, Ministry of National Education, Paris; and **G. H. Huxley,** professor of physics, University of Adelaide, South Australia.

Grants and Awards

The 1950 Honor Scroll of the American Institute of Chemists, Chicago Chapter, will be presented on October 13 to Carl S. Miner, director and founder of Miner Laboratories, for his efforts in advancing the professional interests of chemists and guiding professional attitudes in younger chemists.

A special fellowship in physics has been awarded by the **Illinois Institute of Technology** to Ramakrishna V. Rao, physics lecturer at Andhra University, India. The award, which provides a grant of $1,300, will enable Dr. Rao to study in the Illinois Tech Spectroscopy Laboratory with Forrest F. Cleveland, director of spectroscopy research.

Frank R. Wrenn, Jr., of the Duke University Medical School's Neurosurgery Department, has been appointed to a postdoctorate fellowship of the **Atomic Energy Commission,** and Byron M. Bloor, also of the Neurosurgery Department, has been appointed a **Damon Runyon Clinical Research Fellow.** Dr. Wrenn will attempt to develop a new method for locating brain tumors by using radioactive isotopes. The project is a collaborative effort of the Departments of Neurosurgery, Biochemistry, and Physics. Dr. Bloor will study brain tumors experimentally produced in mice to see if the type of tumor can be influenced by its location in the brain. Once produced, the tumors will be transplanted to other mice for further study.

James G. Hughes and James N. Etteldorf, associate professors of pediatrics at the University of Tennessee College of Medicine, have been awarded a research grant of $15,179 by the **National Heart Institute.** The grant will be used to continue studies of high blood pressure in children, under hospital conditions, to study various diseases which produce high blood pressure in children, and for studies on the pathologic physiology of acute nephritis,

in which special attention will be given to kidney clearance, electroencephalograms (brain wave patterns), and electrocardiagrams.

The John Simon Guggenheim Memorial Foundation has granted awards in mathematics to J. H. Bigelow, Institute for Advanced Study, Samuel Eilenberg, professor, Columbia University, N. E. Steenrod, associate professor, Princeton University, R. P. Boas, Jr., executive editor of *Mathematical Reviews*, Cambridge, Massachusetts, and Philip Hartman, associate professor, The Johns Hopkins University.

Colleges and Universities

The University of Kansas Medical School will present a postgraduate course in anesthesiology, September 18–20, in cooperation with the Kansas City Society of Anesthesiologists, the Kansas Medical Society, and the State Board of Health. The program has been planned to cover subjects and problems that confront part-time anesthesiologists. Information may be obtained from Dr. Paul H. Lorham, Department of Anesthesiology, University of Kansas Medical Center, Kansas City 3.

The University of Michigan's School of Natural Resources, which replaces the School of Forestry and Conservation, will offer courses in five departments this fall. The departments and their chairmen are: Forestry—Kenneth P. Davis; Wood Technology—William Kynoch; Wildlife Management—Warren W. Chase; Fisheries—Karl F. Lagler; and Conservation—Stanley A. Cain. Conservation education is being supported by a ten-year grant of $100,000 from the Charles Lathrop Pack Forestry Foundation of New York.

Yale University, Columbia University, and the **University of Uppsala**, Sweden, will establish an observatory on Mount Stromlo, near Canberra, Australia. The Yale-Columbia Southern Station at Johannesburg, South Africa, will be closed, and the equipment moved to the new location, where the two American universities will install a 26-inch photographic refractor telescope. The Australian government will construct the dome to house the instrument, and will also supply equipment, including a 74-inch reflector telescope and a Schmidt-type telescope. Plans for the cooperative arrangement were made by Dirk Brouwer, director of the Yale Observatory, Jan Schilt, director of Rutherford Observatory at Columbia, and Richard van der Riet Woolley, director of the Commonwealth Observatory. The center is expected to be ready for use by January, 1952.

Industrial Laboratories

Fisher Scientific Company, Pittsburgh, Pennsylvania, has recently developed a silicone atom model, making possible the construction of complex silicone molecules for demonstration, illustration, and research study. The new model is scaled exactly in the ratio of 100,000,000:1, so that assembled molecules can be measured by means of a meter stick.

