and learn throughout his life. He even used his leaves of absence for more intensive research and study. Once during the academic year 1928–29 he conducted investigations on wildness in rats at the Institute for Juvenile Research; and in 1945 he worked at the New York Psychiatric Institute. Furthermore, few scholars in modern psychology have pursued research so consistently, determinately, and productively as did Calvin Perry Stone.

Regularly year after year he published sound and solid reports of meticulously conducted research in his field of major interest, comparative psychology. His secondary field was abnormal psychology. He was an authority in comparative psychology, and an anchorage for many young investigators in this fluid developing branch of the science of behavior.

Calvin P. Stone was not deflected from his persistent search by the fads and fashions in science; the direction of his work was steady through waves of conflicting theories; he always kept his professional goal, collecting the evidence, clearly in mind.

During the 1920's Dr. Stone steadily pursued investigations of the genetic-organic, endocrine, and neural determinants of "congenital" sexual behavior. Neither the anti-instinct movement, nor Gestalt theories, nor conditioned reflex theories and methods deterred him from his intent *to learn the facts* about animal behavior. He was one of the pioneer American investigators of sexual behavior during a period when the rising curtain of restrictions on studies of sexual functions and behavior still involved some stigma as well as risks to social-professional status.

Generally, Dr. Stone contributed importantly to the laying of the foundations of the study of motivation in sound bodies of evidence. In addition, he contributed to the experimental literature of learning, especially to the study of the organic factors related to learning. In these and other areas he developed and improved methods for the investigation of animal behavior.

As in research, also in teaching, Dr. Stone made consistent contributions to the intellectual development of thousands of undergraduate and dozens of graduate students at Stanford University. His courses were filled solidly with organized facts, closely based on carefully selected literature, and continuously revised and kept abreast of developments in the particular subjects of instruction. He expected of his students, as he did of himself, sound achievements. His rather formal bearing often, upon close acquaintance, changed to a deep sympathetic personal interest in students as individuals. He inspired unqualified confidence and deep respect in his students as well as in his professional colleagues.

Calvin Perry Stone made important and lasting contributions to the profession of psychology, and indeed, to other related life sciences. He served on planning committees of the American Psychological Association and helped shape its future. Generally he worked effectively for many improvements of the profession. He held important offices in his professional organizations. Most significantly he was elected president of the Western Psychological Association for 1931–32 and president of the American Psychological Association in 1941–42. He was duly honored by membership in the California Academy of Sciences and the National Academy of Sciences.

Dr. Stone served as editor of the *Journal of Comparative and Physiological Psychology* from 1947 to 1950. He edited a standard text in comparative psychology. Beginning in 1948 he was the principal editor of the *Annual Review of Psychology*.

Calvin Perry Stone was a living model of industry, integrity, and determination. Likewise he was a model investigator, teacher, editor, and professional leader. His exemplary achievements will long endure and serve as challenges in the future, as they have in the past, to maturing men and women in psychology and the related sciences.

C. R. CARPENTER

Department of Psychology,
Pennsylvania State University, University Park

News and Notes

International Arid Lands Meetings

One-third of the world's land area is arid or semi-arid. Since arid regions are found in every major land mass of the earth, their fuller utilization is a problem of international concern. This aspect was evident in the International Arid Lands Meetings held at Albuquerque, N.M., 26–28 Apr. The meetings were sponsored by the American Association for the Advancement of Science and its Southwestern and Rocky Mountain Division. As one aspect of its international interests, UNESCO several years ago appointed an Advisory Committee on Arid Zone Research. This committee and interested groups in some of UNESCO's member states have sponsored a series of conferences on different aspects of arid-land study and utilization. The Albuquerque meeting was the most recent in this series.

For two days and three evenings several hundred persons listened to papers presented by experts from Tunis, Sweden, India, Brazil, Mexico, Australia, England, Italy, the Netherlands, Egypt, Israel, and the United States. The audience included not only scientists and engineers but also ranchers and others from the American Southwest to whom the problems of arid-land utilization are personal and pressing.

Discussions were focused on such questions as: How predictable is precipitation in an arid region? How can production be increased from existing water

supplies? How can usable water resources be increased? How practical is it to demineralize saline water? to reuse waste water? What screening procedures would lead to the selection of more productive plant and animal species for arid regions? What are the prospects of increasing drouth resistance through genetic research?

The participants had a dual interest, for, in addition to the purely scientific problems that were discussed, there were frequent reminders that the current explosive increase of the world's population will require the utilization of arid regions to supply man's food needs.

In the opening address Homer L. Shantz reviewed the methods of adaptation to arid conditions that have been developed by plants and animals, primitive and ancient man, and modern man. Neither the problems nor the available methods are strictly comparable, yet modern man might profitably emulate adjustments found satisfactory under natural or primitive conditions. Some plants become dormant during drouth periods and resume normal growth and reproduction during more favorable conditions. Some animals, notably the camel, possess exceptional tolerance to dehydration. Either through genetic change or through careful selection of existing species, can man capitalize on such adaptations in making arid lands more productive? Shantz concluded that physiologists and geneticists have a rich opportunity for scientifically important and socially useful study of such problems.

Edward G. Bowen of Australia described measurements showing the relationship between rainfall and the presence of meteoritic dust in the earth's atmosphere. Passage of the earth through a shower of meteoritic dust seems to be followed by an increase in precipitation that occurs nearly simultaneously all over the globe. Such a relationship appears in the year-after-year precipitation records of widely scattered observation posts and can hardly be attributed to purely local climatic conditions. Perhaps this cosmic cloud seeding will add an important new element to the prediction of weather conditions.

