

News and Notes

National Ferroelectricity Symposium

On 26 January 1955 a 1-day symposium on ferroelectricity was held at the Signal Corps Engineering Laboratory, Fort Monmouth, N.J., under the joint sponsorship of the Signal Corps and the Ceramic Association of New Jersey. The symposium was opened by Brigadier General Francis F. Uhrhane, (director, Signal Corps Engineering Laboratories). The first paper, "Problems of manufacturing to meet specifications for titanate ceramics" was delivered by Rolland R. Roup (Globe Union, Inc., Milwaukee, Wis.). The effect on dielectric constant and piezoelectric constant of firing ceramic barium titanate in different type kilns and the beneficial effect of water vapor atmospheres were shown.

Werner Kaenzig (University of Illinois) gave a paper on the "Surface properties of very small ferroelectric particles." Experimental results from x-ray diffraction measurements of c/a ratios on colloidal barium titanate with particle size of the order of 1000 Å, show no curie point up to 800°C. For small ferroelectric particles a surface layer of space charge may build up as high as 10^5 v/cm. Ray Pepinsky (Pennsylvania State University) discussed "Ferroelectric and antiferroelectric phase transitions." Among the many structures discussed was that of ferroelectric lead titanate in which the titanium and lead atoms are both displaced in the same direction with respect to the fixed oxygens, namely, 0.29 Å and 0.46 Å.

W. P. Mason (Bell Telephone Laboratories) discussed "Ferroelectrics and the dielectric amplifier." The dielectric amplifier and its frequency limitations and the effect on the titanates of various additions to arrest the aging effect of the piezoelectric constant were ably shown.

W. J. Merz (Bell Telephone Laboratories) gave a talk on "Static and dynamic properties of the ferroelectric domains in BaTiO_3 single crystals." He demonstrated parallel and antiparallel domains with polarized light and actual crystals of barium titanate.

E. T. Jaynes (Stanford University) talked on "Electro-optical and paramagnetic experiments with barium titanate crystals." In addition to the electro-optical effect described with barium titanate, resonance experiments showed a complex absorption spectrum as a function of magnetic field at 9000 mc with the g -factor going down to 2, as expected, above the curie point.

Following the papers a panel discussion was held with the afore-mentioned speakers and Hans Jaffe (Brush Electronics Co., Cleveland) and E. Wainer (Horizons, Inc., Cleveland) participating.

A. P. deBretteville (Chemical Physics Branch, Signal Corps) was chairman and J. H. Koenig (Rutgers University) was cochairman.

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Science News

In a speech delivered in Montreal at the annual Wildlife Conference of North America, which had as its theme "The use of natural resources—a continental challenge," William Vogt, national director of the Planned Parenthood Federation of America, predicted that the **population of the United States would double** in approximately 40 yr and that this country would exhaust its natural resources unless the population rise were checked. He said that the United States probably has more natural wealth than any other part of the world, yet the cost to the nation of providing water, food, and social services for 164,000,000 more persons in such a relatively short time would place a heavy burden on the people.

We could probably get by, but only at two certain and enormous costs—a greatly lowered standard of living and an appalling increase in Government controls over many phases of our lives.

Vogt said the United States was consuming 10 percent more raw materials than it produced, whereas 50 yr ago 15 percent more raw materials were produced than consumed. With regard to the world's un-renewable resources, it has been calculated that this country already utilizes 50 percent of these, and by 1980, if the present rate continues, will be consuming 83 percent. Vogt also warned that space is another "resource" that is being rapidly depleted in North America and that it, like water, is not something for which a substitute can be found.

The **Indian Agricultural Research Institute**, New Delhi, popularly known as the Pusa Institute, is 50 yr old this year; the event is being celebrated 1-4 Apr. The institute, the establishment of which was facilitated by a gift of £30,000 from the American philanthropist Henry Phipps, was located at Pusa, Bihar, from 1905 until the great Bihar earthquake of 1934. This caused irreparable damage, and it was decided to move the institute to a 1000-acre reservation in New Delhi, where new laboratories and buildings were officially opened in 1936.

There are at present six major divisions within the institute: agronomy; botany; soil science and agricultural chemistry; agricultural engineering; entomology; and mycology and plant pathology. Each of these divisions has separate buildings, an experimental area, and a library. In addition there is a central library that receives more than 1000 different periodicals and is considered to be the best agricultural library in the East. The institute also has three substations, at Pusa, Karnal, and Simla.

Not only has the institute accomplished much valuable work in crop and herd improvement and pest control, but over the years it has built up several valuable collections: varieties of crop plants, insects, and the Herbarium Cryptogamae Indiae Orientalis.

One of the important activities of the institute is

the provision of postgraduate training to students and to deputies from the various state agricultural departments. The students have the choice of nearly 20 different 2-yr courses, for each of which there is a carefully planned syllabus. Hundreds of men trained at the institute now occupy important positions throughout the country. Students from neighboring Asian countries are also enrolling in these courses. For the past 5 yr the Central College of Agriculture of Delhi University, has also been located in the institute.

