News and Notes

Meeting of Society of Exploration Geophysicists

Approximately 1000 members of the Society of Exploration Geophysicists attended its 24th annual meeting in St. Louis, Apr. 12–15. The SEG met jointly, as usual, with the American Association of Petroleum Geologists and the Society of Economic Paleontologists and Mineralogists; the three organizations held simultaneous sessions in the Kiel Auditorium. The large convention hall and the corridors surrounding it were filled with exhibits, sponsored by both commercial and educational organizations.

The Society of Exploration Geophysists is concerned primarily with the exploration for petroleum and minerals by geophysical methods. Papers presented at the meeting were devoted both to basic research in the sciences on which these methods depend and to new developments and improvements in geophysical techniques. Although the interests of the membership have always been strongly concentrated on geophysics as a tool for petroleum exploration, increased attention has been devoted in recent years to mining geophysics. Therefore two sessions, involving a total of 16 papers, were given over to this subject.

Of all the current developments in geophysical prospecting techniques that were discussed at the meeting, the magnetic recording of seismic reflection signals seemed to excite the greatest interest. Four papers on the technical program were devoted to this subject; many of the exhibitors demonstrated their current models of field equipment for tape recording and playback. The conventional method for recording the seismic reflections resulting from shot-hole explosions involves photographic registration of light beams on moving paper; these beams are reflected from galvanometer mirrors, each trace on the final record corresponding to a separate geophone channel through which only a narrow band of frequencies has been admitted. Multi-channel magnetic tape has the advantage of recording a much wider band of frequencies, and any desired frequency band can be chosen for the final paper record, which is made later upon playback of the tape. Seismic signals on magnetic tape are much more suitable than those on paper records for automatic computing operations, which often are desirable for improving data quality.

Roland F. Beers of Beers and Heroy discussed the problems involved in standardization of magnetic tape recording and also outlined the various computing procedures that could be applied to seismic data after magnetic recording. Raymond A. Peterson of United Geophysical Company spoke on the practical aspects of magnetic recording based on the 2-yr field experience his company had gained with tape equipment. C. C. Lash of the Stanolind laboratories described a special magnetic tape playback system, devised by himself, T. H. Gilmartin, and J. D. Eisler, that compounds signals from adjacent geophone groups with a variety of predetermined time delays between the adjacent channels. The purpose of this device is to discriminate between seismic waves on the basis of the direction of arrival of the wave rather than on the basis of frequency, as is usually the case in conventional recording.

A novel method for measuring the earth's magnetic field using nuclear magnetic resonance was described by Martin Packard of Varian Associates. The technique requires measurement of the precession frequency of polarized protons in the earth's field. The measurement requires about 15 sec and is said to give the absolute value of the earth's field with an accuracy of 0.5 gamma. Although the accuracy of this method for differences in field from one place to another is not substantially greater than that of standard magnetic prospecting techniques, it makes possible a highly precise determination of the absolute value of the earth's field. No other method gives this information with such precision.

A geophysical survey conducted last year in the Gulf of Mexico shows that the southern half of the Gulf is a typical ocean basin, according to Maurice Ewing, J. L. Worzel, D. B. Ericson, and B. C. Heezen of Lamont Geological Observatory, Columbia University. Seismic refraction data obtained on the Lamont expedition indicates that the base of the earth's crust is only 16 km deep below this portion of the Gulf basin. In continental areas the crust is considerably thicker. Another paper from Lamont, by J. E. Oliver, Frank Press, and Maurice Ewing, described some experiments in which seismic wave propagation in the earth was advantageously studied with "two-dimensional" metal and plastic models 1/16 in. thick.

A new tool for logging density of formations penetrated by a bore hole was described by Daniel Silverman of the Stanolind laboratories, who presented a paper by G. R. Newton, J. E. Skinner, and himself. This device, consisting of a source of radioactivity and a radiation counter, makes use of the correspondence between density and gamma-ray absorption in rock materials. An accuracy of 0.05 g/cm^3 is claimed, although unevenness in bore-hole diameter lowers the reliability.

The mining geophysics symposium was devoted largely to case histories of actual surveys for minerals in various parts of the world. A most successful survey was conducted recently in the Bathurst area of northern New Brunswick. Here the electromagnetic and self-potential methods were responsible for the discovery of three large lead-zinc-copper ore bodies. Papers by H. O. Seigel and S. H. Ward described the investigations leading to these finds.

MILTON B. DOBRIN

Magnolia Petroleum Company, Dallas, Texas

Science News

A **supernova** has been discovered with the 18-in. Schmidt telescope at the Palomar Observatory by Paul Wild of the California Institute of Technology. This is the first supernova found by Palomar since Mar. 20, 1950, when Milton L. Humason observed one in the galaxy known as IC 4051 in the constellation of Coma Berenices. This new find of Wild's appeared in a faint spiral galaxy, known as NGC 5668, in the constellation of Virgo. Spectroscopic studies made by Dr. Humason with the 200-in. Hale telescope show that it is a Type I supernova, which is about six times as bright as a Type II and exhibits certain spectral differences. In an 18-in. Schmidt exposure made 3 yr ago, no stars were visible in NGC 5668. Because of its great distance, this galaxy appears only as a blurred area on the film.