In one of the most provocative papers, Louis Koenig, vice president of the Southwest Research Institute at San Antonio, Tex., discussed the economics of water resources. Water can be diverted from its normal course to regions of greater need; there are possibilities of inducing artificial precipitation; sea water and brackish water can—by distillation or other means—be made usable for industrial and agricultural purposes and, sometimes, for human consumption; waste water can be reused, as it is in many communities and plants. But all these possibilities raise major economic problems: the cost of production and the cost of transportation to the point of use. Koenig cited an estimate that by the year 2000 South Texas will be able to use 12.3 million acre-feet of water a year. In terms of tonnage, this amount of water is 40 times the nation's petroleum production, or 400 times its chemical production.

Since an acre-foot of water in the United States will support about 60 times as many workers in industry as it will in agriculture, Koenig reported, it seems reasonable to suggest a sharp reversal of historic trends in land utilization: let the humid regions grow food while the arid regions are used for industry.

In the final session—which, like the other evening meetings, was an open session with the public invited—B. T. Dickson, the retired chief of the division of plant industry of the Commonwealth Scientific and Industrial Research Organization at Canberra, Australia, reviewed some of the highlights of the earlier discussion and described some of the challenges of arid-land research and development for the benefit of mankind.

Obviously it is impossible to report here all 31 papers. They constitute a major review of current information on research problems of arid regions and will probably be published in book form, together with a summary of the discussions that took place 2–4 May at Socorro, N.M., where the speakers and a selected group of other participants were brought together for a consideration of research problems.

The International Arid Lands Meetings were supported financially by the National Science Foundation, the Rockefeller Foundation, and UNESCO. The University of New Mexico and the New Mexico Institute of Mining and Technology served as hosts. A committee of the Southwestern and Rocky Mountain Division of the AAAS, under the chairmanship of Peter C. Duisberg, made the local arrangements. General conference planning was under the direction of a AAAS committee of which Gilbert White was chairman.

It is too early to evaluate such a meeting in all its effects and implications, but on-the-spot reactions seemed to justify the hope that it will prove to be scientifically stimulating. There is, however, a danger in holding discussions of such problems in a setting that constantly reminds one of their pressing economic and social importance; too much may be expected too quickly. In remarks at the opening session, Elvin C. Stakman reminded the audience—and the residents of arid regions—that wise words are not enough. Better utilization of the arid regions of the world will require wise political and economic actions to take advantage of scientific findings—and will also require time.

Science News

The National Science Foundation has announced plans for a **survey of expenditures for scientific research and activities** in more than 1000 American universities and colleges. Alan T. Waterman, director of the foundation, announced that the institutions are being asked to provide the following information: total annual expenditures for research; sources of funds; subject fields in which research is conducted; and the number of scientists on the staff—both faculty

members and researchers—and the extent to which these scientists are engaged in research.

In a letter to the presidents of the institutions, Waterman urged for full cooperation and said:

> . . . The findings should be valuable to universities and colleges in planning and appraising their own research efforts in addition to contributing significantly to the formulation of sound national policies for the strengthening of scientific research and education.

Previous estimates by the NSF indicated that total Federal support of research at educational institutions amounts to about $300 million annually. About $150 million of this total is spent in special-purpose research centers managed by the universities for various Federal agencies. The institutions themselves contribute an estimated $20 million to $100 million annually and an additional sizeable amount is received from industry, foundations, and other private groups.

It is expected that the new survey will provide more accurate estimates of the total research expenditures and of the amounts contributed by each source. It will also be possible to estimate the research contributions made indirectly by the institutions. These include payment of staff salaries, provision of facilities, and administrative and other nonitemized expenses. The survey will also give needed information on the distribution of scientists in the nation's higher educational institutions and indicate the extent to which competent scientists are now engaged in research.

A suggestion that **sea urchins** be stored in winter in order that sufficient numbers of them may be available for summer research projects has been put forth by John S. Rankin, Jr., associate professor of zoology at the University of Connecticut. Rankin has been studying the problem of the distribution of ocean-bottom animals for the past four summers at Woods Hole, Mass., and in nearby coastal waters. For more than 50 years, scientists have been able to find enough marine animals for research purposes, but recently certain species have disappeared and others have decreased in number. Especially mystifying is the disappearance from its former beds of the purple sea urchin *Arbacia punctulata.*

Rankin has advanced several theories for the cause of disappearance: hard winters and line storms, or hurricanes, which cause a change in topography, and the preying of starfish. Old age and overcollection may also have contributed to the urchin's disappearance. Rankin presented his findings and recommendations at the International Conference on Marine Biological Laboratories that met in Rome, Italy, 18–22 Apr.

The cost to the farmer of the **damage done by diseases, insects and weeds** is 30 times that of the price he pays each year for chemical controls. The $7.5 billion of damage done annually is in marked contrast to the $241 million spent annually to curb or combat the damage.

The U.S. Department of Agriculture compiled these figures from a nationwide survey in which more than 23,000 farmers cooperated. The survey also showed that only one-sixth of the nation's cropland is treated and that potatoes get more treatments than any other crop, namely, five per season.

Other data compiled by the department's survey revealed the following: (i) farmers treated as many acres for weed control as they did for both insects and diseases, duplication being found in less than 3 million of the treated acres; (ii) farmers do their own spraying; (iii) the frequency of chemical use varies with the purpose, crops, and other factors, but, nationally, one application per season is made for weed control and three are made for insects and diseases. A full report of the survey is carried in the April 1955 issue of the department's journal, *Agricultural Research.*

Additional facts about a **"supercirculation" system for airplanes** were released by Joseph Flatt of the Wright Air Development Center, Dayton, Ohio, at the meeting of the Society of Automotive Engineers in Washington, D.C., on 20 Apr.

The "supercirculation" or "boundary layer control," as it is also known, is considered a revolutionary development in air operations. It involves blowing an extra stream of high-speed air over the surface of a wing or inhaling the normal flow into the wing. In either case, the action increases lift and lowers a plane's take-off and landing speeds.

Flatt disclosed that flight tests with a Fairchild C-123 started 7 Dec. 1954 had been "very encouraging." He said that it was estimated that, when the installation has been perfected, the gross-weight take-off distance of the plane would be reduced from 1950 to 850 ft and the landing distance reduced from 1200 to 775 ft. Flatt also disclosed that successful tests have been made with the new development on a North American F-86 Sabre. Stalling speed was cut from 114 to 88 knots.

