economics division, Rand Corporation.

5 March: Nuclear Energy. W. F. Libby, physical chemist, member, U.S. Atomic Energy Commission; E. Blythe Stason, dean of the Law School, University of Michigan; Philip Mullenbach, economist, director of research on nuclear energy study, Twentieth Century Fund.

12 March: Outer Space. Lee A. DuBridge, physicist, president, California Institute of Technology; Alan L. Dean, political scientist, management analyst, U.S. Bureau of the Budget; another speaker to be announced.

Journal in Microform

An experiment in the publication of a scientific journal exclusively in microform is to be conducted during the next 3 years by the American Institute of Biological Sciences, Washington, D. C., with the assistance of grants from the Council on Library Resources of Washington, D.C., and the National Science Foundation. The journal which will be the subject of the experiment is *Wildlife Disease*. It is the publication of the Wildlife Disease Association, an international organization with a current membership of approximately 300, concerned with the parasites, diseases, physiology and other factors relating to the health and survival of wild animals, both in nature and captivity, and with the indirect relations of such factors to domestic animals and man. The journal will commence publication as a quarterly in January 1959.

The purpose of the experiment is to explore a number of unknowns with respect to the application of the microtext techniques to the publication of the results of research: (i) whether a small specialist group, unable to support the cost of a journal in letterpress, can do so with the use of microform; (ii) whether a journal in microform will serve the purpose of scientific communication in terms of author, reader, and library reaction; (iii) whether use of this technique will assist in expediting the publication of the results of research; (iv) whether—by reducing the cost of publication—this form of publication will require less abridgement of important data than has become necessary with scientific journals generally; (v) whether the technique of photographic reproduction which will be employed will lend itself to superior presentation of photographic data over half-tone reproduction; and (vi) what optima can be found in terms of microtext medium, page-size and arrangement, and other details of format and so forth.

The journal will be published on 5-by 3-inch Microcards to be manufactured and supplied by the Microcard Corporation of West Salem, Wis. Each quarterly issue will comprise approximately four cards. Each card will contain a single article of up to 47 pages in microtext, but will bear in full-size type the citation of author, title, and issue-number. A leaflet that contains abstracts of the articles in full-size type will accompany each issue. These abstracts will be reported to *Biological Abstracts*.

Optical devices will be needed to read the microscopic print in which the journal is printed. Nonportable reading devices for this purpose are familiar objects in libraries, but few individuals can afford to own them. Consequently, one of the objectives of the experiment will be to test the applicability for this purpose of a small portable, but also inexpensive, hand-viewer. Such a viewer will be provided to the original members of the association at a nominal charge and will be available to later members at a cost expected to be less than $10. Also, although the experiment is to be conducted initially with Microcards, it is anticipated that other forms of microtext may later be compared.

In order to explore the impact of this form of journal publication on libraries, the association has arranged that Foster E. Mohrhardt, librarian of the U.S. Department of Agriculture, be associated with the experiment to observe and report on this impact.

The co-editors of the journal are Carlton M. Herman, chief, Section on Wildlife Diseases, U.S. Fish and Wildlife Service, Laurel, Md.; and David E. Davis, professor, Johns Hopkins University School of Hygiene and Public Health, Baltimore, Md. The business offices of the association are at the headquarters of the American Institute of Biological Sciences, 2000 P St., NW, Washington 6, D.C. Membership in the association, which carries with it a subscription to the journal and an irregularly issued Newsletter, is $1 per year.

Hunter Laboratory of Psychology

The Walter S. Hunter Laboratory of Psychology was dedicated on 1 November at Brown University, where the late Professor Hunter was chairman of the psychology department from 1936 to 1954. During the ceremony, honorary degrees were conferred on Clarence H. Graham of Columbia University, Joseph McVicker Hunt of the University of Illinois, Donald B. Lindsley of the University of California, Los Angeles, and Nils Y. Wessell, president of Tufts University.