From a systematic search for supernovae made in the 1930's, it was estimated that in an average galaxy a supernova may appear once every 500 yr. No supernovae have been found in our own galaxy, the Milky Way, since 1604, when one was observed by Johannes Kepler. "Kepler's nova," as it is called, was for some weeks as bright as the planet Jupiter and remained visible for about 2 yr. "Tycho's star," which appeared in 1572, was visible to "persons gifted with good sight" at daylight, even at noon, when the sky was clear, according to a report by its discoverer, Tycho Brahe. The first supernova known in our galaxy was observed in 1054 by Chinese who called it a chi-ch'ou, or "guest star."

Dirk Brouwer, director of the Yale University Observatory, and Jason J. Nassau, director of the Warner Swasey Observatory at the Case Institute of Technology, under travel grants from the National Science Foundation, participated in an international astronomical meeting in connection with the dedication, May 20–22, of the **Pulkovo Observatory** near Leningrad, U.S.S.R. For many years the two men have been active in the work of the International Astronomical Union.

During their 2-wk stay in Russia, Dr. Brouwer and Dr. Nassau were guests of A. N. Nesmeyanov, president of the Russian Academy of Sciences. The dedication was followed by 3 days of conferences on astrometry and the study of variable stars at which both scientists presented papers. The series of meetings, in which leading astronomers from a number of Western countries took part, is thought to be one of the most important and significant events to be sponsored by the Russians in recent years.

Sweden's first atomic reactor is nearing completion and will start operating this summer. The entire plant has been blasted down into granite to a depth of 120 ft, and its rock roof has a thickness of 40–50 ft. The safeguard against radiation contains 1500 tons of iron ore. Reflector walls containing 60 tons of graphite will surround the heavy-water tank. The reactor contains 3 tons of uranium and the aluminum tank holds 7 tons of heavy water, bought from Norway at a cost of $1,400,000. The plant is connected with the subterranean laboratory of the Academy of Engineering Sciences in Stockholm's Science City. Some 20 persons will be employed at the reactor proper. The semi-state-owned company AB Atomenergi has received grants of $6,400,000 for completing the installation.

On May 20 the New York Academy of Medicine, in collaboration with the Asia Institute Association, presented a program in honor of the 1000-yr anniversary of the birth of the great **Persian physician Avicenna.**

During May, Frank J. Mather, III, biologist at the Woods Hole Oceanographic Institution, initiated a **bluefin tuna tagging** project in an effort to learn more about migration routes. Working from the Lerner Marine Laboratory at Bimini in the Bahamas, Mr. Mather and cooperating fishermen hooked fish by the conventional method and then harpooned small stainless steel darts into them. Attached to the dart was a 10-in. plastic streamer marked with a number and the words, "Reward, W.H.O.I., Woods Hole, Mass., U.S."

Development of a new isotope material that may become an important factor in cancer research has been announced by Arthur F. Rupp, director of the Operations Division at Oak Ridge National Laboratory. For the first time large quantities of the radioisotope **cesium-137** have been separated and compressed into pellets, an achievement that is the result of 2½ yr of research.

The cesium-137, which is the most important long-lived gamma-ray emitting isotope found in spent reactor fuel, was chemically separated from fission products. The first two pellets will be used as a radiation source in a new teletherapy unit being prepared for cancer research in the Medical Division of the Oak Ridge Institute of Nuclear Studies. "Large quantities" of high purity cesium-137 means just two pellets, each about 1 in. in diameter and ½ in. thick, and weighing a little more than 1 oz. They contain 1540 curies of radioactivity, equivalent in radiation energy to more than 1 lb of radium, which at current rates would cost more than $1,000,000. Cesium-137 has great potentialities for applications where x-ray machines, radium, or radioactive cobalt-60 are now commonly used.

In a recent issue of the *Journal of the American Medical Association,* four Los Angeles physicians, Richard V. Freeman, Louis M. Berger, Sidney Cohen, and Wilbur A. Selle, report that more and more patients are being **saved from death** only to lead a helpless child existence the rest of their lives. The patients are those whose hearts stop beating and who are revived by the dramatic procedure of opening the chest and massaging the heart until it starts beating again. In such cases the brain has been deprived of oxygen for so long that it has been irreversibly and severely

damaged. In the Veterans Administration Neuropsychiatric Hospital in Los Angeles there are three such patients, ranging in age from 27 to 29 yr but with the mental capacities of, at most, a 7-yr-old.

The Atomic Energy Commission is now making available to the public on a limited basis the specialized **facilities of the Materials Testing Reactor** at the National Reactor Testing Station in Idaho. Charges for irradiation—based on all costs involved, including depreciation, overhead and operating expenses—are considered to be sufficiently low to bring the service within the means of qualified research organizations. Applications should be filed with the U.S. Atomic Energy Commission, Isotopes Division, Oak Ridge, Tenn. The Isotopes Division issues authorizations to persons or firms who are equipped to handle radioactivity in a safe manner. The contractor operating the MTR, namely, Phillips Petroleum Co., Idaho Falls, should be contacted directly for information concerning technical questions relating to irradiation services, scheduling, price lists, and arrangements for obtaining these services.

Scientists in the News

Isaac Costero, neuropathologist at the Cardiology Institute, Mexico City, is guest lecturer at the University of Texas Medical Branch during May and June. He is giving a series of seminars on the origin and function of fibroblasts, and is also conducting special experimentation in the Tissue Culture Laboratory.

Supported by a $15,000 grant from the Carnegie Foundation, **Leonard W. Doob,** professor of psychology at Yale University, is leaving this month to spend a year on the staff of the East African Institute of Social Research. He will participate in a project designed to gain an understanding of some of the problems of the people of Africa as they adjust to the extremely rapid social and economic changes occurring there.

