difficult to provide contact time for students to study under him. The experiment stations at Illinois and Iowa State have made a concerted effort to provide for teaching and research combinations and have been quite successful in spite of the difficulties mentioned in foregoing paragraphs.

The present high level of research expenditures is primarily due to government-sponsored defense and atomic-energy research projects. In addition, some projects sponsored by industry are in fact government-supported programs that are being subcontracted to universities. If we are to continue to derive the benefits of engineering research, some means of financing must be provided in order to maintain an active research program within engineering colleges at such time as defense research funds are decreased. The National Science Foundation was conceived in order to provide support for basic research and to encourage the training of scientists and engineers. However, the funds that have been made available to this organization are still very small compared with those now being expended by the Defense Department and the Atomic Energy Commission. It is hoped that in the future additional funds will be made available to the National Science Foundation for support of research grants and graduate fellowships in proportion to the reduction of research funds that are now provided through other government organizations.

Industry is now supporting increased amounts of basic research. In addition to the specialized research program directed toward the direct solution of industrial problems, it is also providing funds for more graduate fellowships to support students interested in research training. These graduate students are in demand for research work in both industry and government. Thus, by means of research grants and fellowships, industry is making possible the training of research personnel as well as receiving the direct benefits of the research program. A greater amount of support by industry of university research is highly desirable; particularly if government support decreases.

News and Notes

Venezuelan Guayana Expedition

The New York Botanical Garden has brought to a close its 14th botanical expedition to the Guayana Highland of Venezuela, adjacent to British Guiana and Surinam. This program of exploration, begun in 1944 with expeditions to the Kaieteur Plateau in British Guiana and the Tafelberg in central Surinam (Netherlands Guiana), will come to a conclusion during the 1954–55 seasons with a second visit, in conjunction with the Chicago Natural History Museum, to Chimanta-tepuí in the Gran Sabana of southern Venezuela in the state of Bolívar, and a visit to Tepequem on the Brazilian side of the Pacaraima range, which forms the watershed boundary between southern Venezuela and northern Brazil. Support for the conduct of this program of explorations as a whole has come from many sources, but the current expedition was carried out under a grant made to the Botanical Garden by the National Science Foundation, the terms of which provide also for the forthcoming trips to the Cerros Tepequem and Chimanta-tepuí.

The expedition that has just returned was conducted by three staff members of the N. Y. Botanical Garden —Bassett Maguire, curator; John J. Wurdack, assistant curator; and George S. Bunting, assistant—who left New York on Oct. 7, 1953, and returned Mar. 4, 1954. This group explored mountains near the remote Brazilian fountier which had been seen by the previous expedition.

The objectives of the trip were two-fold: first, to make botanical collections, which might be expected to yield plants of the character and high endemism that had been previously exhibited by those from the famous Cerro Duida lying 150 mi north; and second, to make inquiry into the geology, determine the proportions, and record the positions of these new mountains.

To facilitate the exploration, the U.S. Ambassador placed the Embassy plane at the expedition's disposal. On Oct. 31, a 7-hr reconnaissance flight of some 1200 mi was made from Ciudad Bolívar across the mountainous and jungled region of southern Venezuela to the Brazilian frontier. This established without question the existence of extensive ranges along the Brazilian frontier and, further, the existence of a system of lofty sandstone plateaus northward of the frontier, well within the limits of Venezuela.

The expedition then embarked that same day at Ciudad Bolívar on the Río Orinoco. It traveled more than 1500 mi by river steamer, outboard motor, and dugout up the Orinoco, down the Casiquiare, and into its large blackwater affluent, the Pacimoni. On Dec. 13, the party reached its base camp, which was established in *guapó* forests (flooded lands) in the headwaters of the Pacimoni. Eighteen days and 5 camps later, on Dec. 31, the group arrived at the summit camp—altitude, 5500 ft—and there it remained until Jan. 23. The base camp was broken on Jan. 30, Ciudad Bolívar reached on Feb. 24, and finally New York again on Mar. 4.

The ornithological expedition of Mr. and Mrs. William H. Phelps, Jr., of Caracas joined the expedition for a period, reaching the base camp on Jan. 12. Alexander Wetmore of the Smithsonian Institution of Washington; James H. Kempton, Agricultural Attaché of the U.S. Embassy, Caracas; and Charles Reynolds, geologist of the Orinoco Mining Company,

who was attached to the Botanical Garden expedition, accompanied Mr. and Mrs. Phelps.

Scientific results will be reported at a later date. It may be said, however, that the botanical findings were commensurate with early expectations. The ornithological collections have proved these mountains to have an exceedingly high ratio of endemic avifauna. The mountain itself, one of several sandstone or quartzite massifs probably exceeding 8000 feet in altitude, will be described more fully when the geologic and geographic data have been evaluated. The nomenclature of the frontier ranges and the system of sandstone table mountains will be worked out in the light of the new findings and the scanty historical data available. Richard Spruce, the pioneer South American botanical explorer, visited this area 100 yr ago and almost certainly approached at least one of the smaller sandstone mountains to its base.

BASSETT MAGUIRE

New York Botanical Garden

Science News

The following statement by the Executive Committee of the Federation of American Scientists has been released by M. Stanley Livingston, chairman.

The majority report of the Personnel Security Board which heard the Oppenheimer case bears the imprint of fair-minded men struggling unsuccessfully against the pressure of a security system extended beyond reasonable bounds. The report finds Oppenheimer to be unquestionably loyal to this country.

Evaluating the charges relating to his past associations and beliefs, the report finds that they would not in themselves affect his clearance. It finds no substantiation for the charge of overt efforts to impede or slow the H-bomb program. Nevertheless, it finds it impossible to recommend his continued clearance because of: alleged lack of enthusiasm for the H-bomb program, serious disregard of security requirements, susceptibility to influence, and "less than candid" testimony before the Board. And this despite the findings that Oppenheimer has displayed "a high degree of discretion reflecting an unusual ability to keep to himself vital secrets" and that the nation owes him "a great debt of gratitude for loyal and magnificent service." It is ironic that this service included a major role in producing many of the very secrets the security system is designed to protect.

We believe the majority findings to be unfair to Oppenheimer. But more than that, we believe them to illustrate the dangers and the bitter fruits of a security system which is now motivated more by the risks of politics than the risks of disclosure of information. The Board itself recognizes that much larger issues are involved in this case; it notes that the reopening of the Oppenheimer case is the result not of a change in Oppenheimer but of a change in security regulations and the climate of national opinion.

If it does not make sense to find risk in a man who has proven himself in the most secret councils of government—and we believe it does not on the evidence so far provided—then attention must be directed to the security system under which the case has arisen. The fault lies, at least in part, in criteria so loosely and generally drawn that they can even admit to serious consideration, in estimating security status, such fantastic assertions as "lack of enthusiasm" for official policy. The threat lies in the use of security machinery to dispense with technical consultants whose views may no longer be acceptable to the administration in office. The danger lies in the discouragement of independent minded men, including many scientists, from lending their talents to government.

We hope that the Atomic Energy Commissioners will again review the record and, within the bounds set by law and Executive Order, do justice to Oppenheimer as an individual. But beyond that we urge strongly that the entire machinery of security must itself come under review. The American people are seeing samples of the mixing of politics and security in such highly publicized proceedings as the . . . [certain current] hearings. It is to be hoped that these hearings will attract attention to the underlying problem—the exploitation of legitimate concern for national security for political ends. Security machinery has only one justification, to protect a small area of vital national information. It cannot efficiently do more; it cannot do more without sapping our national strength and eventually destroying our traditions and practices as a free people.