The dedication took place in the laboratory's auditorium, which has been named after Leonard Carmichael, secretary of the Smithsonian Institution, who was the principal speaker. Carmichael, a former chairman of psychology at Brown, said of Hunter: "Hunter became one of the leading exponents of an enlightened objective and behavioristic psychology that has now come to be almost synonymous with scientific psychology in this country."

To conclude the ceremony, Harold Schlosberg, present chairman of the department, expressed thanks for the building, which he described as being "anything and everything a psychologist could ask for."

Electronic Calibration Center

The Electronic Calibration Center of the National Bureau of Standards was formally dedicated at the bureau's Boulder, Colo., laboratories in mid-August. Housed in a new wing of the Radio Standards Laboratory, the center provides Government, industry, and the military services with access to the nation's primary electronic standards.

The chief mission of the new center is to calibrate interlaboratory standards for such quantities as voltage, power, and impedance in terms of the national standards maintained by NBS. These interlaboratory standards, in turn, are used to assure the accuracy of reference and working standards in laboratories, on the production line, and in overhaul stations throughout the nation.

The quantity of electronic calibrations required today in the design, manufacture, and adjustment of extremely complex electronic weapons, communications equipment, and industrial electronic apparatus is so great that branching chains of measurement are necessary to extend the national standards to the shop or field instruments used for this work. The large number of links in each chain, through which the units of measurement must be transferred, requires the highest practicable accuracy at each step in order to assure adequate accuracy of the shop and field instruments.

The fundamental system of electrical measurement now employed in the United States uses absolute units, that is, units derived from the fundamental units of length, mass, and time—the meter, kilogram, and second. Basic to the absolute system of electrical units are the absolute ohm and the absolute ampere. The absolute ohm is derived from the absolute henry, based on an inductor of accurately known dimensions. The absolute ampere is established in terms of the magnetic force on an accurately dimensioned current-carrying coil, measured with a current balance. These basic standards are maintained in the NBS laboratories in Washington, D.C.

Other units, such as the watt and the

kilowatt hour, are obtained by combining these units and by extending the scale of measurement. The units then are transferred to higher frequencies by appropriate techniques.

Services offered by the Calibration Center cover three broad frequency ranges: (i) low-frequency (zero frequency through about 30 kc); (ii) high-frequency (30 kc through about 300 Mc); and (iii) microwave (above 300 Mc).

Somewhat more than half of the initial instrumentation program has been completed, and the center now is able to provide the most urgently needed services. Additional standards and instrumentation, beyond the present program, will be required in the future to replace those made obsolete by technological advances and to extend the capabilities of the center as new calibration requirements arise. The eventual goal is to measure and standardize in the center all electronic quantities for which there is a substantial calibration need. Calibrations required only infrequently may often be obtained elsewhere in the bureau.

The importance of proper environment for precision measurement operations is widely recognized. A well-lighted area that is free of mechanical vibration and shielded against radio and other electrical interference, that has regulated and well-filtered power lines and dust-free air of controlled temperature and humidity is essential to calibration work where the primary standards are concerned. All of these features have been incorporated into the new center. In addition, nearly all of the electrical equipment has been installed in consoles, for the convenience of the operating personnel and for the protection of the sensitive equipment. Incorporating all the latest technological advances, this laboratory could well serve as a model for standardizing laboratories throughout the world.

Artificial Insemination

A new method for preserving and shipping bull semen that promises to cut operating of artificial insemination programs has been reported by O. T. Stalcup of the University of Arkansas Agricultural Experiment Station. The method, which is the result of a 2-year research program, reduces the number of collections and cuts shipping costs in half.

Basic principles of the process involve adding carbon dioxide and glycine to an extender composed of egg yolk, distilled water, antibiotics, and other ingredients. Carbon dioxide keeps the spermatozoa alive in the absence of free oxygen. Glycine is an amino acid containing protein that protects and nourishes the spermatozoa. Another chemical, glutathione, is added to activate the spermatozoa when ready for use, thus increasing the period of time they can be stored successfully. Field trials indicate that semen processed and shipped with this extender can be safely used for 3 to 4 days, compared with 2 days for present extenders.