James B. Fisk, director of research in physical sciences at Bell Telephone Laboratories, has been elected vice president in charge of research. He succeeds **Ralph Bown,** who continues as a vice president with a new assignment in charge of the long-range planning of laboratories programs.

Herbert Spencer Gasser, Nobel Prize winner and director of the Rockefeller Institute since 1935, has been awarded the Kober Medal for 1954 by the Kober Foundation at Georgetown University. The medal is given annually to a member of the Association of American Physicians who has contributed to the progress and achievement of the medical sciences or the medical profession.

At Montana State University the following faculty changes have been announced. On July 1, upon the retirement of **R. H. Jesse,** vice president of the University and chairman of the Chemistry Department, **A. S. Merrill,** at present dean of the faculty and professor of mathematics, will be elevated to the vice presidency, retaining his other titles as well. Effective Apr. 15, **Harold Chatland,** chairman of the Department of Mathematics, was appointed dean of the College of Arts and Sciences.

Alfredo Lanari, formerly head of the Experimental Laboratory of Pathology and Clinical Tuberculosis at the National Hospital of Clinics in Buenos Aires, and also associate professor of clinical medicine at the National University of Argentina, has been appointed chief of the Cardio-Pulmonary Laboratory of the National Jewish Hospital at Denver.

G. Stanley Meikle, research director of the Purdue Research Foundation, will become vice president of that foundation July 1. He will be succeeded as director of research by **Ralph A. Morgen,** who is at present program director for engineering at the National Science Foundation.

Tribute to his contributions to the fields of chemistry and education was paid to **Ralph E. Oesper,** retired University of Cincinnati professor, when he received the 5th annual Eminent Chemist Award of the American Chemical Society's Cincinnati section.

At an annual awards ceremony at the U.S. Department of Health, Education and Welfare, **Winfred Overholser, Irvin Kerlan,** and **Henry Welch** were honored.

Two faculty members at the University of Chicago School of Medicine have been honored by appointment to named professorships. **Walter Lincoln Palmer,** professor of medicine, has been made Richard T. Crane professor in medicine; and **William E. Adams,** professor of surgery, has been designated as the James Nelson and Anna Louise Raymond professor of surgery.

Wilhelm Reiss, who joined Bristol-Myers in 1953 as scientist-in-charge of analytical and physical chemistry, has been made director of research for Bristol-Myers Products Division.

The Society of Illinois Bacteriologists has named **James A. Reyniers** of the University of Notre Dame as the recipient of its Pasteur Award for 1954. Dr. Reyniers, who is founder and director of the University's Lobund Institute, was selected "for his pioneering work in germ-free research."

Sam H. Sanders, Jr., has been named head of the Department of Otology, Laryngology, and Rhinology at the University of Tennessee College of Medicine, succeeding **Charles Blassingame,** who asked to be relieved of his administrative duties. Dr. Blassingame will continue as professor in the department.

Two Gold Heart Awards, one for outstanding contributions to cardiovascular medicine and the other for

advancement of the heart program, have been presented by the American Heart Association to **Howard B. Sprague,** clinical associate in medicine at the Harvard University School of Medicine, and **S. DeWitt Clough,** managing director of the Chicago Heart Association.

The Distinguished Service Silver Medallion was awarded to **Robert L. King** of Seattle, retiring president who now becomes chairman of the Association's Scientific Council.

On July 1, **Eliot Stellar,** assistant professor of psychology at The Johns Hopkins University, will join the Institute of Neurological Sciences of the University of Pennsylvania as a member of the Institute and as associate professor of physiological psychology.

Charles E. Stearns, assistant professor of geology at Harvard University, will become dean of the Tufts College School of Liberal Arts, effective in September.

Otto Struve, professor of astronomy and chairman of the department at the University of California, Berkeley, has received the Rittenhouse Medal "for distinguished service in astronomy." The award was made at the Franklin Institute by the David Rittenhouse Astronomical Society.

The City College of New York has announced the appointment of **Laura Thompson** as professor in the Department of Sociology and Anthropology, effective in September. She is an authority in interdisciplinary social action research and applied anthropology, and has carried on field research in Fiji, Guam, Hawaii, and Iceland, and among the Hopi, Papago, Navaho, Sioux, and Zuni Indians. Dr. Thompson is known especially for her work as coordinator of the Indian Personality and Administration Research Project sponsored by the U.S. Office of Indian Affairs, the University of Chicago's Committee on Human Development, and the Society of Applied Anthropology.

She succeeds her husband, **John Collier,** who has reached the mandatory retirement age. Prof. Collier was U.S. Commissioner of Indian Affairs from 1933–1945; he joined the City College faculty in 1947. He plans to continue his vigorous opposition to the current U.S. policy of "assimilation" of the American Indian, which policy is a reversal of the "tribal" approach that he introduced 20 yr ago and that has been adopted by Canada, Mexico, Brazil, and other countries in the Western Hemisphere. Prof. Collier says that "So-called assimilation means the abrogation of all treaties with the Indian tribes and destruction of tribal self-government. It is unfair, ineffective and is vehemently opposed by the Indians themselves."

Edgar D. Tillyer, for many years director of research at American Optical Co., received the first of the medals bearing his name to be awarded by the Optical Society of America. The award was made in honor of his outstanding work in vision. Among Dr. Tillyer's contributions are methods for correcting oblique errors in ophthalmic lenses and the development of Tillyer lenses. He also developed the monocentric bifocal, the free-surface iseikonic, and the corrected deep-curve lenses. In addition Dr. Tillyer devised several rare-earth glasses with particular absorptive qualities, an additive trial lens series, and a number of diagnostic instruments.

