con" research type are being carried aloft by 68-foot diameter, "Skyhook" balloons to a height of approximately 80,000 feet. Each rocket carries an instrument load of 20 pounds and floats above the ocean until a solar "flare" is observed.

Inasmuch as solar "storms" rise to a maximum in a matter of minutes, NRL scientists using conventional rocket techniques have been delayed by the time taken, first, in detecting the flare from the ground, and then, in launching the rocket and gaining the altitude necessary for scientific observations. The ship-controlled balloon-rocket technique will reduce the delays. It is expected that a minimum time-lag of 90 to 120 seconds between the decision to fire and the attainment of the required observational altitude can be achieved by using this approach.

The decision to fire is based on the occurrence of a detectable solar flare. Detection can be achieved in two ways. One notice of a "flare" is the sudden radio "fadeouts" of the medium- and short-wave radio receivers aboard the ship. A second method makes use of an optical telescope coupled to a closed-circuit television system, with a red-colored filter corresponding to the light of a hydrogen flare. The picture of the sun as viewed on the TV screen shows the flare as a vivid flash.

When the decision has been made to fire a rocket, signals from a shipboard transmitter activate electronic instruments in the nose of the rocket, and also energize the receiver that controls the rocket igniter. As the rocket takes power, its pull shatters the plastic balloon, and in the next 90 to 120 seconds it attains an altitude of 60 to 70 miles in the ionosphere. In its trajectory it telemeters to the observing station aboard the *Colonial* data on the strength of x-ray and ultraviolet radiations from the "flare."

In addition to the telemetering transmitter, the "Deacons" contain photon counters sensitive to radiation from the sun in three wavelengths; 1216 angstroms, 1 to 10 angstroms, and 0.05 to 1 angstrom. These wavelengths correspond to the Lymanalpha line of hydrogen, x-rays, and "soft" gamma rays, respectively, which are believed to have independent but accumulative effects on the ionosphere, and hence on radio "fadeouts."

News Briefs

■ A suit that enables a man to work for several minutes at a temperature of 1200°F has recently been developed by the Minnesota Mining and Manufacturing Company, St. Paul, Minn. The suit is made of fiber glass coated with aluminum. The aluminum coating reflects much of the heat and permits the insulating layer of fiber glass to be much

less bulky than would otherwise be necessary to provide equivalent protection. Aluminum coats have also been bonded to cotton cloth and to asbestos for other specialized uses. The accompanying picture shows a demonstrator holding a wooden box inside a furnace. The box has burst into flame, but the demonstrator is unharmed.

Use of the suits is expected to save time and expense in the repair of equipment used in high-temperature installations.

■ Development of an iron lung that will automatically adjust itself to a patient's needs will be undertaken at Vanderbilt University under the supervision of Randolph Batson, associate professor of pediatrics.

The object of the development is to produce an iron lung that a patient can control through the muscle impulses he would normally use for breathing. Thus the patient himself will control both the rate and depth of breathing. Present respirator aids all tend to force the patient into a pattern of breathing that may not be precisely what he needs at all times. The key to the proposed device is the use of electrodes from which electric connections will lead from the patient to a controlling device for the iron lung. Thus, as the patient makes a normal attempt to breathe, an impulse resulting from the attempt will trigger the iron lung and the air will be forced into his lungs.

■ The Veterans Administration plans an enlarged medical research program under the record $10 million appropriated by Congress for the fiscal year that began 1 July. Most research will be concentrated in four areas of major diseases: mental, nervous, and brain diseases; heart and artery diseases; cancer and leukemia; and problems of aging.

The VA will expand its research program in tuberculosis, in the fungus diseases that resemble tuberculosis, and in the infectious diseases. It will support individual projects in such subjects as high blood pressure, hardening of the arteries, the metabolic diseases, and epilepsy and related nervous disorders.

In addition, the VA plans to enlarge its studies of drugs for the treatment of specific diseases, such as tuberculosis, multiple sclerosis, psychiatric disorders, high blood pressure, and cancer. The VA also will investigate changes in lung function due to aging and disease, and the effects of brain surgery in the treatment of schizophrenia. It will conduct two follow-up studies in order to make an evaluation of the natural course of coronary artery disease and coronary thrombosis and an evaluation of the long-term results of chemotherapy on tuberculosis. It also has a program in atomic medicine.

In all of these studies, the VA will be advised by the National Research Council Committee on Veterans Problems, the Statistical Agency of the National Research Council, and the Advisory Committee in Research of the VA, which is composed of outstanding leaders in American medicine.

Scientists in the News

ROBERT GRAHAM, dean of the University of Illinois College of Veterinary Medicine, will retire 1 Sept. A member of the faculty of the university since 1917, he was made dean of the College of Veterinary Medicine in 1945. Graham was the first scientist to detect botulism in animals, and the first to develop an antitoxin for botulinus, a form of food poisoning in human beings. In 1948 he was the first veterinarian to be appointed as scientific consultant to the Federal Pure Food and Drug Administration. Graham will be succeeded as dean by CARL A. BRANDLY, now chairman of the department of veterinary science at the University of Wisconsin.

The following are among those who have recently received honorary doctoral degrees.

University of Wisconsin: BENJAMIN M. DUGGAR, former professor at the University of Wisconsin and consulting scientist for the American Cyanamid Company.

University of Bonn: WEIKKO A. HEISKANEN, director of Ohio State University's Institute of Geodesy, Photogrammetry, and Cartography.

Carleton College: LLOYD H. REYERSON, chemistry professor, University of Minnesota.

Stevens Institute of Technology: DONALD A. QUARLES, Secretary of the Air Force; WILLIS H. TAYLOR,

JR., chairman of the Stevens board of trustees.

