

Raise for Britain's Physicians

A 5-percent interim pay rise for general practitioners in Britain's National Health Service went into effect on 1 May. The increase also applies to senior hospital medical and dental staffs, including specialists and consultants. A 10-percent rise was granted earlier to junior staff members. Physicians and dentists in the National Health Service are seeking a 24-percent increase, and the general practitioners have threatened to withdraw from the service this fall.

The interim increases were granted pending a report from a Royal Commission that has been appointed to make a complete review of the service's salary scale. The British Medical Association, which is backing the withdrawal plan, was not mollified by the pay concession. It termed the 5 percent an arbitrary figure decided on by the Government without negotiation or arbitration. The British Dental Association also described the raise as unsatisfactory.

Accreditation of Mouse Producers

The greatly expanded contract program of the Cancer Chemotherapy National Service Center (National Cancer Institute) for the screening of compounds for possible anticancer activity and the increased research grants program of the National Institutes of Health have necessitated a major increase in the production of laboratory mice. The shortage of mice of certain inbred strains has been especially critical, for the transplantable tumors used in the screening program grow only in these particular inbred strains.

For a long time the main source of supply for inbred mice was the Roscoe B. Jackson Memorial Laboratory at Bar Harbor, Me. However, the demand for inbred mice exceeded the production capacity of this laboratory. Therefore it became necessary to devise methods by which commercial laboratory mouse producers with no training in the principles of genetics could cooperate with the Jackson Laboratory and other mammalian genetics laboratories in producing an increased number of inbred mice. These methods had to insure the genetic homogeneity of all mice of any specific strain, even though produced at different geographic locations; the methods also had to insure that variability of the mice because of environmental differences would be kept to a minimum.

Following the pioneer work of William Lane-Petter of the Laboratory Animals Bureau in establishing a system of accreditation for commercial laboratory animal producers in Great Britain, the

development here of a similar system of accreditation based on a series of animal husbandry and breeding standards, coupled with periodic inspections of accredited producers, seemed to be the best solution to the problem. Such a program has been one of the major aims of the Institute of Laboratory Animal Resources (National Academy of Sciences-National Research Council) since its inception in 1952. The Cancer Chemotherapy National Service Center (CCNSC) therefore requested the Institute of Laboratory Animal Resources (ILAR) to undertake the development of a series of minimum animal husbandry and breeding standards for use in assuring an adequate supply of inbred mice for its screening program.

A series of conferences was held in which members of the ILAR Committee on Standards, ILAR and CCNSC staff members, a number of mammalian population geneticists, and a majority of the commercial laboratory mouse producers cooperated in developing a set of minimum standards which would incorporate the latest scientific requirements and yet be economically practical. Personal visits and discussions by staff members at a representative number of commercial and academic laboratory mouse-breeding facilities, as well as at a number of major laboratories using mice, also aided in making the standards as practical as possible.

Accreditation of commercial breeders of inbred and/or random-bred laboratory mice based on conformity with the *Minimum Standards for the Commercial Production of Random-bred and Inbred Laboratory Mice*, as determined by periodic inspections by a responsible organization, is intended to assure the purchaser that the mice have been produced under good environmental conditions and proper genetic control. Thus variability from either environmental or genetic causes should be minimal in successive lots of random-bred mice from the *same* accredited producer; variability of inbred mice of a specific strain from *any* accredited producer should also be minimal.

The success of this program of accreditation will rest solely upon the cooperation of the commercial laboratory mouse producers and the academic, governmental, and industrial laboratories using mice. As is stated in the preamble to the *Minimum Standards*, it is expected that the standards will be revised from time to time as experience dictates. All suggestions for improving the *Minimum Standards* or any other part of this program will be gratefully received. Copies of the *Minimum Standards* may be obtained from Mr. Berton F. Mill, Executive Secretary, Institute of Labora-

tory Animal Resources, National Academy of Sciences, 2101 Constitution Ave., NW, Washington 25, D.C., or from Dr. George L. Wolff, Section on Screening, Cancer Chemotherapy National Service Center, National Cancer Institute, Bethesda 14, Md.

The Institute of Laboratory Animal Resources (NAS-NRC) intends to develop similar sets of standards to cover the production of other laboratory animals in the near future. Ten million mice is a conservative estimate of the number used annually in this country by academic, governmental, and industrial laboratories. In view of this preeminent position as an experimental animal in biological and medical research, it is appropriate that the mouse is the first laboratory animal for which such a program of standardization has been developed.

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Radio Pill for Studying Gastrointestinal Physiology

A new radio broadcasting capsule which can be swallowed like a medicinal pill was demonstrated recently at the Rockefeller Institute, New York. As it passes through the intestine, this small FM broadcasting transmitter signals the activity of the digestive tract to an outside receiver. The capsule has been developed and tested jointly by the Rockefeller Institute, the New York Veterans Administration Hospital, and the Radio Corporation of America.

This new device for studying the physiology of gastrointestinal pressure was made by Vladimir K. Zworykin, affiliate in biophysics in the institute's Medical Electronics Center and honorary vice president of RCA, and John T. Farrar, chief of the Gastroenterology Section of the New York Veterans Administration Hospital and assistant professor of clinical medicine at the Cornell University College of Medicine. The pill, which was developed by engineers in RCA's commercial electronic products organization in Camden, N.J., is being tested clinically by Farrar and his associates.

In its present stage of development, the capsule must be considered as an experimental technique but one which holds important implications for future medical research. The device is plastic and measures approximately 1½ in. long and 4/10 in. in diameter.