Recently the institute has undertaken agricultural extension work in Delhi villages. It also cooperates with the Food and Agriculture Organization of United Nations in the maintenance and description of genetic stocks of wheat, and with the U.S. Technical Cooperation Mission in conducting fertilizer tests. At present the institute is on the threshold of further expansion: A new hostel that can accommodate 100 more students has been constructed, and a laboratory for undertaking research on trace elements has been completed. Soon a cartographic laboratory will also start to function; and in addition, existing laboratories are being provided with more greenhouses and new equipment.

A **miniature digital computer** that can operate in planes flying at supersonic speed has been developed for the U.S. Air Force by Bell Telephone Laboratories. J. H. Felker, an electrical engineer, directed the work. The instrument eliminates vacuum tube failure and heat, jet aircraft's greatest electronic problems, by the use of transistors, nearly 800 of them, instead of vacuum tubes. This is believed to be the first all-transistor computer designed for aircraft.

The new computer, known as TRADIC (TRAnsistor-DIGital-Computer), requires less than 100 w to operate. This is one-twentieth of the power needed by vacuum tube computers designed for the same function. Early computers used as many as 18,000 vacuum tubes and frequently required thousands of watts to operate.

The new instrument contains, in addition to transistors, nearly 11,000 germanium diodes. Solid, like transistors, they are capable of operating thousands of times faster than their mechanical counterparts. When design work has been completed, the computer will probably occupy less than 3 ft³ of the critical space in modern military aircraft.

Successful use of a **new synthetic hormone** to treat Addison's disease, and as a diagnostic aid in determining the degree of adrenal gland function in other diseases, is described in the 17 Mar. issue of the *New England Journal of Medicine* by a research team from the Harvard Medical School and Peter Bent Brigham Hospital. The group is headed by George W. Thorn and includes Alan Goldfen, John C. Laidlow, Najib Abu Haydar, and Albert E. Renold. These men have found by clinical trial with human patients that a derivative of hydrocortisone, known as fluorohydrocortisone, greatly intensifies and lengthens the metab-

olic and therapeutic effects of the parent drug and prolongs the duration of action in treatment of Addison's disease. Fluorohydrocortisone is obtained by inserting a fluorine atom at the 9-Alpha position of hydrocortisone. The synthesis was made by Josef Fried and Emily F. Sabo of the Squibb Institute.

Discovery that cortisone was one of the essential secretions of the adrenal cortex and that it restored those afflicted with Addison's disease to lives of normal activity came in 1948, 13 yr after the first granules of the drug had been isolated by Edward C. Kendall of the Mayo Foundation Biochemical Laboratory. Earlier the disease had normally resulted in death within a period ranging from a few days or weeks to as long as 3 yr.

At present the new compound is available for experimental purposes only. Thorn says of the drug

"Its great theoretical interest is that chemists have been able to synthesize an adrenal hormone which is 10 to 50 times more active than that provided by the body itself."

A recent issue of the 27-yr-old *Hebrew Medical Journal*, which is under the editorship of Moses Einhorn of New York, is dedicated to the 750th anniversary of the death of Maimonides, the renowned Jewish medieval physician and philosopher. A series of articles in this issue deal with his life and outstanding contributions in the fields of medicine and philosophy. A biographical sketch on Maimonides is contributed by the editor, who cites some of Maimonides' maxims on what makes a good doctor.

Besides the power to heal, a doctor must possess an independent mind. . . . Medicine is necessary to man, not only when he is sick, but also when he is healthy. . . . A doctor must be a whole man, observant, cautious, and attentive to each patient on the presumption that his case is individual and special.

Other articles on Maimonides deal with "The influence of religion and philosophy upon Maimonides as physician"; "Maimonides' opposition to occultism"; and "The impact of Maimonides upon medieval writers in the field of medicine." The journal is written in Hebrew with English summaries.

A recent issue of the *Journal of the American Medical Association* describes good results in **treating typhoid fever with a new antibiotic** drug called synnematin B, which comes from the organism *Tilachlidium*. It was given to 16 children of ages from 2½ to 11 yr at the Hospital Infantil in Mexico City. Regardless of the day of sickness on which treatment with the drug was started, the temperature returned to normal, the toxic state was relieved, appetite increased, and mental alertness improved in from 2 to 6 days. The patients all recovered and none had any intestinal bleeding or perforations.

The results of this trial of synnematin B are reported by Lazaro Benavides V. of the Hospital Infantil; Birger H. Olson and Stephen H. Holt of the Michigan Department of Health Laboratories, Lan-

sing, Mich.; and Gerardo Varela of the Instituto de Salubridad y Enfermadades Tropicales, Mexico City. Olson and Holt had previously shown that synnematin B was not toxic for human beings and that it was active against a wide variety of Salmonella, the germ family to which the typhoid fever germs belong. Synnematin was discovered by R. Gottshall and some colleagues at the Michigan State Department of Health and later separated into synnematin A and synnematin B by Olson and his coworkers.