The Kay Electric Company, Pine Brook, New Jersey, has developed an instrument that lengthens the time scale of recorded sounds by a 2:1 ratio, without altering the frequency distribution. Recorded speech seems to be spoken very slowly, although the pitch and quality of the voice remain. This instrument offers many potentialities for use in such work as general studies in phonetics, language instruction for the deaf, and foreign language instruction for those with normal hearing.

Meetings

The Executive Committee of the International Union of Pure and Applied Physics will meet in Cambridge, Mass., September 7–9. The U. S. National Committee of the IUPAP, which has recently been reconstituted, will meet with the Executive Committee on September 8. Members of the National Committee for 1950–51 are: Karl K. Darrow, chairman, Bell Telephone Laboratories; Stanley S. Ballard, Tufts College (chairman, U. S. National Committee, International Commission for Optics); Henry A. Barton, American Institute of Physics; F. G. Brickwedde, National Bureau of Standards; Robert B. Brode, University of California; Elmer Hutchisson, Case Institute of Technology; William Shockley, Bell Telephone Laboratories; John C. Slater, Massachusetts Institute of Technology; Merle A. Tuve, Department of Terrestrial Magnetism, Carnegie Institution; Alan T. Waterman, Office of Naval Research; and John A. Wheeler, Princeton University. Drs. Darrow and Slater are vice presidents of the IUPAP.

The **Institute of Navigation**, the **Radio Technical Commission for Aeronautics**, and the **Radio Technical Commission for Marine Services** will meet September 19–21, at the Hotel Astor, New York City. A series of technical symposia, followed by open discussion periods, will be held to exchange ideas on the application of electronics to related problems in air, marine, and land navigation. Paul Rosenberg, president of the Institute of Navigation, will serve as general chairman, and J. Howard Dellinger, chairman of RTCA and RTCM, has been named honorary chairman.

The Electrochemical Society will hold its 98th meeting at the Hotel Statler, Buffalo, N. Y., October 11–13. Papers on batteries, corrosion, electrodeposition, and electro-organic chemistry will be presented, and trips to various industrial plants are scheduled. The society's Acheson Medal and $1,000 prize will be presented to George W. Vinal, of the National Bureau of Standards, on the evening of October 12. Additional information regarding the meeting may be obtained from Henry B. Linford, Secretary, Electrochemical Society, 235 West 102nd Street, New York City 25.

Deaths

Kirk Bryan, professor of geology at Harvard University since 1926, died at Cody, Wy., on August 22. Born in Albuquerque, N. M., July 22, 1888, Dr. Bryan developed interests that were partly determined by his early environment. Best known for his interpretation of landforms, particularly those of the semiarid Sonuthwest, he was equally expert in dating, from geological

evidence, the remains of Folsom man and his contemporaries in North America. Dr Bryan was vice president and chairman of the Section on Geology and Geography of the AAAS in 1939.

Saul Hertz, of the Harvard Medical School, died at his home in Brookline, Massachusetts, on August 2 at the age of 45. Dr. Hertz was known for his work in experimental thyroidology and was a pioneer investigator in the use of radioactive iodine.