It has been necessary to assume, until recently, that the rate of **oxygen consumption by photosynthetic organisms** is the same in the light as in darkness. Thus, a correction for the dark respiratory rate was applied to the "apparent" photosynthetic rate to obtain the "true" photosynthetic rate. Recently, studies on respiration rate in light have been made possible by the use of mass spectrometer analysis and heavy isotopes of oxygen [Brown, Nier, and Van Norman, *Plant Physiol.* **27**, 320 (1952); Van Norman and Brown, *Plant Physiol.* **27**, 691 (1952); Brown, *Am. J. Botany* **40**, 719 (1953)]. Through the use of oxygen 34 to label oxygen in the reaction vessel, and by following the isotope dilution, the processes could be studied simultaneously in the light: $CO_2 + 2H_2O \rightarrow (CH_2O) + O_2 + H_2O$ (photosynthesis); $(CH_2O) + O_2{}^{34} \rightarrow CO_2 + H_2O$ (respiration).

A steady decline in the concentration of $O_2{}^{34}$ was observed, owing to respiration; the disappearance occurred at a steady rate whether in the light or in the dark. Simultaneously, unlabeled oxygen released from water during photosynthesis increased in the light and decreased in the dark, owing to respiration. Thus, light was demonstrated to be without effect on the respiration of a photosynthetic organism. These methods have been applied to the study of several strains of algae and certain higher plants. From this work it is therefore demonstrated that light is without effect on the respiration of photosynthetic organisms, and thus a firm basis is supplied for the afore-mentioned correction to obtain the "true" photosynthetic rate.—W.J.N.

An Army dentist, Col. George T. Perkins of Walter Reed Army Medical Center, has invented a **new electronic thermometer,** the "Swiftem," that will give an accurate reading in 5–7 sec. It works through a carboloy thermistor at the end of a stainless steel probe.

The probe, which goes into the patient's mouth, is connected by a flexible transmission cord to a battery in a plastic handpiece small enough to fit in the palm of the hand. On the handpiece is a meter that registers the temperature. At an Army hospital, the new thermometer made it possible to take ward temperatures in one-fortieth the time formerly needed. The new device, the first change in clinical thermometers since the mercury-column type was introduced in 1867, is being manufactured by the Burlington Instrument Co. Hospital models will be on the market in 60–90 days.

The first phase of a long-range **sky-mapping program** designed to yield better insight into the true rotation of the Milky Way has been completed at the University of California's Lick Observatory. C. D. Shane, director of the observatory, and his colleague in the study, C. A. Wirtanen, observer, have reported that the last of 1246 plates has been taken, comprising a complete map of the sky as seen from the Northern Hemisphere. Each of the plates is 17 by 17 in., and required an exposure of 2 hr.

The project was conceived originally by W. H. Wright, director emeritus of the Lick Observatory, who is now living in San José. The sky map, when compared with a second one to be taken beginning some 10–12 yr hence, will provide data from which the Galactic rotation and mass can at last be accurately calculated.

Average **length of life** in the United States has reached a record high of 68½ yr, a gain of nearly 4 yr in the past decade, according to vital statistics compiled by the Public Health Service of the Department of Health, Education, and Welfare. Women on the average live longer, outliving men by 6 yr. The average lifetime expected for women at birth is 71.8 yr, while for men it is 65.9 yr. This difference in the life expectancies of men and women has increased sharply since 1900, when females outlived males by an average of only 2 yr.

White women at birth have a life expectancy of 72.6 yr, compared to 66.6 yr for white men. Nonwhite groups have a shorter average life—59.4 yr for nonwhite men, and 63.7 for nonwhite women. Although white persons outlive nonwhites by an average of 8 yr, the difference between the two groups has narrowed since 1900, when white persons lived about 15 yr longer than nonwhites.

The need for easily available steroid preparations for use as reference standards in connection with the rapidly developing paper chromatographic techniques was recognized by the Endocrinology Study Section of the Division of Research Grants, National Institutes of Health, as early as 1952. This situation was brought to the attention of the Board of Trustees of the United States Pharmacopeial Convention, and in 1953 a U.S.P. Advisory Board on **Steroid Reference Substances** was established. The membership is as follows: T. F. Gallagher, Sloan-Kettering Institute; Gregory Pincus, Worcester Foundation; Max Tishler, Merck & Co.; Adley B. Nichols, U.S.P.; and Sam R. Hall, Division of Research Grants, N.I.H. (chairman). This board is responsible for the selection of reference substances, verification of their authenticity, and determination of their suitability.

The first set of reference substances, consisting of the 24 steroids considered to be the most needed for paper chromatography, is now available. Other sets will follow, and suggestions for future additions are welcomed. Income from the sale of these substances, over and above packaging and distribution costs, will be used for expanding the program. The price is $3.00 for a single steroid and $60.00 for the complete set of 24. All inquiries concerning the Steroid Reference Substances should be directed to U.S.P. Reference Standards, 46 Park Ave., New York 16.

The Atomic Energy Commission has announced an agreement with five utility companies of the Pacific Northwest to study nuclear reactors as producers of electric power. The study is the first to be undertaken in the Northwest, where there is a growing demand for new energy sources. The project brings to 13 the **nuclear power studies** sponsored by the Commission.

In 1953, 1072, or 6 percent, of the Nation's public **water-supply systems,** were unable to meet the peak demands of their customers. About 15 out of every 100 persons using public water supplies were affected. In an attempted to discover whether the shortages were caused by drought or by a failing of man, the U.S. Geological Survey made a reconnaissance inventory of the adequacy of public water systems throughout the United States. The inventory included all 48 states, of which only Idaho, Mississippi, and Rhode Island reported no shortage. Most of the shortages were caused by municipalities outgrowing their systems. A report, "Public Water-Supply Shortages, 1953," prepared by K. A. MacKichan and J. B. Graham of the Water Utilization Section, Water Resources Division, may be obtained free from the Water Resources Review, Geological Survey, Washington 25, D.C.

S. Arend of the Royal Observatory of Belgium has discovered a minor planet that he has named "**Brunonia**" in honor of Brown University. The name was selected in recognition of the fact that the 190-yr-old Brown was one of the first institutions in America to teach astronomy. It is also a tribute by Dr. Arend to the internationally known research of Charles H. Smiley, chairman of the Brown Astronomy Department.

In a recent issue of *Frontiers,* journal of the Academy of Natural Sciences of Philadelphia, Dan Brogan describes how **beavers** are taken from regions overpopulated with the animals and parachuted from planes into inaccessible areas. There it is hoped that they will build many dams. Water storage reservoirs thus built in the mountains aid inhabited territories below.

A new electronic instrument, the **Physiological Monitor,** that automatically detects changes in the physiological condition of a patient on the operating table has been developed at the National Bureau of Standards by Saul R. Gilford and Herbert P. Broida. Financial support for the project was provided by the Veterans Administration and by the NBS Office of Basic Instrumentation, which is sponsored by the Office of Naval Research, the Office of Air Research, and the Atomic Energy Commission. The instrument measures changes in the patient's blood pressure, heart beat, and respiration as they occur, and indicates this information on a panel for interpretation by the surgeon or anesthesiologist. A permanent record of the patient's condition during the operation also is provided.

The new device will not only be of great value to surgery, but may also be useful for certain physiological and medical research problems. Preliminary trials have been made at Mount Alto, VA hospital in Washington, and also at George Washington University Hospital, where the present model will be employed by Charles Coakley for further study.

The Fish and Wildlife Service has a new research vessel for use in studying ocean conditions associated with **red tides,** a marine plague, caused by *Gymnodinium brevis* that kills millions of fish in west coast Florida waters and also is responsible for certain respiratory irritations in humans.