Cornelius D. Van Houweling, for some years an official of the American Veterinary Medical Association, has become director, Livestock Regulatory Programs, of the U.S. Department of Agriculture.

At the National Chemical Exposition in October, **Ernest H. Volwiler,** president of Abbott Laboratories and chairman of the Board of Directors of the American Chemical Society, will receive the Chemical Industry Medal for 1954 "for conspicuous services to applied chemistry."

Harold A. Zahl, director of research at the Signal Corps Engineering Laboratories, Fort Monmouth, has received the Institute of Radio Engineers' Harry Diamond Memorial Award for 1954 "for his technical contributions, his long service, and his leadership in the U.S. Army Signal Corps research program."

Education

Baylor University has adopted a cooperative study plan with **Duke University** leading to a B.S. degree at Baylor and a Master of Forestry at Duke. Three years will be spent at Baylor and the final two years at Duke.

Duke University Marine Laboratory at Beaufort, N.C., has announced plans for a 6-wk radiation biology course to be given June 9–July 17. The work at Beaufort will be integrated with a more specialized 6-wk course in radiation biology to be given at the Mountain Lake Biological Station of the University of Virginia immediately following the Duke course.

A summer workshop on **"Integrative teaching in high school and college"** will take place July 19–23 at Wisconsin State College under the joint sponsorship of the College and The Foundation for integrated Education, Inc. Included on the list of speakers are: Henry Margenau, Higgins professor of physics and natural philosophy, Yale University; Vernon Bollman, professor of physics, Occidental College; James D. Hamilton, Department of Medical Research, University of Western Ontario; Ludwig von Bertalanffy, professor of biology, University of Ottawa; Ruth Lofgren, formerly assistant professor of bacteriology, University of Michigan, and now research associate, Foundation for Integrated Education; Morris I. Stein, Department of Psychology, University of Chicago.

Massachusetts Institute of Technology and Raytheon Manufacturing Co. have announced that the electronics firm is to become one of nine industrial organizations taking part in M.I.T.'s cooperative course in electrical engineering. Under this plan, engineering students of

the school are selected for practical experience in the laboratories and factories of the participating companies. Paralleling their academic pursuits with actual work in their chosen careers, these students upon graduation will be awarded B.S. and M.S. degrees simultaneously.

New York University has received a grant of $500,000 from the Murry and Leonie Guggenheim Foundation to establish the **Murry and Leonie Guggenheim Institute of Dental Research** as part of the University's College of Dentistry. The new unit will be housed in a 7-story building owned by the University at 339 E. 25 St.

Grants of $30,000 from the American Cancer Society and $15,000 from the National Cancer Institute of the U.S. Public Health Service have been made to the **National Committee for Careers in Medical Technology** for use in a program to recruit more young people into the profession of medical technology. The announcement of the awards was made by the newly formed Committee, which is sponsored by the American Society of Medical Technologists, the American Society of Clinical Pathologists, and the College of American Pathologists. Headquarters of the Committee are at 1785 Massachusetts Ave. NW, Washington, D.C.

Members of the NCCMT are: William O. Russell, chairman, representing the American Society of Clinical Pathologists; Ruth Hovde, incoming president of the American Society of Medical Technologists; and Joseph A. Cunningham, of the College of American Pathologists. Although nearly 20,000 medical technologists are registered with the Board of Registry, it is estimated that a total of 70,000 could be used in all phases of medical and scientific work in the United States.

A course in "**Newer developments in cardiovascular diseases**" will be given at the Mount Sinai Hospital, New York, Oct. 11–15, under the auspices of the American College of Physicians. Arthur M. Master and Charles K. Friedberg will direct the course. Prominent cardiologists and cardiac surgeons will participate.

A graduate course in **nuclear engineering,** designed for students who hold B.A. degrees in engineering and have completed differential equations, will be offered this fall in the evening division at Illinois Institute of Technology.

The Rutgers School of Education and the New Jersey Science Teachers Association are jointly sponsoring a 9-day **Science Institute,** beginning July 7, to familiarize the State's elementary and secondary school science teachers with the most up-to-date and effective teaching tools and methods in their fields.

A $210,000 grant from the Commonwealth Fund of New York will finance studies to explore possibilities of making far-reaching improvements in medical teaching at **Stanford School of Medicine** when it moves to the University's Palo Alto campus. Four Committees, totaling 69 members from the faculty, alumni, and trustees of the University, and from Bay Area communities, are already at work on preliminary studies. Another committee is considering plans for future use of the Medical School's buildings in San Francisco. Funds provided by the grant will pay for administrative expenses, and for travel of committeemen and consultants.

The U.S. Atomic Energy Commission has authorized construction of two heavy-particle accelerators—one at **Yale University,** the other at the **University of California Radiation Laboratory**—for research of interest to the AEC. Most particle accelerators constructed to date utilize relatively light particles, whereas the new ones will accelerate nuclei ranging from beryllium to neon.

The accelerator at UCRL will be used primarily in nuclear chemistry studies, such as the possible production and identification of new elements and of new isotopes of known elements. The machine at Yale will be used principally in studies of the physics of heavy-particle nuclear interactions. Both machines will be linear accelerators. They will impart energy of approximately 10 Mev to each nucleus, which is sufficient to allow the nuclei to interact with even the heaviest known elements. The AEC will contribute $1,200,000 for the construction of each accelerator.

