

acteristics that future military operational systems of many kinds ought to have. We must, therefore, engage in a broad program covering basic building blocks which will develop technological capabilities to meet many possible contingencies. In this way, we will provide necessary insurance against military surprise in space by advancing our knowledge on a systematic basis so as to permit the shortest possible lag time in undertaking full scale development programs as specific needs are justified."

Brown did not go into what factors will figure in achieving the "shortest possible" lag time, a matter on which he and the Air Force could have widely differing opinions, and which is probably at the heart of the question of just how quickly and to what extent the military will be permitted to proceed into space.

The "presently definable military needs and requirements" in space, he said, include satellites for communications, reconnaissance, early warning, navigation, and weather forecasting. In the other areas he described, he said that the military space role at present is limited to the development of "building blocks," including the technology for "intercepting passive or uncooperative satellites" and establishing and maintaining space stations. The underlying principle of the Defense Department space program, he said, "is to develop systems rapidly where there is a clear and urgent military need," and to use the "building block" approach to "provide a foundation for moving rapidly into those military systems which may be required on short notice."

The explanations offered by Brown and other members of the Administration still leave open the question of just how far the Defense Department intends to go in military space developments. With East-West relations on earth soured by 15 years of Cold War, the hope has grown that the costly adventure of space exploration might provide a meeting ground for the Soviet Union and the United States. Against this hope the Administration has to balance the fact that it cannot afford to wake up one day and find the Soviets 5 years ahead of this country in military space developments. And complicating the matter is the fear that efforts that are intended merely to keep us in the race may actually speed up the race.—D. S. GREENBERG

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## Announcements

The National Academy of Sciences has completed the construction of a west wing, to be known as the Equitable Life Assurance Society **Hall of the Life Sciences**. The \$1,000,000 wing, financed by Equitable, will be used to house the various activities of the Academy and its National Research Council in the biological, medical, and behavioral sciences. The first floor contains a conference room, a refectory to be used as a cafeteria or a banquet hall, and eight offices; on the second floor are another conference room and 14 offices.

Of the additional \$3,200,000 required to complete a proposed east wing and a 700-seat auditorium, \$1,200,000 has been given or pledged by private foundations and industry.

The **Board of Microbiology** of the American Academy of Microbiology is accepting applications for certification in the fields of public-health and medical-laboratory parasitology, bacteriology, immunology, microbiology, mycology, and virology. (G. I. Wallace, American Board of Microbiology, P.O. Box 897, Vero Beach, Fla.)

**Chartered flights** are being arranged for those who plan to attend the 3rd International Meeting of Forensic Immunology, Medicine, and Pathology, and the 1st International Meeting of Forensic Immunology and Toxicology, to be held in London from 16 to 24 April 1963. The round-trip fare will be \$210; reservations should be accompanied by a \$50 deposit. (Milton Helpner, 55 East End Ave., New York 28, N.Y.)

Flights are also available for the meeting of the International Association of Traffic Accident Medicine, to be held from 25 to 30 April in Rome. The fare from London to Rome will be \$89.90; from Rome to Paris, \$60.50. Further details on this meeting are available from C. Gerin, Istituto di Medicina Legale, Università degli Studi, Viale dell'Università 32, Rome, Italy.

### Grants, Fellowships, and Awards

Essays on the **historical development of rocketry and astronautics** are eligible to compete for the \$200 Robert H. Goddard national award, recently estab-

lished by the National Rocket Club. Entries may cover any significant aspect of the development of rocket technology, revealing new information or casting a different light upon events or individuals influencing the field in the United States. Deadline: *1 November*. (Goddard Historical Essay Competition, National Rocket Club, Suite 32, 1745 K St., NW, Washington 6, D.C.)

Funds for **study and research in the Soviet Union** during the 1963-64 academic year are available to American faculty members and graduate students under 40 years of age. Applicants must have a knowledge of the Russian language adequate for their research purposes. Individual grants, covering periods from one semester to 15 months, will vary according to applicants' needs and resources. Deadline: *16 November*. (Stephen Viederman, Inter-University Committee on Travel Grants, Indiana University, Bloomington)

The Optical Society of America has established the **C. E. K. Mees International Medal**, in honor of the late founder of Eastman Kodak Research Laboratories. The award, the society's first to be specifically international, will recognize the "extension of the frontiers of optics as Mees himself extended photography." The first recipient of the medal, to be selected by a five-member committee, will be honored on 4 October during the society's fall meeting in Rochester, N.Y.