A group of approximately 30 investigators and clinicians who are specialists in the development of artificial kidneys, artificial heart-lung machines, and similar biomechanical equipment have organized a society, the **American Society for Artificial Internal Organs**, for the purpose of exchanging information and of stimulating developments in this field. Information may be obtained from the acting secretary, Dr. Peter F. Salisbury, Institute for Medical Research, Cedars of Lebanon Hospital, 4751 Fountain, Los Angeles 29, Calif.

Ten insurance executives have been briefed by the Atomic Energy Commission on the pertinent aspects of the national atomic energy program. In order that the civilian use of atomic energy may be expedited, these executives were selected to consider problems confronting the insurance industry in providing **insurance coverage for private reactor operations**. It is intended that these men will issue an unclassified report on the results of their studies for use by the insurance industry.

The United Nations Educational, Scientific and Cultural Organization has reported that at a recent meeting in New Delhi, India, Soviet scientists described the use of **solar energy to operate small factories**. The scientists said that colleagues in a laboratory in Tashkent, near Afghanistan, had developed curved mirror reflectors nearly 40 ft in diameter that are used in factories to help produce as much as 100 lb of high-pressure steam an hour.

It is reported that canneries, refrigerating plants, and water distilling factories are being operated on solar energy, and that solar-energy heaters are being used to make fresh water from salt water. One plant is said to produce 250 gal of distilled water a day.

Scientists in the News

Silas B. Hays, a major general in the Army Medical Corps, has been nominated by President Eisenhower to be the Surgeon General of the Army, effective 1 June. Hays, who has been Deputy Surgeon General for the past 4 yr, succeeds George E. Armstrong, major general, who is scheduled to retire from active duty.

Four scientists of the U.S. Navy Bureau of Ships and the Naval Research Laboratory, and one now employed by the Atomic Energy Commission, recently received awards totalling \$2400 for their work in de-

veloping the dosimeter, an inexpensive device for measuring radiation doses [*Science*, **118**, 184 (14 Aug. 1953)]. Five other scientists who worked on the project and who are not now in the Washington, D.C., area, also received awards.

Those honored are **James H. Schulman**, NRL; **R. J. Ginther**, NRL; **C. R. Horner**, AEC; **Clifford C. Klick**, NRL; **Samuel C. Rainey**, Bureau of Ships; **J. Cryden**, Los Angeles, Calif.; **L. W. Evans**, Seneca Falls, N.Y.; **A. Lovoff**, Western Springs, Ill.; **W. F. Gray**, Eglin Air Force Base, Fla.; **Raymond Alger**, U.S. Navy Radiological Defense Laboratory, San Francisco, Calif.

Sidney Burwell, research professor of clinical medicine at the Harvard Medical School since 1935, has been appointed as Harvard's first Samuel A. Levine professor of medicine. The new chair was established in November, 1954, by Charles E. Merrill, New York investment banker, in honor of Levine, his friend and physician and a well-known clinical professor of medicine at Harvard.

Frederic de Hoffmann, who has been connected with the Los Alamos Scientific Laboratory since 1944, will join the Convair Division of the General Dynamics Corp., San Diego, Calif., on 15 Apr. as assistant vice president for nuclear planning. He will guide the investigation of new applications of nuclear energy, both military and industrial, and head research on current nuclear projects. De Hoffmann is particularly noted for his work on the development of the atomic and hydrogen bombs and for his studies in nuclear reactor theory and high-energy nuclear physics. In 1954 he was appointed a consultant to the Joint Congressional Committee on Atomic Energy, acting as a member of a special panel to study atomic energy and its relationship to continental defense.

Roy B. Snapp, formerly special assistant to the chairman of the U.S. Atomic Energy Commission, has been awarded the commission's Certificate of Distinguished Service "In recognition of outstanding performance of duty with the United States Atomic Energy Commission and its predecessor, the Manhattan Engineer District, Corps of Engineers, U.S. Army, from April 30, 1946 to March 1, 1955." Snapp left the AEC on 1 Mar. to enter the private practice of law in Washington.

William Albert Zisman, an authority in the field of lubrication and head of the surface chemistry branch of the Naval Research Laboratory, Washington, D.C., has received the 1955 Hillebrand award of the American Chemical Society's Washington section. **Victor K. La Mer**, professor of chemistry at Columbia University, gave the principal address at the award dinner. He was selected as speaker by the award winner in accordance with the Hillebrand award tradition. His topic was the "Rate of evaporation of water through fatty acid monolayers."