The 12th annual session of the **Yale University Summer School of Alcohol Studies** will be held this year from July 5–29. It will be followed by an **Institute on Alcoholism** for registered professional nurses, July 29–31, which is being held for the first time.

Grants and Fellowships

The **Damon Runyon Memorial Fund** made cancer research grants to 8 institutions and 23 fellows during April.

Duke University. M. Hobbs. Properties of some smoke aerosols, $50,000.

Massachusetts General Hospital. R. M. and J. B. Graham, cancer immunity in patients, $13,600. E. B. Kell and P. C. Zamecrik, separation of microsome fractions and of soluble proteins involved in protein synthesis in normal rat livers and primary hepatomas, $2670. J. C. Aub and T. C. Hall, pilot project in three-dimensional tissue culture, $5132. R. W. Jeanloz and M. Soodak, chemistry and biochemistry of glycoproteins, $5190.

Massachusetts Institute of Technology. J. G. Trump. Physical and clinical studies with high-energy electrons, $20,000.

Worcester Foundation. G. Pincus. Steroid metabolism, especially in relation to cancer, $7400.

University of Florida. F. E. Ray. Study of gastric cancer: experimental carcinogenesis; metabolism of radioactive compounds, $10,000.

St. Peter's General Hospital, New Brunswick, N.J. S. E. Moolten. Viremias associated with Hodgkin's disease and lymphosarcoma.

Emory University. J. H. U. Brown. Metabolism of steroid hormones, $5400.

Sloan-Kettering Institute for Cancer Research, N.Y.C. C. P. Rhoads, E. Day, and W. F. Whitmore. Pathologic physiology of prostatic cancer, $13,390.

Fellowships

R. Daoust, Montreal Cancer Institute. Rate of synthesis

of desoxynucleotides in normal and neoplastic tissues, $5000.

G. de Lamirande, Montreal Cancer Institute. Intracellular distribution of purines and pyrimidines in rat liver cell during carcinogenesis, $5000.

E. Pillers, University of Cambridge. Mechanism of action of chemical radiosensitisers, $3000.

H. F. Fisher, Carlsburg Laboratories, Copenhagen. Intermediary metabolism of enzymes, $3600.

E. E. Deschner, Mt. Vernon Hospital, Middlesex, England. Effect of oxygen tension on the radiosensitivity of ascites tumor cells after *in vivo* and *in vitro* irradiation, $3600.

R. G. Desai, New England Center Hospital. White cell antibodies, $4200.

Z. D. Komninos, New England Center Hospital. Relationship of inmunohemolytic anemia to malignant leukosarcoma, $4800.

N. A. Haydar, Peter Bent Brigham Hospital. Adrenal steroid metabolism in malignant diseases, $4000.

J. Brown, New England Center Hospital. Hepatic inactivation and excretion of sex hormones, agents blocking this effect, and applications to treatment of cancer of sex glands, $4800.

V. S. Sankar, Massachusetts Institute of Technology. Studies on the biosynthesis of purines, $3000.

J. L. Berk, Peter Bent Brigham Hospital. Factors controlling growth in neoplastic and normal tissue, $4200.

R. Kimmelstiel, Harvard Medical School. Utilization of labeled carbon-14 amino acids by human placenta *in vitro*, $3600.

M. D. Richards, Stanford University. Hemorrhagic complications of leukemia, $5000.

E. G. Daskalakis, University of California School of Medicine. Biosynthesis of carcinogenic compounds, $4800.

F. Dituri, University of Pennsylvania School of Medicine. Studies on lipid synthesis by particle free extracts of liver, $4800.

J. M. Weiss, Washington University School of Medicine. The ergastoplasm, $4800.

E. Borysko, Johns Hopkins University School of Hygiene. Comparative electron microscopic study of normal and malignant cells, $4200.

W. A. Sherrer, Medical College of Georgia. Synthesis of some phosphorus fractions in the particulate matter of normal and hepatoma-bearing rats, $3950.

L. G. Ortega, Sloan-Kettering Institute. Study of the human cancer cell by newer methods of microscopy, $5400.

Min Chiu Li, Sloan-Kettering Institute. Effects of hypophysectomy and hypothalamic irradiation on the growth of mammary cancer, $5600.

S. Fink, Montefiore Hospital. Gastro-intestinal function studies in neoplastic and other wasting diseases, $3000.

G. M. Mateyko, N.Y. University. Histochemical and cytochemical studies on isolated normal and neoplastic cells subsequent to intracellular stratification, $4800.

Mei Lin, Rockefeller Institute for Medical Research. Chemistry and physiology of the nucleus, $3600.

The **Eugene Higgins Trust** for scientific education and research has made grants of $275,000 each to Columbia, Princeton, Harvard, and Yale. Grants to these universities are given annually under the will of Mr. Higgins, New York philanthropist who died in 1948. The value of the trust is now about $34,000,000. This year's allotments are $100,000 greater than those made in past years.

The second group of awards under the **Foreign Research Scientists Program** of the National Academy of Sciences—National Research Council has been made.