The Explorers Club is offering grants-in-aid, generally under \$1000, for **exploration and scientific field work**. Applicants need not be members of the club. (Executive Director, Explorers Club, 10 W. 72 St., New York 23)

Students or graduates who obtained their last academic degree within the past 7 years are eligible to apply for research support in **logistics or related areas**, sponsored by the Office of Naval Research. The award, which is for an individual undertaking, will be made on the basis of an unpublished manuscript on networks, scheduling, and combinatorial methods of importance to mathematical development in the field. The research may be undertaken at any institute in the United States acceptable to the ONR. Support will begin between 1 March and 3 June 1963, and will continue for one year at a salary

of \$10,500. The 3 papers judged best among those submitted will be included in the 2nd volume of the ONR monograph series. Deadline: *31 December*. (Logistics and Mathematical Statistics Branch, ONR, Washington 25)

Authors of publications on discoveries or useful improvements of **heat and light**—including such concepts as the electromagnetic spectrum—are eligible for the American Academy of Arts and Sciences' biennial Rumford prize. Nominations should consist of a brief biography of the author, with reference to the pertinent publications. Deadline: *20 September*. (Rumford Committee, American Academy of Arts and Sciences, 280 Newton St., Brookline 46, Mass.)

The Life Insurance Medical Research Fund is offering grants to institutions for research on **cardiovascular problems**, including physiological, biochemical, and clinical research in the field. Awards will be available 1 July 1963. Deadline: *1 November*. (Scientific Director, LIMRF, 1030 E. Lancaster Ave., Rosemont, Pa.)

## Publications

The following preliminary reports on individual experiments connected with the **Project Gnome nuclear detonation** (10 Dec. 1961) have been published by the Atomic Energy Commission:

*Resonance Neutron Activation Measurements* (PNE-113P), \$1.

*Pre-Shot and Post-Shot Structure Survey* (PNE-127P), \$0.75.

*Summary of Predictions and Comparison with Observed Effects of Gnome on Public Safety* (PNE-128P), \$0.50.

*Particle Motion Near a Nuclear Detonation in Halite* (PNE-108P), \$1.75.

*Earth Deformation from a Nuclear Detonation in Salt* (PNE-109P), \$1.25.

*Seismic Waves from an Underground Explosion in a Salt Bed* (PNE-110P), \$2.

*Intermediate Range Earth Motion Measurements* (PNE-111P), \$1.50.

*Design, Testing and Field Pumping of Grout Mixtures* (PNE-116F), \$0.75.

*Federal Aviation Agency Airspace Closure* (PNE-131F), \$0.50.

*Close-In Shock Studies* (PNE-104P), \$0.50.

*Weather and Surface Radiation Prediction Activities* (PNE-126P), \$0.50.

All are available from Office of Technical Services, U.S. Department of Commerce, Washington 25, D.C.

## Courses

Laboratory personnel who wish basic training in **optical emission spectroscopy** are invited to attend Applied Research Laboratories' spectroscopy school, to be held from 24 to 28 September in Dearborn, Mich. Main topics of instruction include spectrographs and spectrometers, detection, measurement, and interpretation of radiant energy, and spectrochemical practices and analysis; evening sessions will be devoted to direct-reading analysis. Tuition is \$200. (ARL, 20200 W. Outer Dr., Dearborn 8, Mich.)

A comprehensive course in **gas chromatography** will be held in West Haven, Conn., from 3 to 5 October. Topics to be covered include fundamental theory and practice of gas and gas-solid chromatography, the chromatographic column, inert supports and stationary phases, temperature programming, bulk property sensing devices, and ionization detectors. Advance registration is required. (Philip D. Hercz, Analytical Engineering Laboratories, Inc., Box 5215, Hamden 18, Conn.)

A course in **instrumental and chemical techniques of activation analysis** will be presented from 24 September to 5 October at Oak Ridge (Tenn.) Institute of Nuclear Studies. Designed for scientists and engineers who have done previous work involving radioisotope techniques, the course will cover gamma spectroscopy, multichannel analyzers, neutron sources, computer applications, and radiochemical separations. (Ralph T. Overman, Special Training Division, ORINS, P.O. Box 117, Oak Ridge, Tenn.)