Zisman directed the development of a lubrication system for aircraft machine guns that assured com-

pletely reliable functioning in the extreme cold during the recent Korean conflict. He received the Navy's Distinguished Civilian Service award for this and other outstanding research in lubrication. His investigations at NRL led to the synthesis during World War II of new and important liquid lubricants and new classes of synthetic greases now widely used in the aviation industry at extremely high and low operating temperatures.

Thomas M. Shaw, former senior research physicist at the Western Regional Research Laboratory of the U.S. Department of Agriculture, has joined Southwest Research Institute, San Antonio, Tex., in the same capacity. He will be responsible for research on applications of radio-frequency spectroscopy and microwave spectroscopy to chemical problems.

Sidney Mittler, research biologist at Armour Research Foundation of Illinois Institute of Technology, is the recipient of the award of scientific merit presented by the foundation's chemistry and chemical engineering research department for "outstanding individual scientific accomplishment." He was honored for his work in studying trace elements in nutrition.

Richard S. Caldecott, formerly a radiobiologist at the Brookhaven National Laboratory, has joined the staff of the agronomy and plant genetics department, University of Minnesota, under the auspices of the U.S. Department of Agriculture. He will continue basic studies with ionizing radiations that are supported by an Atomic Energy Commission contract.

Barry G. King, research executive in the medical division of the Civil Aeronautics Administration and associate professor of physiology at Ohio State University, has received the Department of Commerce exceptional service award, a gold medal, for aviation medical research and aviation medical training programs.

A portrait of **T. P. Nash, Jr.**, dean of the School of Biological Sciences at the University of Tennessee Medical Units, will be presented to the university by former students and associates of Nash, who has been connected with the university for almost 40 yr. The portrait will be hung in the new Chemistry-Physiology Building.

Leon M. Dorfman, a former research associate at Knolls Atomic Power Laboratory, is now a research associate in the electron physics department of the General Electric Research Laboratory, Schenectady, N.Y.

Harold C. Urey, Ryerson distinguished service professor of chemistry at the Institute of Nuclear Studies, University of Chicago, and winner of the Nobel prize in chemistry in 1934, has received Dickinson College's Priestley memorial award for 1955. The award, a Wedgwood medallion and \$1000, is conferred annually upon a scientist for research, discovery, or production benefiting mankind.

Vincent du Vigneaud, professor and chairman of the department of biochemistry of Cornell University Medical College, New York, has been selected as the recipient of the \$5000 Passano Foundation award for 1955. On 8 June, during the week of the American Medical Association convention in Atlantic City, a reception dinner will be held at the Traymore Hotel to honor du Vigneaud. He is being honored for his investigation of the chemical and physiologic nature of the hormones of the posterior portion of the pituitary gland. This culminated in the identification and synthesis of oxytocin and vasopressin [*Science* 118, 543 (6 Nov. 1953)].

The University of Virginia has announced the appointment of **W. Ralph Singleton**, senior geneticist of the Brookhaven National Laboratory, as Miller professor of biology and director of the university's Blandy Experimental Farm; he succeeds **Orland E. White**, whose retirement becomes effective this June. Singleton will lead a program of graduate research in radiation genetics and horticulture that will emphasize the development of plant strains resistant to disease and drought. Like White, Singleton completed work for his doctorate at the Bussey Institution of Harvard University under the late Edward M. East.

Alfred Traverse, formerly coal technologist at the Charles R. Robertson Lignite Research Laboratory, U.S. Bureau of Mines, Grand Forks, N. Dak., has been transferred to the coal technology branch of the Denver Experiment Station, U.S. Bureau of Mines, where he will be in charge of a newly organized fuels microscopy laboratory at the Denver Federal Center. The research program of this laboratory will be concentrated primarily on petrography of coals of the Western United States.

Filadelfo Panlilio, at present associated with the University of the Philippines at Quezon City, will join the Union College (Schenectady, N.Y.) faculty this fall as an associate professor of mechanical engineering. Panlilio was a member of the faculty at the University of Michigan from 1944 until 1948, when he returned to Quezon City.

The University of Rochester has announced the appointment of **Edwin O. Wiig** as chairman of its department of chemistry to succeed **W. Albert Noyes, Jr.**, who has headed the department since 1939. Wiig has been a member of the Rochester faculty since 1932 and has been a full professor since 1945. Noyes has asked to be relieved of the chairmanship in order to devote more time to his research in photochemistry and to his duties as dean of the graduate school. He will continue as Charles Frederick Houghton professor of chemistry.

Wayne University and the Michigan Department of Mental Health have announced that effective 1 July **Jacques S. Gottlieb** will assume the directorship of the nearly completed Lafayette Clinic, neuropsychiatric institution in Detroit. Gottlieb has served since July

1953 as director of the Institute of the Jackson Memorial Hospital in Miami, Fla., and as chairman of the psychiatry and neurology department at Miami University School of Medicine.