Grants, Fellowships, and Awards

Fluid mechanics. A $3000 Boris A. Bakhmeteff research fellowship will be available for the 1959–60 academic year to support a research project of an original and creative nature in the general field of mechanics of fluids. The recipient must be a full-time graduate student who is a candidate for the master's or doctoral degree. He may not hold any other fellowship or major income-producing commitment that will interfere with his research work and study on a full-time basis. The study and research may be undertaken at an institution of the fellow's choice. Applications must be filed by *15 February 1959.* Forms may be obtained from: Dean William Allan, School of Technology, City College of New York, New York 31, N.Y.

General, for women. Sigma Delta Epsilon, graduate women's scientific fraternity, has announced its predoctoral fellowship for 1959–60. These fellowships are awarded to women who give evidence of ability in scientific research, and who need financial assistance to further a well-defined project contributing to the Ph.D. or equivalent degree. Candidates should be graduate students in the physical, biological, or mathematical sciences who during the fellowship tenure will be devoting more than half time to a thesis or to thesis research. The stipend is $1600. Application forms, which must be returned by *1 February 1959,* may be secured from: Dr. Geneva Sayre, Department of Biology, Russell Sage College, Troy, N.Y.

Parasitology. The American Society of Parasitologists has announced that it will confer annually, or less often, an award for meritorious research in parasitology. The award, sponsored by Parke, Davis & Company, will consist of a check for $1000, a medal, and a $150 travel allowance for the recipient. The new prize has been named in honor of Henry Baldwin Ward, who founded the society's *Journal of Parasitology* and served as the society's first president. Members of the society whose accomplishment occurs within 15 years after the completion of academic training are eligible for the award.

Psychiatry. The Hofheimer Prize of $1500 is awarded annually by the American Psychiatric Association for an outstanding research contribution in the field of psychiatry or mental hygiene which has been published within a 3-year period up to the date of the award. It is imperative that contributions submitted for consideration be published, since studies in press or in preparation are not eligible. This competition is open to citizens of the United States and Canada who are 40 years of age or under at the time the study was submitted for publication; or to a research group whose median age does not exceed 40 years.

The next award will be made at the annual meeting of the association in April of 1959. Eight reprints or duplicated copies of each entry, as well as the necessary data concerning age and citizenship, must be sent *by 15 February* to John I. Nurnberger, M.D., Chairman, Hofheimer Prize Board, 1100 West Michigan St., Indianapolis 7, Ind.

News Briefs

The American Association of University Professors has announced receipt of a grant of $10,000 from the Fund for the Republic. This money will go into the association's Academic Freedom Fund. It will be used to help teachers who have been discharged or suspended without pay in clear violation of academic freedom. Assistance will also be given the faculty of a college or university where a general crisis threatens freedom in education.

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Two Congressional subcommittees announced on 7 December that they had started an investigation of whether "bottlenecks and red tape" in the Atomic Energy Commission were holding back the nation's nuclear programs. The chairmen of the subcommittees, representatives Melvin Price, Democrat of Illinois, and Chet Holifield, Democrat of California, said that the Joint Atomic Energy Committee had become "increasingly aware of delays in contract negotiations and delays in acting on requests by the joint committee and the Congress."

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When Project Vanguard was transferred from the Navy to the National Aeronautics and Space Agency on 1 October, NASA gave to the 150 members of the Vanguard staff the option of transferring to the new agency or remaining at NRL. Most of them have elected to go with the project. NASA is in full operation administratively, but as yet it has no laboratory quarters. For probably a year or more, Hagen and his associates will remain where they are, either at NRL or at Cape Canaveral and the various tracking stations. But henceforth