Organizations and individuals may be given **access to nonmilitary confidential and secret restricted data** on atomic energy technology for their own private purposes. This was announced under a new program of the U.S. Atomic Energy Commission.

Confidential, restricted atomic data may be made available to any person who can evidence a potential use or application of the information in his business, profession, or trade. The person must also obtain a simplified security clearance and agree in writing to conform with all AEC security regulations. The Government will waive all rights in inventions and discoveries arising out of access to such information. When an invention or discovery is made or conceived as the result of access under this program the applicant will waive potential claims against the Government arising from the imposition of secrecy orders on patent applications and for awards under the Atomic Energy Act of 1954.

Limited access to secret, restricted data may also be granted if the applicant can demonstrate that such information has an immediate and significant effect on

his business, profession, or trade. In this case, however, the applicant must obtain a full security clearance and the Government will retain royalty-free nonexclusive rights for governmental purposes in inventions and discoveries which result from such access.

All such persons or groups given access to restricted data will also be required to reimburse the Government for any costs incurred in making access available.

The Metropolitan Life Insurance Company reports new data on current trends in mortality from **leukemia.** According to the company's study, there has been a slight decline in the death rate from the disease among the company's industrial policyholders since 1951. Leukemia, a malignancy involving the blood and blood-forming organs, is now responsible for more than 10,000 deaths a year in the United States. This is about twice the mortality from cancer of the mouth and three times that from skin cancer.

Dairy scientists at the Agricultural Research Center, Beltsville, Md., have found that counting microbes in forage plants in field and silo has assisted them in learning more about what makes **good silage.** They have found that bacteria, yeasts, and molds on plants in the field generally become more numerous as the growing season advances. Most microorganisms in fresh-cut forage are aerobic. Anaerobic microorganisms are much less numerous. Good silage seems to depend on maintaining conditions favorable to the lactic-acid-producing bacteria; the large numbers of aerobic microbes naturally present in forage may help. Abundant natural sugars in plants also encourage desirable bacteria, although some valued forage crops such as alfalfa are low in sugar.

A series of 33 colorful **exhibits interpreting life among the historic Indian tribes of the Southwest and California** has been opened in the Natural History Building of the U.S. National Museum. Included in the exhibits are five groups of life-sized, authentically-costumed Indian figures engaged in typical tribal activities. Several of the many wall-case exhibits are devoted to the crafts in which Indians were particularly skilled, and others point out such aspects of Indian life as the great variety of foods eaten by California tribes, the use of shell money, and the Hopi Indian kachina dolls that served to teach children to recognize their tribal gods.

The new exhibits, which were prepared as part of the Smithsonian Institution's large-scale program for modernizing its museum exhibits, were designed and installed under the direction of John Anglim, exhibits specialist, and John C. Ewers, associate curator of ethnology at the Institution.

Smog was described as the greatest single **cause of lung cancer** by Paul Kotin, University of Southern California pathologist, on 19 Apr. at the 3rd National Air Pollution Symposium in Pasadena, Calif. Kotin and a research team have conducted experiments for more than 4 years with thousands of animals, under a U. S. Public Health Service grant at the U.S.C. Medical School and the Los Angeles County General Hospital. The animals were subjected to artificial smog created by gasoline vapors and fumes from gasoline and diesel engines.

Kotin said that the study showed that smog "has a prolonged accumulative effect" as a tumor inducer. He explained that the pollutant which is the irritant causing the cancer is at least one type of hydrocarbon in the oxidized state. Further experiments are planned to detect which hydrocarbon is actually the cause and what chemical state it is in when it does its damage. Kotin also announced that he and his coworkers could not find smog to be otherwise deleterious to health—that is, no consistent biological changes in the respiratory systems of the test animals were found.

Scientists in the News

Charles W. Arnold, research engineer for the Humble Oil Co. at Houston, Tex., has received the first Phi Lambda Upsilon national award, which consists of a certificate and $500. He was honored for his thermodynamic and spectroscopic study of ethylene oxide. The P.L.U. award will be made annually to a candidate in chemistry, chemical engineering, or allied fields who has been granted his doctoral degree by a U.S. college or university during the previous academic year. Qualities of originality, professional ability, theoretical and practical reasoning skill, and research leadership, as evidenced in the doctoral thesis, are considered in selection of the recipient. Eligibility is not restricted to members of P.L.U.

John W. Mitchell of the University of Bristol, England, presented a series of four lectures on the photographic processes in the silver halides before the chemistry department of Ohio State University on 7, 8, and 9 April. The lectures were entitled: "The physical properties of the silver halides"; "The chemical sensitization of crystals of silver halides for the formation of a surface latent image"; "The formation and the development of the photographic latent image"; and "The interpretation of different latent image effects."

Anton J. Carlson was unanimously elected to the specially created post of honorary president for life of the National Society for Medical Research at the society's annual meeting on 6 Feb. in Chicago. Carlson, who had been president of the NSMR since its inception in 1946, turned the active leadership of the society over to Lester R. Dragstedt, chairman of the department of surgery at the University of Chicago. Spontaneous expressions of appreciation for Carlson's work on behalf of all research biologists came from several members of the NSMR board. The Mar.–Apr. issue of the society's journal, the *Bulletin for Medical Research,* states:

> Dr. Carlson's head-on approach to this delicate, emotion-laden matter has not only stopped the anti-vivisection tide but decisively turned it back. For

more than six years all legislative developments, all court decisions, all the administrative decisions of state and municipal officials have been favorable to medical research.

In addition to Dragstedt, Maurice Visscher, chairman of the department of physiology at the University of Minnesota Medical School, was elected vice-president, and Ralph Gerard, director of research at Illinois Neuropsychiatric Institute, continued in office as secretary-treasurer. All other members of the board were reelected unanimously.