The \$3,680,000 clinic, which is near the Wayne University medical building, will be staffed by College of Medicine personnel. Operational costs will be financed by the state. The new unit will have 145 beds, 25 devoted to children, and there will also be extensive out-patient facilities. A special classroom wing is attached to the four-story building. The clinic's program will include the training of psychiatrists, clinical psychologists, psychiatric nurses, psychiatric social workers, and personnel in allied professions.

The following appointments to assistant professor have been announced. University of Nebraska: **Herbert L. Davis**, biochemistry. University of Illinois, Urbana: **William J. Rutter**, biochemistry.

Necrology

Ernst P. Boas, 64, authority on heart and chronic diseases, advocate of compulsory health insurance law, author, former assistant clinical professor of medicine at Columbia University College of Physicians and Surgeons, New York, 9 Mar.; **William P. Boynton**, 87, professor emeritus of physics at Oregon State College, Corvallis, 9 Mar.; **Herbert W. Brandt**, 70, explorer, ornithologist, and author, Cleveland, Ohio, 8 Mar.; **Frank G. Brooks**, 61, head of the biology department at Cornell College, Mt. Vernon, Iowa, 4 Mar.; **Clement B. P. Cobb**, 54, assistant professor of pediatrics at Cornell Medical School, Ithaca, N.Y., 11 Mar.; **Wirt E. Darrow**, 67, inventor, retired specialist in telephone switching engineering with Bell Telephone Laboratories, 14 Mar.

Alexander Fleming, 73, Nobel prize bacteriologist, discoverer of penicillin, retired director of the Wright-Fleming Institute of Microbiology at St. Mary's Hospital, London, 11 Mar.; **Hannibal C. Ford**, 77, electrical engineer, inventor, founder and former president of the Ford Instrument Co., Long Island City, N.Y., 12 Mar.; **Roberto Funaro**, 71, pediatrician and research nutritionist, New York, 11 Mar.; **L. N. Hampton**, 59, design engineer with Bell Telephone Laboratories, New York, 5 Mar.; **Ralph L. Johnson**, 81, former psychologist at Girard College, Philadelphia, Pa., 10 Mar.; **Lyman F. Kebler**, 91, retired chief of the drug division of the U.S. Department of Agriculture Bureau of Chemistry, Washington, D.C., 4 Mar.; **Helen King**, 85, research zoologist, retired professor of embryology at the Wistar Institute of the University of Pennsylvania, Philadelphia, 7 Mar.; **Paul A. McNally**, 64, vice president of Georgetown University and chairman of the physics department, formerly director of the university's astronomical observatory, regent and dean of the medical school, regent of the dental and nursing schools, and director of the Medical Center, Washington, D.C., 4 Mar.

Stephen L. Polyak, 65, neurologist, author, professor

of anatomy of the eye at the University of Chicago, Chicago, Ill., 9 Mar.; **Patrick Quilty**, 82, civil engineer, former commissioner of water supply, gas and electricity, New York, 12 Mar.; **Robert J. Quinn**, 65, retired chemical engineer with Mathieson Chemical Corp., Tucson, Ariz., 8 Mar.; **Clarence H. Richardson**, 64, professor of mathematics at Bucknell University, Lewisburg, Pa., 13 Mar.; **Selden E. Rockwell**, 72, retired engineer with the U.S. Bureau of Reclamation, supervisor of construction on Hoover Dam, as well as Bahkra Dam in India, Santa Cruz, Calif., 14 Mar.; **George L. Sexton**, 72, chemist, engineer, president of Sexton Research Laboratories, St. Petersburg, Fla., 15 Mar.; **Allen H. Suggett**, 87, professor emeritus of orthodontics at the University of California, Berkeley, 8 Mar.

Meetings

The Committee of the American Physiological Society on Education Matters is sponsoring a workshop on the **Teaching of Physiology in Undergraduate Colleges** to be held 8-19 Aug. at the University of Connecticut, Storrs. Membership in the workshop will be limited to approximately 25 college teachers, and discussion leaders will include cellular, mammalian, comparative, and plant physiologists. The general theme will be the fitting of principles of physiology into the undergraduate curriculum.

Funds are available to pay travel expenses and living costs while at the workshop for those who attend. College teachers who wish to participate *should make application before 1 May* to the chairman of the committee for the workshop, Dr. C. Ladd Prosser, Physiology Dept., University of Illinois, Urbana.

Certain aspects of **thermodynamics** which are having an impact on engineering and engineering education will be the subject for a **conference for thermodynamics teachers** to be held at Pennsylvania State University 27-29 June, following the annual meetings there of the American Society for Engineering Education. Sponsored by the National Science Foundation and the American Society for Engineering Education, the conference will continue the study of basic science in engineering education.