Scientists in the News

Henry L. Barnett has been named professor and chairman of pediatrics at the Albert Einstein College of Medicine of Yeshiva University. Dr. Barnett, who is associate professor of pediatrics at Cornell University Medical College and associate attending pediatrician at New York Hospital–Cornell Medical Center, will also serve as director of pediatrics at the new Bronx Municipal Hospital Center.

Hans H. Bleich, professor of civil engineering at Columbia University, has been appointed technical director of the Institute of Air Flight Structures. The Institute was established at Columbia on Jan. 1 with a grant from the Daniel and Florence Guggenheim Foundation. Grover Loening, aviation industrialist, is chairman of the Institute's advisory council. Appointed to assist Dr. Bleich are **Alfred M. Freudenthal, Bruno A. Boley,** and **Lee Arnold,** all of the Department of Civil Engineering.

Charles Van Buskirk, assistant professor of neurology at the University of Minnesota Medical School, has been appointed professor of neurology and head of the division of neurology at the University of Maryland, effective in July.

P. A. M. Dirac, winner of the 1933 Nobel Prize in physics and Lucasian Professor of Mathematics at Cambridge University, England, since 1932, has been denied a visa. Dr. Dirac was to serve this fall as visiting professor in theoretical physics at the Institute for Advanced Study, as he has done several times before in the last 10 yr. He was also to have spoken at Columbia University's bicentennial celebration.

The 1954 Carl-Engler-Medaille, Germany's highest award in the field of mineral oil science, will be awarded to **Gustav Egloff,** director of research for Universal Oil Products Company, Des Plaines, Ill. Dr. Egloff, who is the first scientist living outside of Germany to be selected, will receive the medal in October during the annual congress of the German Institute of Petroleum and Coal to be held in Essen, West Germany. He will give an address on "Chemistry in the modern oil industry." Following the meeting, Dr. Egloff will study the latest advances in Germany's chemical fields and will also give a series of lectures at West German universities and technical schools.

Edgar E. Foster, consulting engineer formerly of the U.S. Bureau of Reclamation, has announced the opening of an office in Denver, Colo.

Joseph F. Foster has resigned at Iowa State College to join the faculty of the Department of Chemistry at Purdue University, effective July 1.

Robert M. Garrels of the U.S. Geological Survey has been appointed associate professor of geology at Harvard University, effective July 1.

Bentley Glass, Johns Hopkins University, was elected chairman of the Governing Board of the American Institute of Biological Sciences, 1954–55, at the annual meeting held on May 14 in Washington, D.C. Also elected to office at that time were **Wallace O. Fenn** of the University of Rochester School of Medicine, who will serve as vice-chairman of the Governing Board, and **A. C. Smith** of the Smithsonian Institution, who was made a member of the Executive Committee.

Hiden T. Cox, deputy executive director of the A.I.B.S. during the past year, will return in September to the Virginia Polytechnic Institute, where he is professor of botany.

Harry E. Goresline, chief of the Stability Division of the Quartermaster Food and Container Institute for the Armed Forces, Chicago, has been appointed to the newly created post of associate director for research of the Food Laboratories.

At a meeting in the New York Academy of Medicine arranged by the Memorial Center for Cancer and Allied Diseases, Lewis L. Strauss, chairman of the Atomic Energy Commission, presided at the presentation of four awards given in memory of Katherine Berkan Judd, who left part of her estate to Memorial Center for recognition of achievements in cancer research. The recipients are selected by the Sloan-Kettering Division of Cornell University Medical College.

Those honored were **Evarts A. Graham** of the Wash-

ington University School of Medicine, St. Louis; **George Otto Gey** of Johns Hopkins School of Medicine; **L. H. Gray** of Mount Vernon Hospital, Northwood, Middlesex, England; and **Sidney Farber** of the Harvard Medical School.

At a meeting of the board of directors of Mead Johnson and Co., **Ben King Harned,** executive director of research, was named vice president for research.

John Happel, professor of chemical engineering and chairman of the department at New York University, was honored recently at a meeting of the American Chemical Society's New York Section. He received the Industrial and Engineering Chemistry Honor Scroll that is presented annually by the Society's Division of Industrial and Engineering Chemistry to recognize the reporting of sound scientific work in a clear, interesting manner.

On July 1, **Leonard James** of New Zealand will join the pediatric staff of the State University of New York to work on the physiology of the newborn infant's first breath. New ways of resuscitating newborn babies will be tested. This is a combined study in the Departments of Obstetrics, Pathology, and Pediatrics and will be supported by United Cerebral Palsy.

Donald F. Jones, chief geneticist at the Connecticut Agricultural Experiment Station in New Haven, has received the 1954 award of the New York Farmers, presented annually for outstanding contributions to the field of agronomy. The award, a medal and a check for $500, was made to Dr. Jones for his development of pollen-sterile corn strains used in making superior double-cross hybrid varieties.

Thomas D. Nicholson, assistant professor of navigation and astronomy and director of the planetarium at the U.S. Merchant Marine Academy, Kings Point, has been appointed associate astronomer of the American Museum–Hayden Planetarium.

John R. Sampey, professor of chemistry at Furman University has received the 1954 Herty Medal, which is sponsored by the Chemistry Club of the Georgia State College for Women, for his contributions to chemistry in the South. He was chosen for this honor by the Georgia Section of the American Chemical Society.

George Scatchard, professor of physical chemistry at the Massachusetts Institute of Technology, has been awarded the 1954 Theodore William Richards Medal of the American Chemical Society's Northeastern Section.

Harold Schlosberg of Brown University is the new chairman of the Society of Experimental Psychologists.

Homer W. Smith, professor and chairman of the Department of Physiology, New York University College of Medicine, has been selected as the recipient of the $5000 Passano Foundation Award for his many contributions over the last 20 yr to the knowledge of the physiology of the kidney. Presentation will take place on June 21 during the American Medical Association convention in San Francisco.

The Secretariat of the International Academy of the History of Pharmacy in Rotterdam has informed the University of Wisconsin of the election to membership of **Glenn Sonnedecker** of the University School of Pharmacy.

Harlan L. Tuthill, formerly plant technical director for Smith, Kline & French Laboratories, Philadelphia, has been named scientific director for two foreign subsidiaries, SK&F Inter-American Corp. and SK&F International Co. **Carl H. Cunov,** assistant plant technical director, succeeds Dr. Tuthill as technical director.

George Urdang, professor emeritus of the history of pharmacy at the University of Wisconsin, has been elected honorary member of the new Brazilian Society for the History of Pharmacy.

Frank H. Westheimer, recently appointed professor of chemistry at Harvard University, has been named the 1954 Harrison Howe lecturer of the Rochester Section of the American Chemical Society. The formal award of this honor and the delivery of the lecture will take place on Nov. 13. The emphasis of Dr. Westheimer's work has been in both physical and organic chemistry. He has made valuable contributions relating to the mechanisms of organic reactions, including aromatic nitration and mercuriation and, the chromic acid oxidation of alcohols. Recently he has given attention to reactions of biochemical interest.

Education

The **Cooper Union School of Engineering** will consolidate the work of the departments of mechanical engineering and machine design and engineering drawing into a single department, effective next semester. Kenneth E. Lofgren, formerly associate professor, has been appointed professor of machine design and given responsibility for the machine design and engineering drawing section of the Mechanical Engineering Department, which will continue under the chairmanship of William A. Vopat. C. Higbie Young, professor and chairman of the machine design department for 18 yr, will retire on June 30.

A new approach to the old question "What is man?" will be attempted at **Cornell University,** beginning next year, in a trilogy of courses in zoology, psychology, and sociology. The series of three one-semester courses on "The nature of man" will investigate the physical, psychological, and social aspects of human beings in a number of societies. Faculty members and students together will seek a compromise between two extreme views—that the individual is complete master

of his fate, and that his fate is determined largely by heredity and social environment.