National University of Ireland: GERHARD HERZBERG, director of the division of pure physics, National Research Council of Canada.

PAUL B. SEARS, president of the American Association for the Advancement of Science and chairman of Yale University's conservation program, will be principal speaker at the annual field day of the Connecticut Agricultural Experiment Station, 15 Aug. His talk will be on the "Natural history of floods."

DAVID RITTENBERG has been named executive officer of the department of biochemistry at the College of Physicians and Surgeons, Columbia University. Rittenberg succeeds HANS T. CLARKE, who recently retired.

The following administrative and faculty changes have been made at the Medical College of Virginia: WILLIAM T. SANGER, formerly president of the institution, is chancellor; R. BLACKWELL SMITH, JR., of the department of pharmacology is president; and WARREN E. WEAVER, formerly chairman of the department of chemistry and pharmaceutical chemistry, is dean of the school of pharmacy. DAVID M. HUME, formerly assistant professor of surgery and director of surgical research at the Harvard Medical School, has been appointed professor and head of the department of surgery.

MARION S. OFFUTT has been appointed associate professor of agronomy in the college of agriculture and home economics of the University of Arkansas.

ROBERT M. BURNS, scientific adviser to Stanford Research Institute and to Sprague Electric Company, has been selected to receive the biennial Edward Goodrich Acheson gold medal and prize of the Electrochemical Society.

OTTO OLDENBERG, professor of physics at Harvard since 1930 and emeritus professor since 1955, has joined the staff of the Air Force Cambridge Research Center. At AFCRC he is working in the geophysics research directorate's atmospheric physics laboratory, where Air Force scientists are studying photochemical reactions in the high atmosphere.

C. ROGERS McCULLOUGH, assistant director of Monsanto Chemical Company's development department in the research and engineering division, has been appointed deputy director for hazards evaluation in the U.S. Atomic Energy Commission's division of civilian application.

MERRITT A. WILLIAMSON, manager of the research division of the Burroughs Corporation in Paoli, Pa., and lecturer on research administration at the University of Pennsylvania, has become dean of the College of Engineering and Architecture, Pennsylvania State University. On 1 Aug. he succeeded ERIC A. WALKER, who became president of the university.

JAMES H. WILLIAMS has been named assistant to the director of the Pearl River Laboratories of the research division of American Cyanamid Company. Williams was formerly director of the company's medicinal chemical research department.

JOHN E. MARTIN, associate professor of physiology and pharmacology in the School of Veterinary medicine of the University of Pennsylvania, has been appointed supervisor of research in experimental therapeutics in veterinary medicine at the university.

ROBERT O. FEHR has been appointed manager of the General Electric Company's Mechanical Engineering Laboratory, one of the four major units of the company's General Engineering Laboratory.

BRIAN L. HUTCHINGS has been named director of biochemical research in the research division of American Cyanamid Company. He was formerly assistant director of medicinal chemical research.

JOHN F. KRAMER, formerly on the faculty of the Yale University School of Medicine, has been named associate professor of psychiatry at the University of Chicago.

JULES FREUND, chief of the division of applied immunology at the Public Health Research Institute, New York, has been appointed a consultant to the National Institute of Allergy and Infectious Diseases, Bethesda, Md., to assist in establishing its new allergy-immunology program.

Recent Deaths

ELMER GRANT CAMPBELL, Orlando, Fla.; 80; professor emeritus of biology at the University of Georgia, University Extension, Atlanta; 7 June.

LEWIS R. CARY, Princeton, N.J.; 75; assistant professor emeritus in the department of biology at Princeton University; former member of the research staff of the Carnegie Institution of Washington; 11 July.

WALTER S. FORD, Yeadon, Pa.; 82; retired professor of electrical engineering at Drexel Institute of Technology; 11 July.

OSCAR E. HARDER, Columbus, Ohio; 73; authority on metallurgy; a founder and assistant director of Battelle Memorial Institute; 10 July.

DAVID MITCHELL, New Milford, Conn.; 71; retired professor of psychology for the Child Education Foundation; former staff member at Rutgers University, Teachers College of Columbia University, and the University of Pennsylvania; 7 July.

WILLIAM B. PEIRCE, Pittsburgh, Pa.; 78; retired vice president of research and development for the Flannery Bolt Co.; 4 July.

OTTO REINMUTH, Chicago, Ill.; 56; organic chemist; chemical research associate at the University of Chicago 1935–54; supervisor of the chemical literature section at the Armour Research Foundation of Illinois Institute of technology 1954–55; former managing editor of the *Journal of Organic Chemistry* and former editor of the *Journal of Chemical Education;* 23 June.

KARL SINGER, Chicago, Ill.; 54; director since 1947 of the department of hematologic research at Michael Reese Hospital; former research fellow at Beth Israel Hospital and Pratt Diagnostic Hospital and a former member of the Tufts University medical faculty; 12 July.

Education

■ The University of Texas this summer gave 28 high-school students a 5-week science program designed to accelerate their progress in college. The project, which was under the direction of Robert E. Eakin of the University of Texas, is being studied by an advisory committee from other Texas colleges to determine whether it should be widely adopted.

■ American Education Week will be observed this year 11–17 Nov. under the sponsorship of the National Education Association, the American Legion, the National Congress of Parents and Teachers, and the U.S. Office of Education. For more than 30 years the activities associated with this annual observance have encouraged a wider public understanding of, and support for, education at elementary and secondary levels. For the past 2 years a cordial invitation to participate has been extended to institutions of higher learning.

■ Physics students at Los Angeles High School will attend weekly lecture demonstrations given by scientists from the laboratories of the Hughes Aircraft Company. Under the same program, ten teachers, selected by members of the Los Angeles City School System, will