Subjects on the program include: special industrial applications of thermodynamics; all engineers need thermodynamics; thermodynamics and irreversible processes; irreversible coupled flows; electric and magnetic phenomena; electrochemistry; statistical thermodynamics; rate processes; relaxation phenomena; and elastomer thermodynamics. Registration will be limited to 125. For information, write to Dr. William E. Ranz, Department of Engineering Research, Pennsylvania State University, University Park, Pa.

In conjunction with the centennial celebration of New York University's College of Engineering, the Section on Physical and Engineering Sciences of the **American Statistical Association** is sponsoring a meet-

ing in New York, 26-27 May. The session will be devoted to applications of statistical methods in physics, chemistry, astronomy, the earth sciences, and engineering.

The biology department of Harvard University has announced that the **Prather lectures** for 1954-55 will be given by Linus Pauling on the general subject, "Molecular structure and biological activity." The lectures will be open to the public and will be delivered at 5 p.m. at the university in Burr Hall, B. 18 Apr., "Abnormal human hemoglobin molecules in relation to disease."

20 Apr., "The structure of antibodies."

22 Apr., "Structural complementarity and biological specificity."

25 Apr., "The duplication of molecules."

The American Mathematical Society has announced that a **Symposium on Mathematical Probability and its Applications** will be held in connection with the 512th meeting of the society, which will take place at the Polytechnic Institute of Brooklyn in April. The symposium is sponsored jointly with the Office of Ordnance Research. Sessions are scheduled for 14 and 15 Apr., and the sessions of the regular meeting will start on the afternoon of 15 Apr. and continue through 16 Apr. During the regular meeting, invited addresses will be given by Åke Pleijel and R. D. Schafer.

The emphasis in the symposium will be on the role played by probability theory in the physical sciences. The first sessions will be devoted to the general topic of diffusion processes, with Paul Lévy, J. L. Doob, and William Feller as participants. An afternoon session on turbulence will consist of invited addresses by Eberhard Hopf, Guido Münch, and G. K. Batchelor. On 15 Apr. a session on the general topic of probability in classical and modern physics will be held. Marc Kac, S. M. Ulam, and B. O. Koopman will be the speakers.

The **Association of Southeastern Biologists**, the Southeastern Section of the Botanical Society of America, and the Southern Appalachian Botanical Club will hold their annual meetings jointly at The Citadel, Charleston, S.C., 21-23 Apr. On the first evening there will be a symposium on parasite problems in the Southeast, with M. D. Young (U.S. Public Health Service) as moderator, and E. C. Faust (Tulane University), W. H. Wright (National Institutes of Health) and W. S. Bailey (Alabama Polytechnic Institute) as speakers.

The program of papers includes sections on cytogenetics (10 papers), parasitology (11), botany (13), zoology (13), and physiology (14). At another symposium, biology teaching will be considered. S. L. Meyer (Florida State College) is moderator, and the participants are I. C. Kitchen (Mississippi), F. H. Norris (University of Tennessee) and W. B. Baker (Emory University). B. D. Reynolds (University of Virginia), immediate past president of the ASB is

scheduled to deliver an address entitled "Between the mountains," and on the final day field trips to the Bears' Bluff Laboratory and to Bulls Island have been arranged.

The 46th annual meeting of the **American Association for Cancer Research, Inc.**, will take place 14-17 Apr. in the St. Francis Hotel, San Francisco, Calif.

Education

In cooperation with the National Science Teachers Association of the National Education Association, 1201 16th St. NW, Washington 6, D.C., some 44 science-related industries and engineering firms will offer **summer-vacation employment** opportunities to high-school science teachers.

Three panel discussions, an alumni dinner, and several other events are being planned for the celebration 12-13 Apr. of the 75th anniversary of the beginning of medical education at the **University of North Carolina**. W. P. Richardson heads the special committee in charge of arrangements. One of the panels, that entitled "Financing medical education," will be moderated by Joseph Hinsey, dean of the Cornell University School of Medicine.

A special course in **radioactivity for secondary school science** teaching is being offered 8-29 July by the University of Tennessee. Each applicant must hold an undergraduate degree with a major in one or more of the biological or physical sciences; however, no previous course work or other experience with radioactivity is required. Enrollment is restricted to 24 students. For information write W. W. Wyatt, College of Education, University of Tennessee, Knoxville.

The University of Maryland has announced the **Institute of Acarology**, 27 June-16 July. Since its inception at Duke University in 1951, this program has provided an opportunity for entomologists, parasitologists, and zoologists to study mites and ticks. In line with the recent discoveries concerning the role of the Acarina in public health and agriculture, the program has been expanded; facilities have been increased and the staff has been enlarged by the participation of investigators from nearby institutions. The regular staff this year consists of Edward W. Baker, U.S. Department of Agriculture; Joseph H. Camin, Chicago Academy of Sciences; and George Anastos and G. W. Wharton, of the University of Maryland. Further information may be obtained from G. Anastos, Dept. of Zoology, University of Maryland, College Park, Md.