## Films

*Atoms for Space*; 28 minutes, color, free loan or purchase; for nontechnical audiences. Describes development and use of compact nuclear power sources for space, under the AEC Systems for Nuclear Auxiliary Power (SNAP) program. (Audio-Visual Branch, Division of Public Information, U.S. Atomic Energy Commission, Washington 25)

*Molecular Spectroscopy*; 15 minutes, color, purchase price \$130. Demonstrates infrared spectrometer in measuring natural frequencies of vibration of molecules. Models and animation show details of infrared light absorption process. (Chem Study Films, Harvey

Mudd College, 12th St. and Columbia Ave., Claremont, Calif.)

*Frog Heartbeat*; 7 minutes, purchase or rent. Slow-motion photography shows heartbeat of pithed frog. Kymograph recording is shown and analyzed. (Thorne Films, 1229 University Ave., Boulder, Colo.)

*Fallout*; 15 minutes, available for direct purchase or review. Describes the potential dangers of three types of radioactive fallout—atmospheric, intermediate, and stratospheric—likely to occur from atmospheric nuclear testing. [Cenco Educational Films, 1700 W. Park Rd., Chicago 13, Ill. Order No. 58523 (color) or 58522 (black and white)]

## New Journals

*Abstracts of Photographic Science and Engineering Literature*, vol. 1, No. 1, Mar. 1962. APSE Editorial Office, Columbia University Engineering Center, 632 W. 125 St., New York 27, N.Y. Monthly.

*Journal of the Indian Pediatric Society*, vol. 1, No. 1, Jan. 1962. A. K. Dey, Ed. Secretary, Business Management Committee, Institute of Child Health, 95 Dilkhusa St., Calcutta 17, India. Monthly. \$10 per year.

*The System Analyzer*, vol. 1, No. 1, Fall 1961. G. F. Forbes, Ed. G. F. Forbes, 13745 Eldridge Ave., Sylmar, Calif. Irregular. \$2.25 per issue.

*Life Sciences*, No. 1, Jan. 1962. R. Maxwell, Publ. Pergamon Press, Headington Hill Hall, Oxford, England. Monthly. Institutions, \$30 per year; individuals, \$10 per year.

*Zeitschrift für Klinische Chemie*, vol. 1, No. 1, Fall 1962. J. Brugsch and E. Schütte, Eds. Walter J. Johnson, Inc., 111 5th Ave., New York 3, N.Y. Bimonthly. \$9 per year.

*Internationale Zeitschrift für Elektrowärme* (formerly *Electro-Heat*), No. 1, Jan. 1962. H. Mausukowitz, Ed. Vulkan-Verlag Dr. W. Classen, Essen, Haus der Technik, Postfach 1815, W. Germany. Monthly. DM. 48 per year.

*Contributions to Geology*, vol. 1, Jan. 1962. R. B. Parker, Ed. University of Wyoming, Box 3006, University Station. Laramie. Annually (1962); semi-annually beginning Jan. 1963. \$3 per year.

*Journal of Applied Meteorology*, vol. 1, No. 1, Mar. 1962. D. P. McIntyre and R. D. Elliott, Eds. American Meteorological Soc., 45 Beacon St., Boston 8, Mass.

## Scientists in the News

The following have been appointed to the Air Conservation Commission of the AAAS Committee on Science in the Promotion of Human Welfare (see editorial, this issue):

**James P. Dixon**, chairman; president of Antioch College.

**John W. Bodine**; president and executive director, Penjerdel (Pennsylvania-New Jersey-Delaware Metropolitan Project, Inc.).

**Herbert R. Domke**; director, Allegheny County (Pa.) Health Department.

**François N. Frenkiel**; applied mathematics Laboratory, David Taylor Model Basin.

**M. Mason Gaffney**; professor of economics, University of Wisconsin—Milwaukee.

**John R. Goldsmith**; head, Air Pollution Medical Studies Unit, California Department of Public Health.

**Arie J. Haagen-Smit**; professor of biology, California Institute of Technology.

**Howard Higman**; professor of sociology, University of Colorado.

**James P. Lodge, Jr.**; staff chemist, National Center for Atmospheric Research, Boulder, Colo.

**Martin Meyerson**; director, Joint Center for Urban Studies, Massachusetts Institute of Technology and Harvard University, and professor of city planning, Harvard.