The first course, in the zoology department, deals with human structure and function; it is designed for nonbiology students and will focus on the human body, using animals only occasionally for illustration. The second is a psychology course on "Personality and culture." The third is a sociology and anthropology course on "Culture and personality."

A new graduate program leading to the M.S. degree in pharmacy has been approved at **Drake University**, Des Moines, Iowa. It will be open to graduates of 4-yr colleges who have majored in pharmacy or some other scientific field.

A $5000 annual fund has been established at Illinois Institute of Technology by the Industrial Filter and Pump Manufacturing Co. of Chicago to assist liberal arts students in acquiring an **engineering education.** In establishing the fund, named in honor of **Tom Lundberg** of Coloma, Wis., founder and president of the company, the need for engineers with well-rounded educational backgrounds was stressed.

The **Hoffberger Science Hall at Goucher College** was recently dedicated. The building cost more than $1,000,000 and was built largely with a gift from the Hoffberger Foundation, established by a family of Baltimore industrialists and financiers. The new three-story stone structure completes the move of Goucher College from Baltimore city to its new campus on the outskirts.

The **Hope College** physics department is building a cyclotron as a student project and for use by all science classes. The Ciba Co. has provided the combined science departments of the college with a grant for the purpose of financing, in part, the costly work. When completed the Hope equipment will have a one-half ton magnet wound with 400 turns of ¼ in. copper tubing. It will be capable of an output of 1.6 Mev.

A joint **5-yr liberal arts-engineering curriculum** will be initiated at the University Heights center of New York University beginning with the fall semester.

Reed College has entered a cooperative "3–2 plan" with the California Institute of Technology to bring the number of liberal arts colleges cooperating with Caltech to four. The plan provides that recommended engineering students from these colleges will be admitted to Caltech as juniors after 3 yr of study on a prearranged program. After the student successfully completes 2 yr at Caltech, he will be awarded the B.A. degree by the college and the B.S. degree by Caltech.

The **Rutgers Research and Endowment Foundation** has established the Waksman Foundation for Microbiology and Medical Research in Japan, named after Selman A. Waksman, the Rutgers scientist who, with associates, discovered streptomycin. The Japanese foundation will be financed in part with royalties from the manufacture of streptomycin in Japan, where a patent on the drug is pending.

The Foundation also will license the manufacture of dihydrostreptomycin. Royalties on net sales of the two drugs will be divided evenly between the Waksman Foundation in Japan and the Rutgers Institute of Microbiology.

The **University of Tennessee Medical Units'** new $1,373,354 Chemistry-Physiology Building is scheduled to be partially completed by Sept. 15 and fully completed by Oct. 27. The building is one of three under construction in a $5,000,000 expansion program; the other two are an Administration-Postgraduate Building and a Medical-Surgical Building.

Grants and Fellowships

American Cyanamid Co. has established an undergraduate scholarship program in chemistry and chemical engineering to supplement its existing graduate fellowships and grants. Under the new program, 17 undergraduates about to enter their junior or senior year will be awarded $600 each for the academic year 1954–55. In addition, each scholarship college will receive $300 for the unrestricted use of its chemistry or chemical engineering department.

Under the fellowship program, 15 students in their final predoctoral year of study receive $1500 in addition to full tuition and laboratory fees; their department of chemistry or chemical engineering receives $300 for unrestricted use. Appointments under the two programs are made by the university or college.

The Gravity Research Foundation, New Boston, N.H., is for the 6th year offering five **awards for essays on gravity.** These awards will be made on Dec. 1 for the best 1500 word essays on the possibilities of discovering: (i) some partial insulator, reflector, or absorber of gravity, or (ii) some alloy or other substance, the atoms of which can be agitated or rearranged by gravity to throw off heat, or (iii) some other reasonable method of harnessing gravitational energy. In none of these proposals can outside energy be used.

The awards will be for $1000, $300, $200, $150, and $100 respectively. *Essays must be submitted before Oct. 15.* They will be accepted from anyone who is seriously interested in the application of gravity to practical uses for the benefit of humanity. For details, write to the Foundation.

The Paint, Plastics, and Printing Ink Division of the American Chemical Society has established a **Carbide and Carbon Chemicals Award.** It will be financed from royalties accruing from the sale of a book to be published this fall, *Technology of Solvents and Plasticizers,* by Arthur K. Doolittle, past chairman of the division and assistant director of research for the Carbide and Carbon Chemicals Company. The Company will supplement the royalties in the initial year, if necessary, so that in no year will the amount of the prize be less than $300.

The award will be given annually for the outstanding scientific contribution reported in a technical paper before a regular meeting of the division. The first winner will be announced in June 1955, and the prize will be presented at the 128th national meeting of the American Chemical Society in Minneapolis in September. Thereafter, the award will be made at each fall meeting of the society on the basis of papers presented at the two previous meetings. Information on deadlines and instructions for preparing papers for the preprint booklet may be obtained from Dr. A. L. Alexander, Naval Research Laboratory, Washington 25, D.C.

Fellowships designed to prepare men for academic careers in medicine, principally in the field of pathology, have been established by the **Department of Pathology of the University of Pittsburgh.** They will provide 3 yr of experience in research, teaching, and diagnostic pathology at the university; then arrangements will be made for 1 yr of work at another medical center of the applicant's choice.

One fellow will be appointed each year for a 4-yr term and will receive a stipend increasing from year to year as follows: $3000; $3300; $3700; $4000. The applicant must be a graduate of an approved medical school. *Application must be made by Nov. 1* for a fellowship beginning July 1. For further information address Dr. Frank J. Dixon, Department of Pathology, University of Pittsburgh, Pittsburgh 13.

The **National Science Foundation** has announced 159 grants, totaling approximately $1,359,000 for basic research in the natural sciences and to support studies and conferences on science, scientific information exchange, compilation of scientific personnel information, education in the sciences, and travel to international meetings. This is the third group of awards to be made during fiscal year 1954 for the support of basic research and related matters.

Harvard University. M. W. Mayall. Light variations of more than 500 variable stars, 1 yr, $10,000.

University of Florida. D. Duke, Dept. of Astronomy. Photographic studies of close binaries, 1 yr, $1200.

Harvard University. B. J. Bok and H. I. Ewen, Harvard Observatory. Radio astronomy in the microwave region, 1 yr, $17,000.

Louisiana State University. K. Yoss, Dept. of Physics and Astronomy. Relative frequencies of galactic star populations, 2 yr, $2700.

University of Michigan. L. H. Aller, Dept. of Astronomy. Abundances of light metals in stars and nebulae, 2 yr, $11,000.

Mount Holyoke College. A. H. Farnsworth, Dept. of Astronomy. Milky way field, 3 yr, $1500.

Ohio State University. P. C. Keenan, Dept. of Physics and Astronomy. Spectroscopic study of luminosity and composition of S-type and related stars, 2 yr, $3700.

Princeton University. M. Schwarzschild, Dept. of Astronomy. Advanced stages of stellar evolution, 2 yr, $12,600.

Brandeis University. S. G. Cohen, Dept. of Chemistry. Chemistry of free radicals, 3 yr, $18,000.

University of California. R. L. Scott, Dept. of Chemistry. Molecular complexes involving halogens, 3 yr, $14,800.

Carnegie Institute of Technology. R. A. Glenn, Dept. of Chemistry. Chemical nature of coal hydrogenation products, 3 yr, $12,000.

University of Colorado. R. N. Keller, Dept. of Chemistry. Low count-rate techinques in radiocarbon dating, 2 yr, $10,000.