The **Harvard Summer School and Graduate School of Education** this year will continue their special program for secondary-school science teachers with three courses entitled "Recent developments in physical science," "Classroom use of recent developments in physical science," and "Materials and methods in the teaching of botany." A number of special fellowships

are available for these courses, which will last from 5 July to 17 Aug. Each course will carry four units of graduate credit. The fellowships will cover tuition and registration fees, and some will also include allowances toward room and board or travel expenses.

In addition to these courses for secondary-school teachers, there will be a course on "Science in the elementary school" for teachers and supervisors on the elementary level. For information, write to the Harvard Summer School, 2-N Weld Hall, Cambridge 38, Mass.

Available Fellowships and Awards

Applications for 1956-57 **Fulbright awards** for university lecturing and advanced research in Australia, Burma, Ceylon, India, New Zealand, Philippines, and Thailand must be submitted *no later than 15 Apr.* For detailed information write to the Conference Board of Associated Research Councils, Committee on International Exchange of Persons, 2101 Constitution Ave., Washington 25, D.C.

Programs for Austria, Belgium and Luxembourg, Denmark, Egypt, Finland, France, Germany, Greece, Iraq, Italy, Japan, Netherlands, Norway, Pakistan, Sweden, the United Kingdom, and Colonial Dependencies will be announced in July, although applications will be accepted from 1 May through the closing date, 1 Oct. All these awards are exclusively for lecturing and research at the post-doctoral level; applicants must be U.S. citizens.

Tufts College has been asked by the Link Foundation to administer the latter's fellowship in **aviation psychology**, which will be awarded for the first time during the school year 1955-56. The fellowship provides a stipend of \$1500 as well as exemption from tuition and fees. The award will allow the fellow to pursue a full-time graduate program leading to the M.S. degree in the department of psychology and to conduct thesis research in relation to the aviation research program of the Institute for Applied Experimental Psychology. Applicants should communicate with Dr. Leonard C. Mead, Dean of the Graduate School, Tufts College, Medford 55, Mass.

As a contribution to the meeting of the British Association for the Advancement of Science to be held in Bristol, 31 Aug.-7 Sept., Imperial Chemical Industries Ltd., publishers of the quarterly scientific review *Endeavour*, have offered the sum of 100 guineas to be awarded as prizes, known as the **Endeavour prizes**, for essays submitted on scientific subjects: first prize, 50 guineas; second prize, 25 guineas; and third prize, 15 guineas. Two special 5-guinea prizes will be given to competitors who have not passed their 18th birthday on 1 June. Because the primary purpose of these awards is to stimulate younger scientists to take an interest in the work of the British Association and to raise the literary standard of scientific writing, the competition is restricted to those whose 25th birthday falls on or after 1 June 1955.

The subjects for the essays are as follows: the earth's magnetism; man-made fiber; climatic changes; scientific aids to food supply; respiration; and new metals for engineers. The essays, which must be type-written in English, should not exceed 4000 words in length, and only one entry is permitted from each competitor. All entries should be addressed to: The Assistant Secretary, British Association for the Advancement of Science, Burlington House, Piccadilly, London, W.1. The envelope should be clearly marked "Endeavour Prize Essay." *The latest date for receipt of entries is 1 June 1955.* The successful competitors will be invited to attend the whole of the Bristol meeting, at which the prizes will be presented, and their expenses within the United Kingdom will be paid.

The essays must be submitted without signature. The competitor's full name and address and date of birth should be disclosed in a sealed covering letter attached to the essay and addressed to the Assistant Secretary of the British Association, who will acknowledge all entries. The names will not be disclosed to the judges until after the prize-winning essays have been selected.

In judging the essays, special attention will be paid to the originality of the approach to the subject, and great importance will be attached to literary style. The competitor's age will also be taken into account. The essay winning the first prize will be published in *Advancement of Science*, journal of the British Association.

Fellowships, scholarships, and staff appointments open to science and engineering students who come to the Massachusetts Institute of Technology for graduate study in 1955-56 have been announced by three departments at the institute. Advanced work in **food technology, mechanical engineering, and meteorology** is open to qualified graduates, and in these three departments programs of financial aid are available. Further information about these opportunities for graduate study may be obtained from each of the departments concerned.

Nominations are invited for the \$500 **Kimble Methodology research award**, which is sponsored by the Kimble Glassware Division of the Owens-Illinois Glass Co. and administered by a committee of the Conference of State and Provincial Public Health Laboratory Directors. The candidate's work should be either (i) a fundamental contribution that serves as a base line for development of diagnostic methods that fall within the province of the public health laboratory; or (ii) the adaptation of a fundamental contribution to make it of use in a diagnostic laboratory.

Nominees must be citizens of the United States or Canada, and the work submitted should have been completed since 1 Jan. 1950. Nominations received *after 30 May* will not be considered for 1955, but may be considered for 1956. For information, write to the chairman of the nominating committee, Dr. M. Scherago, Dept. of Bacteriology, University of Kentucky, Lexington.