Two individuals were voted special citations in recognition of their efforts on behalf of medical research during the past year. The two men honored were **Albert H. MacCarthy,** president of the Anne Arundel County (Md.) S.P.C.A. and **Charles W. Morgan,** chairman of the department of physiology at Georgetown School of Medicine, Washington, D.C. MacCarthy, a long-time humane leader, was responsible for the scheduling of a tour of the animal research laboratories at Emory University as part of the annual convention of the American Humane Association in Atlanta last year. Morgan was cited for his splendid work in spearheading the successful campaign to make unclaimed pound animals available to research institutions in the Washington area. The ruling by the Commissioners of the District last February was the most important legislative victory of the year.

Nisson A. Finkelstein, head of the special research and lens design department of the Scientific Bureau of Bausch and Lomb Optical Co., has been appointed assistant to the bureau's director. His new responsibilities will include direction of all basic research on projects not directly related to product development.

J. Earl Thomas, Jr., assistant professor of electrical engineering at Massachusetts Institute of Technology, has been named chairman of the physics department at Wayne University. He will assume his new duties in September.

On 14 Apr. **Jerome C. Hunsaker,** chairman of the National Advisory Committee for Aeronautics since 1941, received the Langley gold medal of the Smithsonian Institution for his accomplishments in the field of aeronautical engineering. Only eight other men of aviation have been so honored in the 46-year history of the medal. In the citation, Hunsaker's outstanding achievements as director of the NACA program were stressed.

Walter Wilbrandt of the department of pharmacology, University of Berne, Switzerland, will spend this summer at the Marine Biological Laboratory, Woods Hole, Mass. as senior Lalor fellow. Junior Lalor fellows who will also be at the laboratory include: **Roderick Keener Clayton,** department of physics, U.S. Naval Postgraduate School, Monterey, Calif.; **Howard Gest,** department of microbiology, Western Reserve University School of Medicine, Cleveland, Ohio; **Maurice Green,** Children's Hospital, Philadelphia, Pa.; **Ralph Arnold Lewin,** National Research Council, Halifax, Nova Scotia, Canada; **Italo Alden Macchi,** Clark University, Worcester, Mass.; **Jay S. Roth,** Hahnemann Medical School, Philadelphia, Pa.

The bicentennial medal of the City College of New York Chemistry Alumni Association will be awarded to **Peter Debye,** Nobel laureate, on 20 May in the college's department of chemistry. Debye will lecture on "The use of radiation in structural analysis."

Charles S. Draper, head of the department of aeronautical engineering at Massachusetts Institute of Technology, will deliver the 43rd distinguished Wilbur Wright memorial lecture in London, England, on 19 May. He will speak on "Flight control," discussing the subject from its beginnings in historical aircraft to its use in the high-performance systems of today. Trends in both theory and practice will be described as parallel streams of development.

Leo Finzi, authority on magnetic amplifiers and electrical machinery, has been named Buhl professor of electrical engineering at Carnegie Institute of Technology, where he has been faculty member since 1946. As Buhl professor, Finzi will work to develop research leadership in the graduate electrical engineering program. He succeeds **B. R. Teare,** who has relinquished the chair because of the weight of his responsibilities as dean of the College of Engineering and Science.

Robert N. Colwell, associate professor of forestry at the University of California, Berkeley, is the recipient of the 1954 Talbert Abrams award of the American Society of Photogrammetry. The award is given annually for the best published article on photogrammetry. Colwell's article, "A systematic analysis of some factors affecting photographic interpretation," appeared in the June 1954 issue of *Photogrammetric Engineering.* One of the pioneers in photogrammetry, Colwell served in the U.S. Navy during World War II, studying aerial photographs to detect enemy activity behind camouflage and to determine the suitability of terrain for amphibious invasion. He is now working to perfect photogrammetry as a means of detecting the height, volume, density, and species of timber stands from aerial photographs.

Walter R. Miles, professor emeritus of psychology at Yale University, since Nov. 1954 has been professor of experimental psychology at the University of Istanbul, Turkey. In a recent public lecture in that city, Miles spoke on "Psychology in the service of the community and the state."

Richard H. Orr, formerly a research physician at the Metabolic Unit for Research in Arthritis and Metabolic Diseases, University of California Medical Center, San Francisco, has been appointed medical director of Grune & Stratton, Inc., a New York publishing house dealing exclusively in medical books and journals.

The appointment of **Harry M. Weaver** as administrator for research has been announced by the American Cancer Society. From 1946 to 1953, Weaver was director of research for the National Foundation of Infantile Paralysis. Since joining the Cancer Society as a special research consultant last year, he has been working on an extensive and comprehensive survey of cancer research in the United States. In his new post, Weaver will direct the society's broad research program, which supports the work of more than 1000 scientists in 132 research institutions.

Robert S. Mulliken, professor of physics at the University of Chicago and newly appointed science attaché at the American Embassy in London, represented the National Academy of Sciences at the celebration commemorating the 100th anniversary of the death of the illustrious mathematician and physicist, Karl Friedrich Gauss, held at the University of Göttingen on 19 Feb. Mulliken, on behalf of the National Academy, conveyed greetings from president Detlev W. Bronk to the university and to the Academy of Sciences of Göttingen.

The National Science Foundation has established an Office for the International Geophysical Year. The new office will be headed by **J. Wallace Joyce,** who has been a member of the staff of the Assistant Secretary of Defense for Applications Engineering.