University of Florida. G. A. Greathouse, Engineering and Industrial Experiment Station. Mechanism of synthesis and degradation of specifically labeled C^{14} cellulose, 2 yr, $6500.

Howard University. M. D. Taylor, Dept. of Chemistry. Action of simple and complex hydrides on rare earth compounds, 2 yr, $12,000.

Illinois Institute of Technology. S. E. Wood, Dept. of Chemistry. Properties of nonelectrolytic solutions, 3 yr, $24,000.

University of Illinois. H. A. Laitinen, Dept. of Chemistry and Chemical Engineering. Adsorption processes at electrode surfaces, 2 yr, $11,800.

University of Illinois. H. R. Synder, Dept. of Chemistry. Alkaloids of haplophyton cimicidum, 3 yr, $29,600.

University of Louisville. J. P. Phillips, Dept. of Chemistry. Analytical reagents related to 8-quinolinol, 2 yr, $5100.

University of Maryland. G. Brown, Dept. of Chemistry. X-ray analysis of organic crystal structures, 2 yr, $10,400.

University of Notre Dame. C. Curran, Dept. of Chemistry. Localized and nonlocalized hydrogen bonding, 2 yr, $6100.

Ohio State University. M. L. Wolfrom, Dept. of Chemistry. Determination of polysaccharide structure by degradative methods, 3 yr, $25,000.

Rensselaer Polytechnic Institute. S. Ross, Dept. of Chemistry. Two-dimensional condensation of adsorbed vapors on solid surfaces, 1 yr, $5000.

University of Utah. R. E. Hamm, Dept. of Chemistry. Solution chemistry of complex ions, 2 yr, $9700.

Western Reserve University. E. L. Pace, Dept. of Chemistry. Thermodynamics and molecular structure of simple fluorine compounds, 2 yr, $10,500.

University of Wisconsin. W. S. Johnson, Dept. of Chemistry. Synthesis of structures related to the steroids, 2 yr, $15,000.

Florida State University. C. B. Metz, Dept. of Zoology. Nature and role of specific substances in fertilizin, 2 yr, $8100.

University of Wisconsin. H. W. Mossman, Dept. of Anatomy. Uterine vascular system in the hamster, 1 yr, $4370.

University of Wisconsin. K. B. Raper, Dept. of Botany. Speciation in simple slime molds, 3 yr, $18,900.

American Museum of Natural History, N.Y. N. D. Newell, curator of historical geology and fossil invertebrates. Phylogenetic studies of Pelecypoda, 1 yr, $3100.

University of California. D. I. Axelrod, Dept. of Geology. Pliocene floras of western Nevada, 3 yr, $13,800.

University of California. C. Meyer, Dept. of Geological Sciences. Hydrothermal alteration studies of micas, mica-like clays and related minerals, 2 yr, $19,500.

University of California. G. Tunell, Dept. of Geology. Geochemistry of mercury ores, 2 yr, $17,700.

Columbia University. D. B. Ericson, Lamont Geological Observatory. Lithological and micropaleontological investigation of Atlantic ocean sediment cores, 2 yr, $18,000.

North Dakota Agricultural College. P. Tasch, Dept. of Geology. Fauna and paleoecology of the depauperate zone of the maquoketa shale of Iowa, 1 yr, $1000.

Oberlin College. P. B. Sears, K. Clisby and F. Foreman. Continuous history of vegetation, climate and sediments extending into the Pleistocene, 1 yr, $9000.

Pennsylvania State University. B. F. Howell, Jr., Dept. of Earth Sciences. Formation of seismic pulses, 2 yr, $12,100.

Princeton University. J. C. Maxwell, Dept. of Geology. Compaction and cementation of sediments, 2 yr, $10,800.

University of Utah. E. Roedder, Dept. of Mineralogy. Phase equilibrium relations in the system K_2O-FeO-Al_2O_3-SiO_2, 2 yr, $13,400.

Carnegie Institute of Technology. C. L. McCabe, Dept. of Metallurgical Engineering. Determination of activity of silicon in liquid silicate systems, 18 mo, $11,000.

Case Institute of Technology. W. L. Bryan, Mechanical Engineering Dept. Heat transfer to boiling liquids flowing in horizontal tubes, 1 yr, $5700.

Colorado Agricultural and Mechanical College. M. L. Albertson, Dept. of Civil Engineering. Resistance to flow in open channels, 30 mo, $12,500.

University of Illinois. J. W. Westwater, Div. of Chemical Engineering. Metastable boiling, 2 yr, $13,500.

State University of Iowa. J. O. Osburn, Div. of Chemical Engineering. Supersaturation in liquid solutions, 1 yr, $8000.

Johns Hopkins University. H. E. Hoelscher, Dept. of Chemical Engineering. Kinetics of reactions in three-phase systems, 2 yr, $9000.

Kansas State College. D. R. Carver, Applied Mechanics Dept. Stability of rings and circular arches under arbitrary loading, 2 yr, $10,000.

Lehigh University. L. S. Beedle, Dept. of Civil Engineering. Influence of residual stress on column strength, 3 yr, $15,000.

Massachusetts Institute of Technology. M. C. Shaw, Dept. of Mechanical Engineering. Stress and energy characteristics of brittle materials during comminution, 1 yr, $6000.

Montana School of Mines. D. W. McGlashan, Dept. of Mining Engineering. Effects of progressive change of position on the surface reactivity of aliphatic derivatives, 2 yr, $13,000.

New York University. R. E. Treybal, Dept. of Chemical En-

gineering. Mass transfer to and from solid spheres immersed in a flowing fluid, 30 mo, $7000.

University of North Dakota. W. R. Kube, Dept. of Chemical Engineering. Sorption of water vapor by thermally treated lignite, 18 mo, $3400.

Northwestern University. G. Thodos, Dept. of Chemical Engineering. Vapor liquid equilibrium studies in multicomponent systems, 2 yr, $10,000.

Ohio State University. J. D. Kraus, Dept. of Electrical Engineering. Positions and characteristics of discrete radio sources, 2 yr, $9800.

University of Pennsylvania. F. J. Dunkerley, Dept. of Metallurgical Engineering. Thermodynamic properties of sulphur and oxygen in liquid iron alloys, 2 yr, $20,000.

Purdue University. E. W. Comings, School of Chemical and Metallurgical Engineering. Properties of gases at high pressures, 2 yr, $14,000.

University of Utah. J. H. Hamilton and J. R. Lewis, Dept. of Metallurgical Engineering. Kinetics of the removal of carbon from molten metal-carbon mixtures by reaction with carbon dioxide, 3 yr, $13,000.

Vassar College. G. E. Baker, Plant Science Dept. Microorganisms in lake water, 3 yr, $5300.

Harvard University. J. R. Raper, botany. Naturally occurring filtrable mutagens in *Schizophyllum,* 1 yr, $5500.

Missouri Botanical Garden. E. Anderson, Genetics. Introgression in natural populations, 3 yr, $19,000.

University of North Carolina. D. U. Gerstel, Dept. of Agronomy. Segregation in artificial amphidiploids in genus *gossypium,* 3 yr, $12,500.

Purdue University. D. C. Warren and A. E. Bell, Dept. of Poultry Husbandry. Heterosis in *Drosophila melanogaster,* 3 yr, $18,400.

American Mathematical Society. Summer mathematical institute for the study of functions of several complex variables, $25,000.

Brown University. B. Jonsson, Dept. of Mathematics. Problems in modular lattices, 1 yr, $3400.

Queens College. L. Zippin, Dept. of Mathematics. Topological groups acting as transformation groups, 1 yr, $7700.

University of Washington. E. Hewitt, Dept. of Mathematics. Investigations in functional analysis, 21 mo, $30,000.