The various electronic components of the capsule—transistor, oscillator, a fer-

rite cup inductance core, and other circuit elements—are combined in the center of the pill. Housed in one end is a minute, replaceable storage battery which powers the oscillator. (In World War II this type of battery was used for the VT proximity fuse for anti-aircraft shells.) The other end of the capsule is sealed by a flexible rubber membrane. The membrane transmits the body's pressure variations to a diaphragm, which supports the armature of the ferrite cup inductance core. This core contains a coil whose inductance varies with the pressure exerted on the diaphragm. The signal generated by the radio pill, at a frequency of approximately 1 megacycle, varies in frequency as the inductance is varied by changing pressure on the diaphragm.

The radio pill is radiopaque, so its course through the gastrointestinal tract may be traced by fluoroscopy or other means. Since it has magnetic properties, it may be possible to manipulate it by magnetic forces outside the body.

NSF Science Faculty and Senior Postdoctoral Awards

The National Science Foundation has announced the award of 100 science faculty fellowships in the sciences for 1957-58. Awarded this year for the first time, these fellowships are offered as a means of improving the teaching of science, mathematics, and engineering in American colleges and universities.

Science faculty fellows were selected from 416 applicants from all parts of the continental United States and its territories on the basis of ability as indicated in letters of recommendation, academic and professional records, and other evidence of attainment and promise. Eligibility requirements included a baccalaureate degree or its equivalent, demonstrated ability and special aptitude for science teaching and advanced training, and 3 years of full-time science teaching at the college level.

The foundation has also announced the award of 30 senior postdoctoral fellowships in the sciences for 1957-58, selected from 168 applicants. These fellowships were awarded to scientists of demonstrated ability and special aptitude for productive scholarship in the sciences. Sixteen awards were made in the life sciences and 14 in the physical sciences, including a number in interdisciplinary fields.

Science faculty and senior postdoctoral fellowships carry stipends adjusted to approximate the regular salaries of award recipients. These stipends may be applied toward study or research in an accredited nonprofit institution of higher learning in the United States or abroad.

Grace Nuclear Fuel Plant

W. R. Grace and Company, New York, has announced that construction will begin immediately on a plant to produce basic raw materials for nuclear reactor fuel. The plant will be located at Erwin, Tenn., and is designed to produce uranium, thorium, and rare-earth alloys and metals for reactors now in use or under construction by both private enterprise and defense units. Other than uranium, thorium is the only naturally occurring element that can be converted into fissionable material. The plant is perhaps the first of its kind financed and operated entirely by private enterprise.

The installation will consist of a solvent extraction plant producing pure thorium and uranium salt, a reduction plant that will convert the salt to metal powder or sponge, and a melting and casting plant containing both vacuum-induction and arc-melting facilities. The thorium metal produced probably will find extensive use in magnesium alloys for jet aircraft and guided missiles.

The new plant is expected to employ initially 50 to 60 people. It will be operated under the supervision of F. C. Nicholson, vice president for chemical operations of the Davison Division. Directly in charge of the plant will be T. C. Runion, general manager for nuclear reactor materials.

Cullen Engineering College at Houston

The University of Houston has received gifts totaling \$6.5 million for the construction of the Cullen College of Engineering building and for creating six chairs for distinguished professors. A gift of \$5 million for the building came from Mr. and Mrs. Hugh Roy Cullen, through their Cullen Foundation. The gift brings to about \$30 million the total of the Cullen gifts to the university. The M. D. Anderson Foundation gave the school \$1.5 million for the six professorships.

Soviet Scientists Cancel U.S. Visit

Six Soviet scientists who had accepted invitations to the recent seventh annual Rochester Conference on High Energy Nuclear Physics did not attend. A last-minute cablegram received by the University of Rochester, host to the conference, said: "Regret U.S.S.R. Academy of Sciences delegation will not attend Rochester conference due to technical reasons. Best wishes for conference success."

Among the Russian delegates who had been expected was D. I. Blokhintsev, a director of the Joint Institute of Nuclear

Problems in Moscow. Two non-Russian directors of the institute attended the conference. They were Marian Danysz of Warsaw, Poland, and Vazlav Vortruba of Prague, Czechoslovakia. Six other scientists from Poland also participated in the meeting.

Kelco Research Laboratory

The Kelco Company, large producer of algin products widely used as thickening, suspending, stabilizing, emulsifying, film-forming, and gel-producing agents, has announced construction of a new \$250,000 research laboratory in Research Park, San Diego, Calif. The primary purpose of the new facilities is to provide advanced technical service in the solution of the product and processing problems of the company's clients in the dairy, food, textile, chemical, paper, plastics, beverage, paint, drug, and cosmetic industries.

National Bureau of Standards, 1956

The 1956 annual report of the National Bureau of Standards is now available at the U.S. Government Printing Office, (Washington 25, D.C.). This 158-page publication summarizes the bureau's research and development activities in the physical sciences during the last fiscal year. Brief descriptions are given of representative accomplishments in each area of the bureau's responsibilities, which include maintenance of basic standards, determination of physical constants and properties of matter, development of methods and instruments of measurement, and the provision of calibration, testing, and scientific advisory services.

During the past year, significant results were achieved in programs dealing with electronic computers, electronic instrumentation, and the properties of matter and materials. A new high-speed computer that provides the geographic fallout pattern after a nuclear explosion was developed for the Atomic Energy Commission. Development work was successfully completed on a micro-image data storage and retrieval device, which provides rapid access to any one of 10,000 microfilmed images located on a 10-inch-square sheet of film.

The bureau also developed a technique for capturing and storing large numbers of free radicals—highly reactive molecular fragments—at temperatures near absolute zero. In the field of optics and metrology, the bureau completed a comprehensive dictionary of color names, which lists some 7500 individual color names and defines them in simple accurate terms easily understood by workers