Necrology

A. I. Abricosov, 80, pathologist, author, chairman of the Russian Society of Pathologists, Moscow, 11 Apr.; **William R. Allen,** 70, zoologist, former professor, author, curator of the Zoological Museum at the University of Kentucky, Lexington, 7 Apr.; **George O. Altmann,** 37, research physicist with the General Aniline and Film Corp., Linden, N.J., 13 Apr.; **John A. Borneman,** 76, botanist, author, professor emeritus of pharmacy at Hahnemann Medical College, Philadelphia, Pa., 8 Apr.; **Ethel Bowman,** 76, professor emeritus of psychology at Goucher College, Baltimore, Md., 8 Apr.; **Howard C. Carpenter,** 76, former vice dean of pediatrics at the University of Pennsylvania's Graduate School of Medicine, past president of the American Pediatrics Society, 7 Apr.; **Grace E. Davis,** 84, associate professor of physics emeritus at Wellesley College, Wellesley, Mass., 15 Apr.; **Louis Edeiken,** 61, professor of radiology at Hahnemann Medical College, associate in radiology at the University of Pennsylvania's Graduate School of Medicine, attending chief of radiology at the Einstein Center, Southern Division, Philadelphia, 11 Apr.

Albert Einstein, 76, theoretical physicist and mathematician, author, professor emeritus at the Institute for Advanced Study in Princeton, N.J., 18 Apr.; **Louis Friedman,** 79, surgeon, author, New York, 9 Apr.; **Martin Gumpert,** 57, gerontologist, dermatologist, author, New York, 18 Apr.; **Frank B. Halford,** 61, airplane engine designer, director of the de Haviland Aircraft Co., London, 17 Apr.; **Louis A. Higley,** 83, former professor of geology and chemistry, dean emeritus of King's College, New Castle, Del., 12 Apr.; **Marion Hollingsworth,** 77, analytical chemist, assistant professor emeritus of chemistry at the Ohio State University, Columbus, 6 Apr.; **George H. Howe,** 67, author, associate professor of pomology at the New York State Agricultural Experiment Station, Geneva, N.Y., 13 Apr.; **Jean-Paul Janmart,** 60, geologist, retired head of the Prospecting Service of Diamang in Dundo, Angola; **Carl H. Lenhart,** 74, medical researcher, author, former head of the department of surgery at Western Reserve University's Medical School, Cleveland, Ohio, 8 Apr.; **Charles O. Lenz,** 86, consulting engineer in the fields of steam and atomic power, Summit, N.J., 8 Apr.

Harvey S. Mudd, 66, mining engineer, former president of the American Institute of Mining and Metallurgical Engineers, Beverly Hills, Calif., 12 Apr.; **Robert D. Pike,** 70, consulting chemical research engineer, New York, 13 Apr.; **Gordon W. Raleigh,** 45, heart and internal medicine specialist, chairman of the graduate education committee of the Northwestern University Medical School, Evanston, Ill., 13 Apr.; **Emil Schwarz,** 89, author, research associate in hematology at Michael Reese Hospital, Chicago, Ill., 2 Apr.; **Palmer Smith,** 63, science writer and editor for the Department of Agriculture, Washington, D.C., 16 Apr.; **Pierre Teilhard de Chardin,** 73, paleoanthropologist, codiscoverer of "the Peking Man," research associate at the Wenner-Gren Foundation for Anthropological Research, New York, 10 Apr.; **Ernest C. White,** 74, inventor of the Duplexalite indirect lighting device, Bronxville, N.Y., 14 Apr.

Meetings

The Scientific Film Association of England, in cooperation with the International Scientific Film Association, has organized a conference on **"Film in the Improvement of Human Relations in Industry,"** to be held 24–26 May at Ashorne Hill. Application forms and further details may be obtained from the General Secretary, Scientific Film Association, 164 Shaftesbury Ave., London, W.C.2.

"Biogenesis," a symposium on the origin of life, will be held 7 May at the Polytechnic Institute of Brooklyn, under the chairmanship of Harold C. Urey. The following papers will be presented: "The physical basis of the origin of life on planets," by Harold C. Urey, Institute for Nuclear Studies, University of Chicago; "Organic constituents of fossils," by Philip H. Abelson, Geophysical Laboratory, Carnegie Institution of Washington; "Pyrosynthesis of biochemical substances and evolution of protein molecules," by Sidney W. Fox, department of chemistry, Iowa State College; "The origin of the cell," by George Wald, Biological Laboratories, Harvard University; and "Critical resume," by Harold F. Blum, department of biology, Princeton University. Inquiries should be addressed to Kurt G. Stern, Polytechnic Institute of Brooklyn, Brooklyn 1, N.Y.

The **American Psychiatric Association** will hold its 111th annual meeting at Atlantic City on 9–13 May, with some 3500 psychiatrists and guests expected to attend. The 5-day program will feature the presentation of 118 scientific papers, scientific and commercial exhibits, a closed-circuit television program, mental health films, an open meeting held jointly with the Atlantic County (N.J.) Mental Health Society, and several other special events.

Recent developments on almost every aspect of psychiatry will be discussed by the speakers. Several papers on drug therapies (notably Serpasil and Chlorpromazine) will be of particular interest because of the encouraging results that have been noted thus far from their use in the treatment of psychoses. Among the other topics to be presented are an evaluation of laws on homosexuality; study of children with duodenal ulcer; maintaining mental health in a world of tension; psychodynamics of the "dry drunk"; studies in urban mental health; economic structure of private practice in psychiatry; observations on family attitudes related to hospitalization of schizophrenic patients; the concept of "normality"; psychiatric problems of troops in Korea; and the harmful effects of interpersonal conflicts among flying personnel.

A conference on the **use of nuclear radiation to improve potato economy** will be held at Brookhaven National Laboratory on 25 May under the auspices of the biology and nuclear engineering departments of the laboratory. Scientists and other representatives of universities, agricultural experiment stations, and commercial organizations will meet to discuss the biological, physical, and industrial aspects of potato irradiation. Speakers actively engaged in research will report on such topics as: effects of nuclear rays and particles on inhibition of growth and sprouting in potatoes; effects on black spot reaction; tolerance of the golden nematode disease to radiation; and wholesomeness and vitamin content of foods exposed to radiation.

Those wishing to attend the conference should notify A. H. Sparrow, Brookhaven National Laboratory, Upton, L.I., N.Y. Noncitizens of the United States should state their nationality. Local overnight accommodations for about 150 guests will be reserved in order of receipt of applications.