University of Pennsylvania. S. D. Rodenberg, Laboratory of Microbiology. Biosynthesis of proteins associated with microbial cells, 2 yr, $2200.

University of Alabama. A. E. Ruark, Dept. of Physics. Cloud chamber search for free magnetic poles, 3 yr, $14,300.

Antioch College. A. B. Stewart and G. E. Owen, Dept. of Physics. Glow discharge oscillations, 2 yr, $10,000.

Brigham Young University. H. Fletcher, Dept. of Physics. Definitive physical characteristics of tones, 2 yr, $11,100.

Bryn Mawr College. J. R. Pruett, Dept. of Physics. Direction correlations and forbidden beta-spectra, 2 yr, $8000.

University of Chicago. M. G. Inghram, Dept. of Physics. Mass spectrometric investigations, 2 yr, $20,000.

University of Colorado. W. A. Rense, Dept. of Physics. Polarization measurements of the zodiacal light during total solar eclipse of June 1954, 6 mo, $1700.

Columbia University. H. M. Foley, Dept. of Physics. Theory of nuclear quadrupole effects, 18 mo, $11,300.

Cornell University. R. L. Sproull, Dept. of Physics. Thermal conductivity and crystal imperfections, 3 yr, $15,000.

Johns Hopkins University. H. Meissner, Dept. of Physics. Intermediate state of superconductivity, 2 yr, $6000.

Louisiana State University. J. S. Levinger, Dept. of Physics. Theory of photonuclear reactions, 2 yr, $8700.

University of Maryland. S. F. Singer. Origin of ultrahigh-energy cosmic rays, 2 yr, $15,800.

University of Michigan. D. A. Glaser, Dept. of Physics. Use of bubble chambers in the study of high-energy nuclear interactions, 2 yr, $12,600.

University of Minnesota. A. O. C. Nier, Dept. of Physics. Atomic mass determinations, 2 yr, $15,500.

University of North Carolina. J. W. Straley, Dept. of Physics. Intensities of infra-red absorption bands, 3 yr, $11,700.

Northwestern University. J. A. Marcus, Dept. of Physics. Hall effect in single crystals at low temperatures, 2 yr, $11,100.

Ohio State University. J. G. Daunt and P. S. Jastram, Dept. of Physics. Nuclear orientation at low temperatures, 2 yr, $17,000.

Reed College. F. C. Brown, Dept. of Physics. Conduction and trapping in ionic crystals, 2 yr, $8500.

Wisconsin Alumni Research Foundation. D. W. Kerst, Dept. of Physics, University of Illinois. High-energy accelerator problems, 6 mo, $21,800.

Yale University. H. Margenau, Dept. of Physics. Definition and law in the physical sciences, 2 yr, $4600.

Princeton University. H. Gulliksen, Dept. of Psychology. Mathematical techniques in psychology, 3 yr, $24,400.

University of Washington. A. F. Ax, Dept. of Psychiatry. Investigations of human reactions to stress, 3 yr, $17,200.

Princeton University. W. W. Swingle, Dept. of Biology. The isolation, physiological properties and bioassay of the amorphous fracton of adrenal cortical extracts, 2 yr, $11,500.

Bernice P. Bishop Museum, Honolulu. J. L. Gressitt. Insects of Micronesia, 3 yr, $30,000.

University of Hawaii. D. E. Hardy, Dept. of Entomology. Diptera of Hawaii, 1 yr, $2000.

University of North Carolina. J. N. Couch, Dept. of Botany. Genus *actinoplanes,* 3 yr, $15,300.

U.S. Geological Survey. P. E. Cloud, Jr., Paleontology and Stratigraphy Branch. Marine mollusks of reefs of the Pacific ocean, 1 yr, $3000.

Woods Hole Oceanographic Institution. G. L. Clarke, marine biologist. Penetration of light into the sea and its effect on aquatc organisms, 1 yr, $6200.

Woods Hole Oceanographic Institution. J. H. Ryther. Basic biological productivity of offshore waters, 3 yr, $6700.

American Type Culture Collection. F. Weiss, curator. Collection of bacteriophages (bacterial viruses), 2 yr, $11,000.

Bermuda Biological Station for Research, Inc. Biological research, 5 yr, $10,000.

Duke University. Biological research at its Marine Laboratory, 3 yr, $12,000.

University of Georgia. P. R. Burkholder, Dept. of Bacteriology. Development of national culture collection of algae, 2 yr, $7500.

University of Minnesota. Biological research at the Itasca Biological Station, 1 yr, $3000.

National Academy of Sciences. Operating expenses of Pacific Science Board, 3 yr, $39,000.

National Academy of Sciences. U.S. National Committee for the International Geophysical Year 1957–58, $22,000.

Sierra Club, San Francisco. California Himalayan expedition committee, 1 yr, $5000.

Attendance at international meetings

Third General Assembly and Congress of International Union of Crystallography. N. C. Baenziger, Dept. of Chemistry, State University of Iowa; J. D. H. Donnay, Crystallographic Laboratory, Johns Hopkins University; I. Fankuchen, Dept. of Physics, Polytechnic Institute of Brooklyn; W. H. Zachariasen, Dept. of Physics, University of Chicago; B. E. Warren, Dept. of Physics, Massachusetts Institute of Technology. $2000.

Faraday Society, Discussions on Fast Reactions. I. M. Kolthoff, Dept. of Chemistry, University of Minnesota; R. G. Pearson, Dept. of Chemistry, Northwestern University. $1000.

Second General Assembly of International Mathematical Union. S. MacLane, Dept. of Mathematics, University of Chicago; E. Hille, Dept. of Mathematics, Yale University. $1210.

International Congress of Mathematicians. L. Zippin, Dept. of Mathematics, Queens College, N.Y.; A. Tarski, Dept. of Mathematics, University of California; R. L. Wilder, Dept. of Mathematics, University of Michigan; G. T. Whyburn, Dept. of Mathematics, University of Virginia; E. E. Moise, Dept. of Mathematics, University of Michigan; L. Henkin, Dept. of Mathematics, University of California; P. L. Halmos, Dept. of Mathematics, University of Chicago; A. Erdelyi, Dept. of Mathematics, California Institute of Technology; R. Brauer, Dept. of Mathematics, Harvard University; A. A. Albert, Dept. of Mathematics, University of Chicago. $5000.

Fourth International Conference on Electrode-position and metal finishing. W. Blum, Washington, D.C., $500.

Eleventh General Assembly of International Scientific Radio Union. S. Silver, Dept. of Electrical Engineering, University of California; E. C. Jordan, Dept. of Electrical Engineering, University of Illinois; D. F. Tuttle, Dept. of Electrical Engineering, Stanford University; J. M. Pettit, Electronics Research Laboratory, Stanford University; W. G. Shepherd, Dept. of Electrical Engineering, University of Minnesota; A. W. Sullivan, Engineering and Industrial Experiment Station, University of Florida; H. I. Ewen, Harvard College Observatory; V. H. Rumsey, Director, Antenna Laboratory, Ohio State University. $2910.

World Power Conference. G. O. G. Lof, consulting chemical engineer, Denver, Colorado; W. A. Lewis, Illinois Institute of Technology, $1500.

Symposium on Comparative Endocrinology of Vertebrates. W. R. Breneman, Dept. of Zoology, Indiana University; E. W. Dempsey, Dept. of Anatomy, Washington University; A. Gorbman, Dept. of Zoology, Barnard College, Columbia University; R. O. Greep, Dept. of Biology, Harvard School of Dental Medicine; F. L. Hisaw, Biological Laboratories, Harvard University; F. G. Hoffman, Dept. of Pharmacology,

Columbia University; J. H. Leathem, Dept. of Zoology, Rutgers University; W. H. Sawyer, Dept. of Physiology, New York University; E. Witschi, Dept. of Zoology, State University of Iowa. $4550.