From Greece

G. Catravas. University of Chicago, with H. S. Anker. Organic chemistry.

D. Galanos. University of Illinois, with H. E. Carter. Food chemistry.

A. Granitsas. Columbia University, with E. T. Engle. Physiology.

T. Yannakopoulos. National Bureau of Standards, with A. Brenner. Physical chemistry.

C. Zerlentis. Oklahoma A. & M. College, with J. R. Harlan. Plant geography and ecology.

From the Netherlands

D. de Zeeuw. Purdue University, with A. C. Leopold. Horticulture.

J. P. Murre. University of Chicago, with A. Weil. Mathematics.

From Norway

A. Jensen. Yale University, with W. Bergmann. Organic chemistry.

H. Olsen. Cornell University, with H. A. Bethe. Physics.

The fellowship awards announced below are all under the administration of the **National Academy of Sciences—National Research Council.**

Postdoctoral Fellowships in the Natural Sciences, Rockefeller Foundation

R. C. Blanchfield, Princeton University. Knot theory in 3-manifolds, Massachusetts Institute of Technology.

C. W. Curtis, University of Wisconsin. Ideal theory in noncommutative rings and the theory of representations of algebraic systems, Institute for Advanced Study.

T. Delevoryas, University of Illinois. Morphology of plant fossils, University of Michigan.

F. S. Ham, Harvard University. Energy bands of alkali metals, and theoretical problems in the area of ionic crystals and semiconductors, University of Illinois.

J. B. Hendrickson, Harvard University. Elucidation of the structures of cucumin and leptodermin, University of London.

N. E. Phillips, University of Chicago. Heat capacities of some superconductors with low transition temperatures, University of California.

Postdoctoral Fellowships in the Medical Sciences, Rockefeller Foundation

J. Barrow. Relationship between the water content of bacteria and their capsules and the rate at which they are captured by phagocytic cells of the blood and reticulo-endothelial system, Washington University School of Medicine.

S. B. Gertner. Release of chemical transmitters during nerve stimulation, and mechanisms concerned in the failure of transmission during prolonged stimulation, National Institute for Medical Research, London.

J. H. Luft. Morphology and histochemistry of the electric organ of the eel in comparison with striated muscle, Harvard Medical School.

S. Postel. Detection, isolation, and physiology of thyroid stimulating hormone in body fluids, Massachusetts General Hospital.

J. G. Wegener. Some integrative functions of the cerebral cortex, Institute of Living, Hartford, Conn.

Lilly Research Laboratories Postdoctral Fellowships in the Natural Sciences

S. G. Bradley, Northwestern University. Genetic studies with the actinomycetes, University of Wisconsin.

T. C. Bruice, University of Southern California. Model peptidases, University of California.

D. T. Gish, Cornell University. Synthesis of beef vassopressin, Medical College of Cornell University.

Lilly Research Laboratories Postdoctoral Fellowships in the Medical Sciences

D. J. Buchanan. Enzymatic degradation of blood-group-specific substances, Lister Institute of Preventive Medicine, London.

G. M. Conzelman, Jr. Fractions of certain 8-aminoquinolines which have harmful effects on the blood, Christ Hospital Institute of Medical Research, Cincinnati, Ohio.

D. G. Cornwell. Plasma lipoproteins, Harvard University.

J. C. Shipp. Functions of the kidney tubule, Harvard Medical School.

Merck Senior Postdoctoral Fellowships in the Natural Sciences

E. W. Fager, Oxford University. Quantitative studies of the succession of animal communities in logs, Oxford University.

F. Moog, Washington University. Influence of adrenocortical hormones on juvenile development of the mouse, Molteno Institute, Cambridge, England.

C. M. Stevens, State College of Washington. Nucleic acid metabolism in neurospora, California Institute of Technology.

RCA Predoctoral Fellowships in Electronics

J. R. Johnson, University of Pennsylvania. Determination of optical constants of semiconductors by reflection.

J. N. Pike, University of Rochester. Photoconductivity of cadmium sulfide at low temperatures.

R. E. Steele, Stanford University. Biological effectiveness of high-energy electrons and x-rays produced by a 6-mev linear electron accelerator.

R. K. Whitford, Purdue University. Synthesis techniques for optimum filtering in sampled data systems containing nonlinearities.

Eleven grants totaling approximately $30,000 have been made by the **Research Corporation,** New York, to inaugurate a new West German grants program. The program, which supports fundamental research in physics, chemistry, and nutrition, will be financed from royalties collected in Germany on American patents for the manufacture of vitamin B_1. Royalties earned in the postwar period added to those to be collected during the remaining life of the patents are expected to be sufficient for a 5- to 10-yr program of the present scope. This is the first time, it is believed, that funds earned in a foreign nation have been used by an American foundation for continuing research support in the country of origin.

University of Göttingen. P. ten Bruggencate. Deviations from the thermic balance in the outer layer of the sun.

University of Heidelberg. F. Eichholtz. Behavior of the inorganic phosphates in the body, their reactions with energy-rich phosphates, and the influence on these reactions.

Max Planck Institute, Göttingen. M. Eigen. Velocity and mechanism of high-speed ionic reactions.

University of Hamburg. J. Kühnau. Physiology of the B_{12} vitamins and of animal protein factors.

University of Munich. F. Lynen. Biosynthesis of the fatty acids and isoprene derivatives.

Luise Hospital, Aachen. H. Schröder. Effects of modern antibiotics on vitamin metabolism.

University of Frankfurt. J. Stauff. Structure of proteins and nucleic acids.

Brunswick School of Technology. U. Stille. Luminous phenomena in active nitrogen.

University of Freiburg. K. Wallenfels. Production of pure enzymes and the mechanism of enzyme action.