The Office of Naval Research and the Navy Electronics Laboratory, San Diego, together with Ryan Aeronautical Co., are cosponsoring a symposium on **Normal Mode Theory,** 5–7 July. A number of foreign scientists have been invited to participate in this meeting, which will take place in San Diego under the chairmanship of S. A. Schelkunoff of Bell Telephone Laboratories. The group will exchange ideas about the theoretical knowledge of tropospheric wave propagation, the known methods of attack, and the principal unanswered questions. For further information, write to Dr. J. B. Smyth at the U.S. Navy Electronics Laboratory, San Diego 52, Calif.

The 3rd annual **Symposium on Antibiotics,** sponsored by the U.S. Food and Drug Administration's division of antibiotics and the journals, *Antibiotics and Chemotherapy* and *Antibiotic Medicine,* will be held in Washington 2–4 Nov. Those wishing to participate must submit abstracts in triplicate and no more than 200 words long, *before 21 Sept.,* and the original manuscript and one copy must be received by *3 Oct.*

Please note that this schedule is a departure from requirements of the previous symposiums. It will accomplish two objectives: it will allow the program committee to make a better choice of material for presentation, and it will allow earlier publication of the *Antibiotics Annual 1955–56.* For details, write Dr. Henry Welch, Director, Division of Antibiotics, Food and Drug Administration, U.S. Department of Health, Education, and Welfare, Washington 25, D.C.

The annual meetings of the **American Society of Agronomy** and the **Soil Science Society of America** will be held 15–19 Aug. at Davis, Calif. An estimated 375 papers will be presented. The programs are open to anyone concerned with crop production and soils problems, and all interested persons are invited to attend.

Both societies consist of professional workers in crops and soils. The combined membership of 2300 includes representatives from commercial and industrial organizations, agricultural colleges, and federal and state agencies. Executive secretary for the two groups is L. G. Monthey, 2702 Monroe St., Madison 5, Wis.

Society Elections

Soil Conservation Society of America: pres., Austin L. Patrick, Washington, D.C; 1st v. pres., Edward H. Graham, Falls Church, Va.; 2nd v. pres., Robert M. Salter, Silver Springs, Md.; treas., Howard R. Bissland, Orlando, Fla.; exec. sec., H. Wayne Pritchard, 1016 Paramount Building, Des Moines, Ia.; editor, Walter C. Gumbel, Fairmount, W. Va.

Phycological Society of America: pres., G. W. Prescott, Michigan State College; v. pres., H. C. Bold, Vanderbilt University; sec., P. C. Silva, University of Illinois; treas., R. D. Wood, University of Rhode Island.

American Association of Dental Schools: pres., Harold J. Noyes, Dental School, University of Oregon; pres.-elect, Lee Roy Main, School of Dentistry, St. Louis University; v. pres., Roy G. Ellis, Faculty of Dentistry, University of Toronto; sec.-treas., Marion W. McCrea, Dental School, University of Maryland; editor of *Journal of Dental Education,* Charles W. Craig, College of Dentistry, University of California, San Francisco.

The **American Society of Plant Taxonomists:** pres., Albert C. Smith, Smithsonian Institution, Washington, D.C.; chairman of the Council, David D. Keck, New York Botanical Garden, Bronx Park, New York, N.Y.; sec., Reed C. Rollins, Harvard University;

treas., Richard A. Howard, Harvard University. Representatives to AAAS Council are Albert C. Smith and George L. Church.

Pennsylvania Academy of Science: pres., Harry K. Lane, Franklin and Marshall College, Lancaster; pres.-elect, Richmond E. Myers, Moravian College, Bethlehem; v. pres. (east), James A. Fowler, Academy of Natural Sciences, Philadelphia; v. pres. (west), M. Graham Netting, Carnegie Museum, Pittsburgh; sec.-treas., Kenneth N. Dearolf, Public Museum and Art Gallery, Reading.

Education

South Dakota State College has been authorized to offer doctor's degrees in three fields—animal husbandry, agronomy, and agricultural economics. Supporting courses in the animal sciences that will reinforce the degree in animal husbandry are in dairy husbandry, entomology-zoology, poultry husbandry, and veterinary science. Plant science supporting courses for the degree in agronomy are in bacteriology, botany, horticulture, and plant pathology. Social science courses supporting the degree in agricultural economics are in education, history and political science, and rural sociology.

John W. Headley, president of the college, emphasized that this program is being initiated to help combat the disturbing nationwide trend toward fewer graduate students, a trend that could seriously hamper efforts to increase the number of American scientists.

The psychology department of the University of Chicago announces that S. J. Beck will conduct two 1-wk **workshops in the Rorschach test** 11–22 July. The basic processes in test evaluation will occupy the first week's workshop, which will also demonstrate full test interpretation. The second week will be devoted to problems of advanced clinical interpretation, particularly those exemplified by children in more disturbed states and by adults in milder neurotic conditions.

Workshop I may be taken by students at, or ready for, the intern level. Admission to workshop II is limited to psychologists and psychiatrists in clinical positions or practice. Each seminar will meet for two 2-hr sessions per day. For full information, write to the Executive Secretary, Dept. of Psychology, University of Chicago, 5728 S. Ellis Ave., Chicago 37, Ill.

Four copper-mining companies in northern Rhodesia have announced they will share in providing $1,120,000 to establish **an educational foundation** in the copper belt. The plan is to promote technical training among white persons to insure a supply of trained labor for the mines. At present, there are no facilities for such instruction beyond the apprentice stage. Since two new copper mines are being developed and production at the existing mines is being increased, heavy demands are being placed on present trained manpower.

The four contributing companies are the Mufulira Copper Mines, Ltd., the Nchanga Consolidated Copper Mines, Ltd., the Roan Antelope Copper Mines, Ltd., and the Rhokana Corporation, Ltd.