Eighth General Assembly of International Union of Pure and Applied Physics. J. A. Wheeler, Dept. of Physics, Princeton University; R. Smoluchowski, Dept. of Physics, Carnegie Institute of Technology; L. Marton, Electron Physics Section, National Bureau of Standards. $1600.

Policy Board of the International Union of Biological Sciences. P. Weiss, Division of Biology and Agriculture, National Research Council, $1000.

Conferences in support of science

American Psychological Association. 14th International Congress of Psychology, $10,000.

University of California. Significance and possibilities of high-speed computing in meteorology, $6000.

Indiana University. Stellar atmospheres, $3300.

Long Island Biological Association. Mammalian fetus—physiological aspects of development, $6500.

University of Michigan. Multidimensional analysis, $5300.

Swarthmore College. Astronomy research in colleges, $5000.

Education in the sciences

University of California. Summer conference for teachers of astronomy, 4 wk, $8750.

Columbia University. Conference on nuclear physics in engineering education, 10 da, $8200.

University of Illinois. Conference on solid state physics in engineering education, 10 da, $7000.

Mathematical Association of America, University of Buffalo. Support of program for visiting scientists, 1 yr, $15,000.

Washington and Lee University. Conference on undergraduate research in chemistry, 3 da, $5700.

Scientific information exchange

American Mathematical Society. Preparation and distribution of selected translations of Russian mathematics articles, 1 yr, $14,500.

Library of Congress. Compilation of lists of scientific and technical serial publications, 6 mo, $6500.

Scientific manpower

American Mathematical Society. Register of scientific and technical personnel in field of mathematical sciences, 1 yr, $13,800.

American Psychological Association. Register of scientific and technical personnel in field of psychology, 1 yr, $11,600.

The **Pharmaceutical Foundation, University of Texas,** has announced the renewal of an annual grant of $20,000 from the **Benjamin Clayton Foundation for Research.** Directors of the project are Henry M. Burlage of the College of Pharmacy and Alfred Taylor of the Biochemical Institute.

Meetings and Elections

The Cook Inlet Branch of the **Alaska Division of AAAS** has elected these officers: pres., Arthur L. Jess, Corps of Engineers, U.S. Army; v. pres., Frank P. Pauls, Alaska Dept. of Health; sec.-treas., Andy J. Zeberl, Alaska Dept. of Health.

The **American Academy of Arts and Sciences** has elected the following officers: pres., John E. Burchard; sec., William C. Greene; treas., Horace S. Ford. Vice presidents are Edward L. Bowles, James M. Faulkner, Erwin D. Canham, and Robert Ulich.

The annual meeting of the **British Association for the Advancement of Science** will be held in Oxford Sept. 1–8. The following information, taken from the current preliminary program, is of interest.

The British Association was founded in 1831 and is the oldest body of its kind in the world. There are 16 similar Associations in other countries, all modeled directly or indirectly on the British Association. Simply expressed the objects of the Association are: (i) to encourage and direct scientific enquiry; (ii) to promote contacts between scientists at home and abroad; (iii) to obtain general attention for the objects of science; (iv) to work for the removal of any public disadvantages that hinder the progress of science. These objects are achieved by means of meetings, conferences, lectures, collaboration with other scientific organizations, research, and publication.

The chief activity of the Association, and that on which its reputation has been mainly based, is its great annual meeting which has been held without a break, except during the two world wars, in various cities in Great Britain and in other parts of the Commonwealth. On no other occasion do so many scientists, from all branches, academic and applied, meet together to discuss problems of current interest. The membership includes leaders in all branches of science and technology at home and abroad; it also includes many who are not scientists because membership is open to all, with or without scientific qualifications. The average attendance at six postwar meetings has been about 3700.

The annual meeting has been described at different times as the Parliament of Science, as a peripatetic university bringing science into the market place and, less seriously, as a 13-ring circus. Now that research is so largely supported directly and indirectly from public funds, these meetings have assumed new importance as one of the main occasions when scientists report progress to the public.

New officers of the **Colorado-Wyoming Academy of Science** are: pres., Hugo G. Rodeck, University of Colorado, Boulder; v. pres., Fred L. Herman, Colorado State College, Greeley; exec. sec., O. Wilford Olsen, Colorado A and M College, Fort Collins; treas., Fred Freytag, University of Wyoming, Laramie. Frank E. E. Germann of the University of Colorado is the representative to the AAAS Council.

Alan T. Waterman, director of the National Science Foundation, is chairman of the **4th Conference of the Association of Princeton Graduate Alumni** to be held at Princeton University, June 16–17. The conference theme is "Horizons in scholarship," and the following speakers—all of Princeton—are among those included on the program: Lyman Spitzer, Jr., director of the Observatory, and Charles A. Young, professor of astronomy; John von Neumann, professor of mathematics at the Institute for Advanced Study; and Edward C. Kendall, visiting professor of chemistry in the Forrestal Research Center.

The New York Academy of Sciences recently held a 3-day conference on the **functions of the leukocytes** under the cochairmanship of Albert S. Gordon of New York University, John W. Rebuck of Henry Ford Hospital, Detroit, and Robert S. Speirs of the Roscoe B. Jackson Memorial Laboratory. There were 35 par-

ticipants, among them J. M. Yoffey, University of Bristol, England; O. A. Trowell, Harwell Laboratories, England; and Paulo Seabra of the National Academy of Medicine, Brazil. The conference was dedicated to Hal Downey of the University of Minnesota Medical School, an outstanding hematologist and teacher, and represented the first comprehensive review of leukocytic functions since the publication in 1938 of his *Handbook of Hematology.*

The Department of Journalism at the University of Michigan has organized an **International Mass Communications Conference on Nuclear Energy** in Ann Arbor, June 19–24. The Conference will include discussions of the social, technological, and political implications of nuclear energy in the fields of power, medicine, food, and chemical products.

Recognizing the urgency for closer cooperation between scientists, writers, editors, and other mass communicators, the **International Nuclear Engineering Congress,** which convenes in Ann Arbor at about the same time, June 20–25, will have concurrent sessions with the conference on communications. These sessions and some social activities should do much to develop mutual appreciation by scientists, writers and editors of their respective roles in the new nuclear culture. Scientists from the U.S. and from 11 foreign countries will participate in the concurrent sessions. For further information write Wesley H. Maurer, Chairman, Department of Journalism, University of Michigan.

An **international symposium on temperature,** its concept and measurement, will be held in Washington, D.C., Oct. 28–30, under the joint sponsorship of the American Institute of Physics, the National Bureau of Standards, and the Office of Ordnance Research (U.S. Army). The program will include fundamental discussions of the temperature concept in relation to such unusual systems as very hot gases and matter near absolute zero, as well as methods of measuring these extreme temperatures. Considerations will also be given to the temperature scales and standards in current use, and the effects of recent changes in the definitions of these scales.

This will be the third temperature symposium in a series that began in 1919 and was continued in 1939. The collected papers will be published in book form, as were the 1939 symposium papers. Over-all guidance of the symposium is in the hands of a committee composed of A. V. Astin (chairman), J. A. Beattie, F. G. Brickwedde, W. O. Davis, Jr., I. Estermann, K. F. Herzfeld, T. J. Killian, Paul E. Klopsteg, J. E. Mayer, Wallace Waterfall, and Alfred Weissler (secretary). Details of the program will be announced in July. For further information, address Wallace Waterfall, American Institute of Physics, 57 E. 55 St., New York 22.