**Norton Nelson**; director, Institute of Industrial Medicine, New York University Medical Center.

**Frits W. Went**; director, Missouri Botanical Garden.

**Calvin A. Buehler**, head of the department of chemistry at the University of Tennessee, is relinquishing his administrative duties in September to devote full time to teaching and research. He will be succeeded by **David A. Shirley**, a member of the department.

Lt. Gen. **Arthur G. Trudeau**, retired chief of research and development for the Army, has been appointed president of Gulf Research and Development Company, Pittsburgh, Pa. He succeeds **Blaine B. Wescott**, who retired.

**Arthur C. Clarke**, British writer of science fiction and president of the Ceylon Astronomical Association, is the 10th winner of the Kalinga prize for the popularization of science. The £1000 prize is awarded annually by UNESCO-appointed judges.

**Bernard Epstein**, physicist and former test engineer with Electrosolids Corporation, has joined Endevco Corporation, Pasadena, Calif., as a technical service engineer.

**Roy M. Acheson**, senior lecturer in social and preventive medicine at Oxford University and Trinity College, Dublin, has been appointed associate professor of epidemiology and medicine at Yale's School of Medicine.

**J. F. A. Sprent**, of the University of Queensland Veterinary School, Brisbane, Australia, has received the American Society of Parasitologists' \$1000 Henry Baldwin Ward award for 1962.

**Laurence M. Gould**, retiring president of Carleton College, Northfield, Minn., will join the University of Arizona faculty as professor of geology in February.

**S. Fred Singer**, professor of physics at the University of Maryland, has been granted leave to serve as director of meteorological satellite activities for the U.S. Weather Bureau.

Col. **Clark L. Hosmer**, former commander of the technical school at Lackland Air Force Base, Tex., has accepted an associate professorship at Florida State University School of Business.

At National Aeronautics and Space Administration:

**Richard B. Morrison**, of the University of Michigan's department of aeronautics engineering, has been named director of launch vehicle and propulsion programs in the Office of Space Sciences.

**Eugene B. Konecni**, of Douglas Aircraft Company's missiles and space systems division, has been appointed to the newly created position of director of biotechnology and human research in the Office of Advanced Research and Technology.

At the Johns Hopkins Medical Institutions:

**Leighton E. Cluff**, professor of medicine, will be visiting professor of medicine at the University of Vermont during August.

**Milton T. Edgerton**, associate professor of plastic surgery, is a visiting professor at the Christian Medical College, Vellore, South India, until September.

**John D. Porterfield**, deputy surgeon general of the U.S. Public Health Service, has retired to become state-wide coordinator of health and medical affairs of the University of California. He is succeeded by **David E. Price**, deputy director of the National Institutes of Health.

Col. **George M. Leiby**, retired special assistant to the Air Force Surgeon General, has been appointed chief public health adviser for the Brazil mission of the Agency for International Development.

Recent awards of the American Society for Engineering Education:

**Harold L. Hazen**, dean of the graduate school at Massachusetts Institute of Technology, the Lamme gold medal for "distinguished achievements in engineering teaching, research, and administration."

**Paul M. Naghdi**, professor of engineering science at the University of California, the \$1000 George Westinghouse Award for "outstanding contributions to teaching by a young faculty member."

**Roy Bainer**, associate dean of the College of Engineering, University of California, the Vincent Bendix Award for "outstanding research contributions by an engineering educator."

**Michel Baudart**, professor of chemical engineering at the University of California, Berkeley, the \$1000 Curtis McGraw Research Award for "outstanding achievement by a young engineering teacher."

## Recent Deaths

**Harry L. Andrews**; former faculty member of Florida State University's botany department; 24 Mar.

**Louis R. Bryant**, 66; professor of horticulture at Washington State University; 22 Jan.

**Marcus R. Caro**, 59; consulting dermatologist at Cook County (Chicago) Hospital and former head of the department of dermatology at University of Illinois; 17 May.

**Clarence W. Ham**, 81; emeritus professor of machine design at the University of Illinois; 20 Apr.

**Julia B. Paton**, 87; physiologist and retired research biochemist with National Drug Company; 5 June.

**Edison Pettit**, 73; astronomer at Mount Wilson Observatory, Pasadena, Calif.; 6 May.