In the Laboratories

A scientific center for basic **research in neurology** is to be built near Caracas, Venezuela, by Sentab contractors of Sweden. Already \$3 million have been appropriated for the project. H. Fernandez-Moran, who has spent 8 yr studying neurology and cytology in Sweden, will head the center.

Albino Farms, supplier of laboratory animals for scientific research, has announced its relocation in Red Bank, N.J.

A new building, designed to improve the quality of research animals and having facilities for 2000 cages or about 12,000 breeders, has been added to the facilities of the **Roscoe B. Jackson Memorial Laboratory** at Bar Harbor. The modern structure has concrete and plastic-tile floors, fluorescent lighting, a ventilating system that changes the air every 5 min, and an automatic oil furnace with a hand-fired heater for use in case of power failure. It will serve as a segregation unit for the inbred strain of mice called the Blacks and Black hybrids that is much in demand for radiation research, chemotherapy work with transplantable tumors, and studies on response to hormones.

A proposal by the **Seminole Electric Cooperative, Inc.**, of Madison, Fla., to study the feasibility of small central station nuclear power plants has been approved by the Atomic Energy Commission and will be performed under the AEC's Industrial Participation Program. Seminole is a federation of five electric distribution cooperatives in northcentral Florida, which serve one of the highest fuel-cost areas in the country.

The E. P. McLean Engineering Co., has been employed by Seminole to coordinate and direct the study, which will run for one year and will be made at the expense of the cooperative. The object is to determine whether a nuclear power plant can be developed to produce electricity at costs below those current in Florida, and to judge the suitability of small plants with a 10,000-kw capacity for use in the systems of member cooperatives.

The **Gelcar Co.**, distributors of products for bacteriological and orchid cultures, announces its opening at 1318 Nostrand Ave., Brooklyn 26, N.Y., under the direction of A. Weintraub.

Miscellaneous

Calvin Perry Stone, professor of psychology at Stanford University and a member of the faculty since 1922, died suddenly on 28 Dec. 1954. As a memorial, a loan fund has been established for the aid of doctoral students in the general field of experimental psychology at Stanford. Friends and colleagues are invited to contribute to the fund. Checks may be mailed to the executive head of the department of psychology, Robert R. Sears.

The Institute of Microbiology at Rutgers University is attempting to build a microbiological library, but unfortunately it has been forced to start with only the current issues of journals and texts. Therefore, an appeal is made to all who may be in a position to help. The library is interested in virtually every aspect of the broad field of microbiology, including biochemistry, and would **welcome the donation of books and journals**. It also offers its facilities for the housing of special collections.

The institute has adopted a very liberal policy with regard to use of the library by "outsiders," and volumes in the collection will be readily available through the interlibrary-loan service. It is felt that many individuals, industries, and laboratories could benefit from a fine library at the Institute of Microbiology.

The library would be happy to pay any transportation and handling costs incurred by those who contribute publications. Inquiries should be addressed to the librarian, Robert A. Day, Institute of Microbiology, Rutgers University, New Brunswick, N.J.

A competitive **examination for appointment of medical officers** to the regular corps of the U.S. Public Health Service will be held in various places throughout the country, 7-9 June. Appointments provide opportunities for career service in clinical medicine, research, and public health. They will be made in the ranks of assistant and senior assistant, equivalent to Navy ranks of lieutenant (j.g.) and lieutenant, respectively. Starting salaries for those with dependents range from \$6017 to \$6918.

Application blanks may be obtained by writing to the Chief, Division of Personnel, Public Health Service, Department of Health, Education, and Welfare, Washington 25, D.C. Completed forms must be received *no later than May 6, 1955*.

One of the feature articles in the April issue of **The Scientific Monthly** is "National defense against atomic attack" by Walter E. Todd, Willard S. Paul, and Val Peterson. This article is based on papers presented at a joint symposium of the National Academy of Economics and Political Science, Section K of the AAAS; and the National Social Science Honor Society, Pi Gamma Mu, that was held at the Berkeley meeting of the AAAS.

Other articles are "Orchestral acoustics," E. G. Richardson; "Statistics, experiment, and the future of biology," R. E. Blackwelder and L. E. Hoyme; "Vesalius and the Galenists," M. F. Ashley Montague; "Some oceanographic results of the Odyssey," W. E. Maloney; "Wanted: more ivory towers," Ward Pigman; and "Organic detritus in the metabolism of the sea," Denis L. Fox.

The "Science on the march" section deals with the procurement and transportation of rhesus monkeys for use in the Radiobiological Laboratory of the University of Texas and the U.S. Air Force. Letters are from Wayne Dennis, Hymen Diamond, Philipp G. Frank, William L. Roberts, and Edward L. Gordy. Twenty-nine books are reviewed in this issue.