The 86th annual meeting of the **Kansas Academy of Science** and the affiliated **Kansas Psychological Association** was held Apr. 29–May 1 at Fort Hays Kansas State College. On Apr. 29 an illustrated lecture, "Capturing the color of canyon country," was delivered by M. V. Walker of the National Park Service. On Apr. 30 technical papers were presented in the various sections: botany and microbiology, 30 papers, Andrew Riegel, chairman; chemistry, 19 papers, H. S. Choguill, chairman; geology, 9 papers, L. D. Wooster, chairman; physics, 10 papers, H. A. Zinszer, chairman; psychology, 16 papers and a panel discussion, H. B. Reed, chairman; zoology, 22 papers, E. P. Martin, chairman. The chairmen were all members of the staff of Fort Hays Kansas State College. In the Junior Academy some 112 papers and 114 exhibits were presented.

A total of 389 people registered for the meetings—213 for the senior academy and 176 for the junior academy. At the banquet, President R. E. Mohler of McPherson College gave his presidential address entitled "Science for all of life." President-elect A. C. Carpenter from Ottawa, Kansas, was toastmaster.

The following officers were elected for the coming year: pres., A. C. Carpenter, Ottawa; pres.-elect, D. J. Ameel, Kansas State College, Manhattan; v. pres., H. S. Choguill, Fort Hays Kansas State College, Hays; sec., C. T. Rogerson, Kansas State College, Manhattan; treas., Standlee Dalton, Fort Hays Kansas State College. The representative to the AAAS Council is C. T. Rogerson.

The annual meeting of the **Medical Library Association** will take place June 15–18 in Washington. The general chairman is Frank B. Rogers, lieutenant colonel and director, Armed Forces Medical Library. There will be panel discussions on the international aspects of medical research, library architecture, and service to the lay public. Speakers will include E. Bruce Harvey, a wing commander of the Royal Air Force Medical Service; Verner W. Clapp, Chief Assistant Librarian of Congress, and officials of numerous Federal medical library services.

The **Metric Association** has elected the following officers: pres., J. T. Johnson, Chicago Teachers College; sec.-treas., Vincent G. Shinkle, 1916 Eye St. NW, Washington, D.C. The vice presidents are Paul H. Bolton, Theodore H. Miller, Aubrey Drury, Theodore A. Seraphin, A. E. Pradillo, and C. J. Arnold.

The **National Science Foundation** has recently sponsored the following conferences:

Mar. 29–Apr. 1 at Bryn Mawr College, the **Place of Biological Research in the Liberal Arts Colleges,** the third in a series of conferences on the contributions of scientific research to science teaching and to the training of undergraduates; at these meetings, college science teachers exchange views on how research can be effectively coordinated with teaching and carried out with limited research facilities.

Mar. 29–Apr. 1 at Pacific Grove, Calif., a **Conference on Bioluminescence** held under the auspices of the Committee on Photobiology, National Research Council.

May 6–8 at Washington and Lee University, a **Con-**

ference on Undergraduate Research in Chemistry. About 30 faculty members of representative colleges and universities discussed the value of undergraduate research in encouraging able students to choose careers in chemistry and to continue graduate training. The problem of interesting talented students in graduate work is especially important at the present time because of the acute shortage of chemists.

Some 60 physicists met at the University of Pennsylvania, May 3–4, to discuss the interaction of high-energy electromagnetic radiation with nuclei (below the meson threshold); 27 institutions were represented at this **photonuclear conference,** and there were several visitors from abroad. Of particular interest were: (1) the proposal by D. H. Wilkinson (Cambridge University; visiting professor at the University of Pennsylvania in April and May) of a single-particle-type model of the giant photonuclear resonance involving the dipole excitation of particles from the top closed shells; (2) reports from the National Bureau of Standards of the nuclear absorption experiments of H. W. Koch, and the elastic scattering experiments of E. G. Fuller and E. Hayward; (3) the account by P. Morrison (Cornell) of the considerable amount of general theory that does not utilize specific nuclear models; and the comprehensive summary of V. Weisskopf (MIT) on how interesting and fundamental problems of nuclear structure are being approached by photonuclear research.

The conference—which was opened by G. P. Harnwell, president of the University of Pennsylvania—included papers on the fine structure in photo neutron yield curves observed by L. Katz (Saskatchewan), A. S. Penfold, and B. M. Spicer (University of Illinois); on "Photo particle emission" by J. Levinger (Louisiana State University); on "Isotopic spin considerations" by V. L. Telegdi (University of Chicago); and on "Systematics of giant resonances" by J. Halpern (University of Pennsylvania).

The meeting was enlivened by considerable discussion both during the papers and in the discussion periods led by P. Axel, L. Katz, D. W. Kerst, M. Goldhaber, D. H. Wilkinson, and J. Levinger. Additional reports were made on inelastic electron scattering by D. W. Kerst (University of Illinois) and W. C. Barber (Stanford University); on photon scattering by R. Sagane (University of California) and A. Wattenberg (MIT); on photo particle emission by D. Zaffarano (Iowa State), J. Rosengren (MIT), and P. C. Gugelot (Princeton University); on light nuclei photo disintegration by E. F. Shrader (Case Institute of Technology) and D. H. Wilkinson (Cambridge University); on the collective model of giant resonances by M. Ferentz (Argonne); and on the cross-section curve of the photo neutrons from carbon and copper by W. C. Barber (Stanford).

A summary of the proceedings is being prepared by Paul Yergin, Department of Physics, University of Pennsylvania, for distribution to those attending. A few additional copies may be available for others.

On Aug. 18 Stanford University will conduct its annual conference on Latin American affairs. This year's topic will be **"The population problems of Latin America."** Many distinguished specialists are expected to take part. Those wishing to attend should apply to Hispanic American Studies, Room 255, Stanford University, Stanford, Calif. There will be plenary sessions, and section meetings devoted to specialized topics. Preston James of Syracuse University, an expert on Latin American population problems, will spend the summer at Stanford as visiting professor of geography and will assist in the preparation of the conference.

The invitation of the Government of Mexico extended last year to the **World Health Organization** to hold its 8th annual assembly in 1955 in Mexico City has been approved by the 7th World Health Assembly's Committee on Administration, Finance and Legal Matters. Mexico has generously offered to bear all additional costs entailed in holding the Assembly away from the headquarters in Geneva, and also to extend "the necessary facilities, immunities and privileges" to all delegates, observers, members of the WHO secretariat, and generally to all persons participating in the Assembly. All previous WHO Assemblies have been held in Geneva except for one in Rome in 1949.

Miscellaneous

The first issues of the Frankfurt edition of ***Zeitschrift für Physikalische Chemie, Neue Folge*** are now available. The new series is the lawful continuation of *Zeitschrift für Physikalische Chemie* (founded in 1887), now being published by Akademische Verlagsgesellschaft m.b.H., Holbeinstrasse 25–27, Frankfurt am Main, by arrangement with the original owners and in cooperation with Professors K. F. Bonhoeffer, Th. Förster, W. Jost, and Georg-Maria Schwab, former editors of the prior series. Every effort will be made to restore this periodical to its previous reputation. An international advisory board of leading physico-chemists is now being formed. The May issue (Vol. 1, Nos. 1/2) contains original papers; these are not the same as those appearing in a periodical released under the same title in Leipzig, Soviet-Zone of Germany.

The Commonwealth Scientific and Industrial Research Organization, Australia, has published a special Supplement to the Second Edition of the **"Union Catalogue of Scientific Periodicals in Australian Libraries."** The Second Edition did not list journals that commenced publication after December 1945. The Supplement, although not directly amending or supplementing the entries that comprise the Second Edition, lists nearly 2000 new titles that have appeared since the cessation of World War II. It also shows many changes in the names of institutional and governmental organizations. Copies are available from the Tait Book Co. Pty. Ltd., 349 Collins St., Melbourne.