University of Tübingen. F. Weygand. Peptid syntheses by way of trifluoracetyl-amino-acids.

University of Frankfurt. T. Wieland. Synthesis of peptides, related to tuber-leaf fungi poisons.

Research proposals directed to the Division of Biological and Medical Sciences of the National Science Foundation will be received at any time. Proposals on projects to begin the second half of the academic year 1954–55 should be received by the Foundation *before Sept. 15.*

Award of the **Russell M. Wilder Fellowship** to Willard Arthur Krehl, associate professor of nutrition at the Yale University School of Medicine, has been announced by the National Vitamin Foundation, Inc., the organization making the award. Dr. Krehl is the first recipient of the $15,000, 3-yr fellowship, which was established in 1953 to encourage outstanding persons holding doctoral degrees to further their studies in nutrition and related subjects. The fellowship will enable Dr. Krehl to work for the M.D. degree while continuing to participate in nutrition and metabolism studies.

A 48-percent increase in expenditures for fundamental research and fellowship programs for 1954–55 has been announced by the **Shell Fellowship Committee** on behalf of Shell Chemical Corp., Shell Development Co., Shell Oil Co., and Shell Pipe Line Corp. The increase will raise expenditures next year to $263,500 from the current year's $177,500.

Research awards are made to university departments to aid them in expanding research in their particular fields. A new feature of the grants for 1954–55 is that each $5000 grant designated for a specific science department will be supplemented by an unrestricted grant of $2500 to be used by the institution as it sees fit.

The number of fundamental research grants will increase from 14 to 19, and there will be 49 graduate fellowships, one more than last year. Fellows are selected by their respective institutions. Those receiving grants are California Institute of Technology, Carnegie, Cornell, University of Chicago, Harvard, Massachusetts Institute of Technology, Northwestern, Notre Dame, Princeton, Rice Institute, University of Rochester, St. Louis University, Stanford, and Yale. The grants are in the fields of chemistry, chemical engineering, geology, geophysical engineering, mechanical engineering, metallurgy-corrosion, physics, and engineering mechanics. Shell places no restrictions on the publication of research results or on the way the funds are spent.

The **Upjohn Company** has announced these research grants for 1954–55.

Columbia University. D. M. Shapiro, College of Physicians and Surgeons. Cancer research, $5000.

Purdue University. H. C. Brown, Dept. of Chemistry. Effects of structure on chemical reactivity, $5000.

Tuskegee Institute. L. F. Cason, Dept. of Chemistry. Synthesis of drugs, $3000.

University of Wisconsin Depts. of Biochemistry and Bacteriology. Factors affecting the production of penicillin and other antibiotics, $3600.

The **Yale University School of Medicine** has announced the following appointments of fellows and departments in which they will study.

James Hudson Brown research fellows

P. B. Hagen, Oxford University. Dept. of Pharmacology.

J. F. Patino, Grace-New Haven Community Hospital. Dept. of Pathology and Surgery.

M. P. Stack-Dunne, University of Cambridge. Dept. of Physiology.

R. L. Vande Wiele, University of Louvain. Dept. of Obstetrics and Gynecology.

Alexander Brown Coxe research fellows

R. B. Barlow, University of Glasgow. Dept. of Pharmacology.

B. K. Kusserow, Yale University. Dept. of Pathology.

Meetings and Elections

The **American Academy of Dental Medicine** has elected these officers: pres., Alvin H. Berman; pres.-elect, George F. Clarke; v. pres., S. Leonard Rosenthal; sec., William M. Greenhut; treas., George G. Stewart.

The 35th annual meeting of the **American Geophysical Union** was held May 3–5 in Washington, D.C. While 874 registered, there were probably more than

1000 in attendance. All eight sections of the Union held both business and scientific sessions. The program included papers, reports, a symposium, several panel discussions, and a session of documentary films on oceanography. The papers alone numbered over 120; many of them will be published in the *Transactions*.

A highlight was the evening session at which the William Bowie Medal was awarded to Richard Montgomery Field, president of the Union from 1938 to 1941. His ability to point out significant geophysical problems, and to persuade people to work on them, resulted in an important era for the American Geophysical Union in the late 30's and early 40's. On this same evening a lecture was given by William C. Krumbein of Northwestern University on "Applications of statistics in the earth sciences." Joseph Kaplan of the University of California, chairman of the U.S. National Committee for the International Geophysical Year, 1957–58, outlined briefly the plans and program for the Geophysical Year and asked for the active support of the Union. Throughout the meetings there was extensive discussion regarding the 10th General Assembly of the International Union of Geodesy and Geophysics and the International Geophysical Year.

At the General Assembly there was a symposium on geophysical models, and five papers were presented on various aspects of such work. This was followed by a brief business meeting at which eight resolutions were approved and the general secretary reported that the total membership of the Union is now 5040. The dates for the 39th annual meeting are May 2–4, 1955.

The 31st annual convention of the **American Institute of Chemists** was held May 12–14 in Asbury Park, N.J. This convention is always unique in that all papers and discussions are centered around the personal problems of the chemist rather than around the science of chemistry. The New Jersey Chapter was host to the meeting, with David W. Young of Westfield as chairman.

The conference was climaxed by presentation of the A.I.C. Gold Medal Award to William J. Sparks, director of the Chemical Division of the Standard Oil Development Co. and chairman of the Division of Chemistry and Chemical Technology of the National Research Council. He was cited "as an eminent chemist who has striven unceasingly for the promotion of chemistry and for . . . the professional advancement of the chemist."