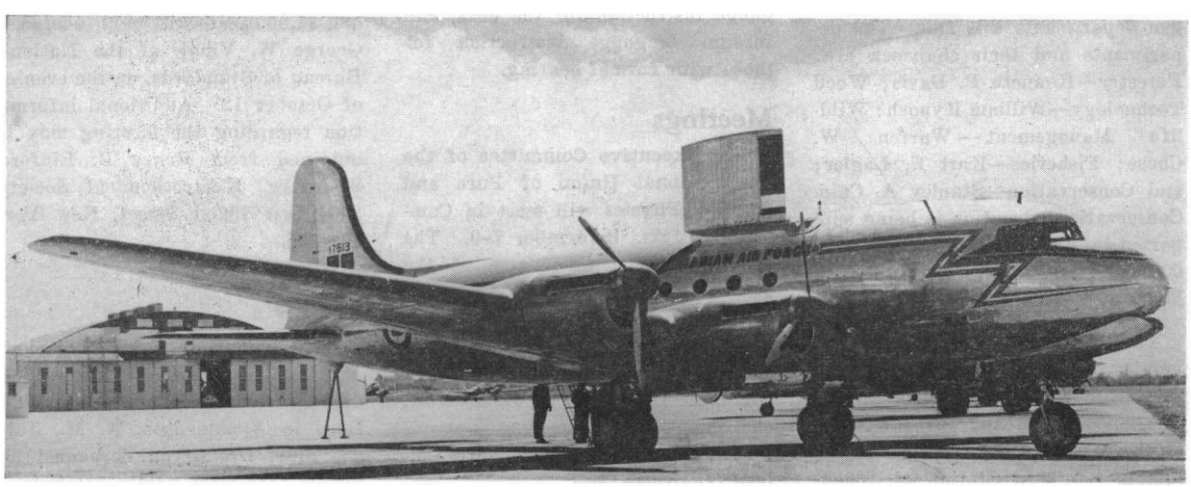
Roy R. Kracke, dean and professor of clinical medicine at the Medical College of Alabama, died June 27 at the age of 53. Dr. Kracke was an authority in the field of hematology, and was widely known for his work with hemotherapeutic agents in the treatment of leukemia and his study of the causes of leukopenia.

The Committee on Appropriations in the House of Representatives has refused to include in the appropriations bill the half-million dollars budgeted for the **National Science Foundation,** on the grounds that even this sum of money may be used for emergency spending more effectively than for the establishment of a new agency. What the Senate will do toward restoring the proposed appropriation is unknown, but the issue as to whether the National Science Foundation will come into existence this fiscal year or at some indeterminate date in the future will be decided about the time this news item is read in SCIENCE.

The American Chemical Society has established a Division of High Polymer Chemistry as the twentieth of the scientific and technical groups organized within the society. The division grew out of the success of the high polymer forums for exchange of information among chemists working in various fields, which have been held at each of the society's semiannual meetings since April, 1946. Carl Shipp Marvel, head of the Department of Organic Chemistry, University of Illinois, is chairman of the division, and Herman F. Mark, director of the Polymer Research Institute, Polytechnic Institute of Brooklyn, is secretary.

An International Index of Films and Filmstrips on Health and Welfare of Children has been prepared by the World Health Organization and Unesco. This comprehensive catalogue contains some 1,000 titles from 26 countries. It includes films made for the general public, health education shorts for children, and medical and other technical films for professional personnel. Information is included concerning content, length, and approximate date of production of each film, as well as the address of the distribution source or the producer. The subject index includes sections on growth and development, nursery schools, child psychology, diseases and their control, education, safety, maladjusted children, welfare, nursing, medical and scientific subjects, nutrition, and public health. The publication is intended to provide health workers with a reference giving the nature and location of existing film material which may be helpful in their work. It will provide necessary preliminary information for selection and purchase of films for specific uses in various countries.

The third edition of the ***International Directory of Anthropologists*** has been published as a joint undertaking of the National Research Council and the American Anthropological Association. The directory, edited by Melville J. Herskovits, chairman of the Department of Anthropology, Northwestern University, contains 2,123 biographies, and includes many nationals of Far Eastern countries. The price is $3.00. Orders should be sent to the Secretary, Division of Anthropology and Psychology, National Research Council, 2101 Constitution Avenue, Washington, D. C. This edition is limited and orders will be filled as received.



"The Rockliffe Ice Wagon," North Star plane converted by the National Research Council of Canada into a flying laboratory designed for general research on cloud physics. Flight tests will also determine the performance of experimental anti- and de-icing equipment. Most striking feature is the large "shark's fin" on top of the fuselage for use in testing the electrothermal method of wing de-icing. On either side of it are blister-type observation domes, and the propellers are fitted with blade-heater elements. J. L. Orr, head of the NRC Low Temperature Laboratory, is a member of the team of scientists that flew with the Ice Wagon to England for demonstration purposes.