A course in medical mycology to be offered 5–30 July at **Duke University School of Medicine and Duke Hospital** will emphasize the clinical, pathologic, and therapeutic aspects of fungous infections. Patients, clinical materials, cultures, and laboratory animals will be available for study. An opportunity to study gross and microscopic pathologic materials will be given to those qualified by interest and previous training. Practical laboratory aids that help to establish a definitive diagnosis will be stressed. The course is open to clinicians, pathologists, bacteriologists, technicians, and others who have an interest in the medical phases of mycology. Classes will meet 6 days a week. Inquiries should be directed to Norman F. Conant, Duke Hospital, Durham, N.C.

Mamacoke Island, a 40-acre rocky and wooded peninsula rising 200 ft above the Thames River near New London, Conn., was purchased for a total price of $15,000 on 14 March 1955, to add to the **Connecticut Arboretum** at Connecticut College.

Richard H. Goodwin, director of the Connecticut Arboretum, reported that 26 organizations and 210 individuals made contributions ranging from $1 to $2000 since the effort to preserve the island got underway 26 Aug. 1954. The adjacent shoreline already is part of the arboretum, which now totals 300 acres. The island, uninhabited and undeveloped since Indian times, will be kept essentially in its natural state, with road construction forbidden.

The **Polytechnic Institute of Brooklyn** has announced its 12th annual series of summer laboratory courses, 6–17 June. These intensive 1- and 2-week courses were instituted in 1944 as an experimental program for teaching modern laboratory techniques to meet the growing demand by scientists, particularly industrial scientists, for advanced instruction in the use of specialized physical tools in chemistry and physics. For information write Mrs. Doris Cattell, Secretary, Summer Laboratory Courses, Polytechnic Institute of Brooklyn, 99 Livingston St., Brooklyn 1, N.Y.

An estimated 1000 men and women of science, representing seven professional societies, participated in **Morgan State College's** dedication of its new $1.5 million science facilities, 13–17 Apr. The dedication brought together for their annual meetings the Beta Kappa Chi Scientific Society and the National Institute of Science. Also holding sectional meetings on the college campus during the dedication week were the Maryland Section of the American Chemical Society; the Maryland, Delaware, Virginia, and District of Columbia Section of the Mathematics Association of America; the Maryland Association of Biology Teachers; the American Association of Physics Teachers; and the Maryland Science Teachers Association.

Alan T. Waterman, director of the National Sci-

ence Foundation, spoke during the dedication ceremony on "Research and education in the sciences." Others who delivered addresses were J. Ernest Wilkins, Jr., mathematician of Nuclear Development Associates, Inc., White Plains, N.Y.; Percy L. Julian, research chemist and founder-director of the Julian Laboratories, Inc., Franklin Park, Ill.; Gaylord P. Harnwell, president of the University of Pennsylvania; Fletcher G. Watson of the Graduate School of Education, Harvard University; and Lynn Poole, director of the "Johns Hopkins Science Review."

Facilities in what is known as the "science quadrangle" that were dedicated included the Milton Lewis Calloway Science Hall, a $1,300,000 structure completed in early September and used for instruction in the sciences for the first time this year. Named in honor of the late Milton L. Calloway, pioneer science teacher at the college, the building has 17 laboratories for work in nuclear physics, radiation, electronics, optics, and so forth. There are six lecture rooms and a 300-seat amphitheatre.

Spencer Hall and the Vivarium, both for biology, and Carnegie Hall for psychology, are other facilities that were dedicated. Spencer and Carnegie Halls have just been remodeled. Martin N. Jenkins, president of the college, noted that with the development of the science quadrangle the college has for the first time "adequate facilities in the natural sciences."

The **University of Tennessee** is offering a course in radioactivity for secondary-school science teaching, 18–29 July. For information, write to W. W. Wyatt, College of Education, University of Tennessee, Knoxville.

Grants, Fellowships, and Awards

Medical research grants have been awarded 40 clinicians and laboratory workers under the grants-in-aid program of the **National Tuberculosis Association.** The grants total approximately $200,000, which were derived from the percentage of Christmas-seal funds allotted to the N.T.A. by affiliated associations throughout the country. Additional amounts are being contributed to research by a number of state and local tuberculosis associations.

The subjects under study reflect the changing picture in tuberculosis and the new problems that have arisen as a result of new methods of treatment. One group of investigators is trying to determine the whole course of events when an antituberculosis drug is taken by a patient; another group is studying the effect of surgery on the capacity of the patient to breathe; others are studying possible factors responsible for enhancing resistance to tuberculosis, and still others are pursuing basic studies on the tubercle bacillus, its virulence and behavior under various circumstances.

To encourage research training of promising young scientists and engineers, the **Eastman Kodak Co.** will award 34 fellowships, valued at more than $100,000, for advanced study in physics, chemistry, and chemical engineering for the academic year 1955–56. Each fellowship grant provides at least $1400, with an additional $1000 being paid to the participating university to help defray the cost of research expenses during the fellowship period. Every recipient will have the opportunity to attend one important scientific or professional meeting appropriate to his field of study.

Under the program, initiated by Kodak in 1939, the 34 fellowships are awarded to a corresponding number of colleges and universities in the United States and Canada. Each institution receiving a grant selects the recipient on the bases of demonstrated ability in his major field of study, a high degree of scientific or engineering promise, and financial need, with preference being given to students in the last year of study for the Ph.D. degree.

The **Radio Corporation of America** has announced six fellowship awards. These grants range from $1800 to $2700, part of which is specified for tuition and university fees. The purpose of the fellowships is to provide assistance for predoctoral graduate students, at designated universities, who display outstanding ability in fields of study related to radio, television, and electronics. More than 70 men have received RCA fellowships since 1947, when the awards were first inaugurated.

The American Society of Mechanical Engineers will administer a fund that has been established to support the new **Elmer A. Sperry award.** This award—made possible by Dr. Sperry's daughter Helen (Mrs. Robert Brooke Lea) and his son, Elmer A. Sperry, Jr.—will be bestowed in recognition of "a distinguished engineering contribution which through application, proved in actual service, has advanced the art of transportation whether by land, sea or air."

The award may be made to an individual or to a group of individuals; it is believed that this is the first major engineering award to recognize group effort. The winner will be chosen by a board made up of representatives from the ASME, the American Institute of Electrical Engineers, and the Society of Naval Architects and Marine Engineers.

The first award, which will be conferred this fall during ASME's Diamond Jubilee Annual Meeting in Chicago, will consist of a bronze medal, a certificate, a bound copy of the biography of Elmer A. Sperry by Jerome C. Hunsaker, and an honorarium.

In the Laboratories

Minneapolis-Honeywell Regulator Co. and **Raytheon Manufacturing Co.** will collaborate in engineering and marketing high-speed electronic data-processing systems for use in business and government. The project will be carried out through the formation of a jointly-owned corporation, to be known as Datamatic Corp. With headquarters in Waltham, Mass., the new firm will have its own administrative officers and directors.

Latest addition to the **International Nickel Co.**'s Bayonne Research Laboratory is a new plating laboratory, the main feature of which is a fully automatic pilot plating plant that permits the testing of new plating processes and metallic coatings under conditions virtually similar to those existing in actual industrial plating plants. In cooperation with container manufacturers and their suppliers of can stock, research into the merits of thin nickel plating for can coatings is now in progress at the laboratory.

The purchase of a tract of land at Omaha, Neb., has been announced by the **Stauffer Chemical Co.** Approximately 15 acres will be used in 1955 for the construction of an agricultural chemical plant for the manufacture of dust and liquid insecticides, herbicides, and grain fumigants. Present plans also include the construction of a large warehouse to handle the complete line of Stauffer agricultural chemicals.

An Academy Award "Oscar" was presented at the annual award ceremonies on 30 Mar. to the **Bausch & Lomb Optical Co.** for its scientific contributions to the motion picture industry, and particularly for its achievement in producing the CinemaScope camera and projection lenses.

Instruments

A new high- and low-temperature **environmental testing chamber** that incorporates a removable dry-ice compartment as a source of cold air has been made available. Temperature range of the chamber is from $-100°F$ to $+200°F$. Reported pull-down is from ambient temperature to $-100°F$ in approximately 60 min; $+200°F$ can be reached in approximately 30 min; interior volume is 8 ft^3; temperature control is automatic; and either indicating or recording instrumentation is available. (Tenney Engineering, Inc., Dept. Sc., 1090 Springfield Rd., Union, N.J.)

VirTis UltraBac **filter** is a single all-glass unit that serves for both ultrafiltration and bacteriological filtration. With a vacuum port provided in the collection flask and a pressure port provided in the upper reservoir—along with a port for filling—the instrument can be operated with either pressure or vacuum. All parts can be disassembled for cleaning, but the filter can also be autoclaved as a unit. UltraBac is available in two sizes, one equipped with a $\frac{5}{8}$- by 8-in. candle and a 125-ml reservoir, the other equipped with a 1 by 8 in. candle and a 700-ml reservoir. (E. Machlett & Son, Dept. Sc., 220 E. 23 St., New York 10.)

A **flame photometer** with a meter calibrated directly in milliequivalents of sodium and potassium has been announced by Beckman. A pilot light and present adjustments give instantaneous and efficient flame operation. Moving the sodium or potassium lever into position automatically places the proper filter between the flame and the phototube and brings the correct calibration pots into operating position. Utilities required for operation are natural gas or propane, compressed air, and electricity at 115 v, 50 to 60 cy/sec. (Beckman Div., Beckman Instruments, Inc., Dept. Sc., Fullerton 1, Calif.)

A new **direct-reading syringe microburet** permits microcolorimetric or microtitrimetric analysis to be carried out with final volumes of reaction mixture as small as 50 to 200 μlit. Volume deliveries are read on a 2-in. micrometer dial. The meter reading is directly proportional to the linear displacement of the syringe plunger, and 1000 scale divisions correspond to a displacement of 1 in. Five syringes for delivering volumes from 0.2 to 5.0 μlit per scale division are available. (Micro-Metric Instrument Co., Dept. Sc., P.O. Box 884, Cleveland 23, Ohio.)

Miscellaneous

The **Engineers Joint Council,** New York, has announced the election of the American Society of Refrigerating Engineers as a constituent society. Also announced is the election of the American Institute of Industrial Engineers as an associate, the first organization to become an E.J.C. associate.

A verbatim report of a symposium on the genetic, psychological, and hormonal factors in the establishment and maintenance of patterns of **sexual behavior in mammals,** mimeographed and bound in a 350-page volume, is being distributed to the participants. Approximately 40 extra copies have been prepared and will be made available to any qualified colleague for the price of $3. Requests should be addressed to William C. Young, Department of Anatomy, University of Kansas, Lawrence, Kan., and should be accompanied by a check payable to the University of Kansas, RF-155.

Radioisotopes for all medical and agricultural research and research in medical therapy will be made available to domestic users at 20 percent of the catalog price by the U.S. Atomic Energy Commission, effective 1 July. Heretofore the AEC has subsidized only the distribution of those radioisotopes used for cancer research and therapy. The discount will not be available for radioisotopes used for routine clinical treatment. Users should make application to the AEC's Division of Biology and Medicine.

Actual tremors of major and minor earthquakes have been recorded and are available on one side of a disk entitled *Out of This World.* The reverse contains a collection of unexplained sounds that originated in the ionosphere. The **earthquake sounds** were produced by the movement of a pendulum indicator on a seismograph located in the Seismological Laboratory of California Institute of Technology. They represent the actual movement of the earth's crust at that point. The ionospheric sounds were recorded at Dartmouth College's Thayer School of Engineering. The record is available from Cook Laboratories, 101 2nd St., Stamford, Conn.