In addition, Vera F. Kimball was honored for 25 yr of service with the national office of the Institute in New York and for 20 yr as editor of *The Chemist*. She was presented with a framed life membership and also with an engraved silver tray from the Council of the Institute.

Officers of the **American Society of Safety Engineers** are: pres., W. F. Brown, Consolidated Edison Co., New York; 1st v. pres., W. N. Cox, Jr., Georgia Institute of Technology, Atlanta; 2nd v. pres., E. B. Landry, U.S. Post Office Dept., Washington, D.C.; sec., J. B. Johnson, ASSE, 425 N. Michigan Ave., Chicago 11, Ill.; treas., G. F. Nuerenberger, A. B. Dick Co., Chicago.

Rudolf T. Kempton, professor of zoology at Vassar College, has been appointed secretary of the **American Society of Zoologists** to complete the term of S. Meryl Rose who has resigned.

Officers for 1954 of the **Biometric Society, Eastern North American Region,** are: v. pres., S. Lee Crump; sec.-treas., A. M. Dutton. The Regional Committee consists of D. B. Duncan, H. C. Batson, H. W. Norton, T. A. Bancroft, W. T. Federer, and A. B. Chapman.

The **General Assembly of the International Union of Theoretical and Applied Mechanics** will meet in Brussels, Belgium, on July 27–28. This meeting, open only to members of the General Assembly, will consider plans for future symposia and will discuss other means of promoting international effort in theoretical and applied mechanics, such as more national or regional meetings in addition to the periodic international congress. The 9th international congress will be held in Brussels in 1956. The second U.S. congress will be held at the University of Michigan, June 14–18.

The U.S. members of the General Assembly are Hugh L. Dryden (president of IUTAM), N. J. Hoff, J. C. Hunsaker, A. T. Ippen, Th. von Kàrmàn, M. H. Martin, R. D. Mindlin, N. M. Newmark, and S. Timoshenko.

On July 29–31, following the General Assembly meeting, some 27 selected leaders in photoelasticity and photoplasticity from ten countries will meet in a colloquium arranged by IUTAM with the aid of a grant from UNESCO to the International Council of Scientific Unions. The organizing committee consisted of H. Le Boiteux, France, chairman; H. Favre, Switzerland; and M. Hetenyi, United States.

Small colloquia of invited specialists have proved an efficient means of obtaining timely reviews. Publication of the proceedings carries the results to all workers in the field. The U.S. participants in the **Colloquium on Photoelasticity and Photoplasticity** include D. C. Drucker, A. J. Durelli, M. M. Frocht, M. Hetenyi, R. D. Mindlin, W. M. Murray, and E. Orowan.

Officers for 1954 of the **Indiana Academy of Science** are: pres., O. B. Christy, Muncie; v. pres., Raymond Girton, Purdue University; sec., W. A. Daily, Eli Lilly & Co.; treas., F. J. Welcher, Indiana University. The representative to the AAAS Council is Sears Crowell of Indiana University.

At the Symposium on Molecular Structure and Spectroscopy that took place in Columbus last June, a committee was appointed to consider matters of common interest to **infrared spectroscopists.** This committee has met in Columbus and Pittsburgh, and has continued discussions by mail. It is believed that the results of some of the discussions will interest those attending the symposium this year, and therefore a

meeting is scheduled for the evening of June 17, at Ohio State University. Interested persons are urged to be present.

One of the topics to be considered is the need for an infrared society. A mimeographed report prepared by the committee may be obtained from Dr. Van Zandt Williams, Perkin-Elmer Corp., Norwalk, Conn.

The chemistry of television screen manufacture, the role of chemical adsorption in photography, and studies of the detailed structure of reclaimed rubber will be three of the topics reported in scientific sessions of the **28th National Colloid Symposium,** to be sponsored by the American Chemical Society's Division of Colloid Chemistry on June 24 at the Rensselaer Polytechnic Institute. The effect of atom-smashing treatment on blood plasma extenders, chemical agents that thicken lubricating oil, and studies of the physical nature of asbestos fibers will also be discussed in the 30 technical papers to be presented. W. O. Milligan of Rice Institute, an authority on chemical catalysts and the theory of colloids, will be general chairman.

The 63rd annual meeting of the **Ohio Academy of Science** was held at Ohio University, Apr. 15–17. There were sectional programs and displays of exhibits for the Annual Science Day of the Junior Academy. The presidential address was delivered by R. A. Hefner of Miami University on "Selective factors in human survival."

Officers for 1954–55 are: pres., Rush Elliott, Ohio University; sec., R. W. Dexter, Kent State University; treas., R. M. Geist, Capital University. The next annual meeting will be held at Ohio Wesleyan University, Apr. 21–23, 1955.

Officers of the **Southern Psychiatric Association** are: pres., John D. Trawick; pres.-elect, Joseph E. Barrett; sec.-treas., Joseph L. Knapp. Vice presidents are Titus Harris and Frank Donaldson.

Miscellaneous

The **179th Anniversary of the Corps of Engineers, U.S. Army,** will be celebrated at a formal dinner to be held at Fort Belvoir, Va., June 19. A cordial invitation is extended to all present and former Corps officers.

A **bibliography on the relations of literature and science,** "M L A General Topics VII: Relations of Literature and Science. Report of the Bibliography Committee, 1953," will be available after June 15 from Kester Svendsen, Dept. of English, University of Oklahoma, Norman.

Notice is hereby given that on Nov. 11 the **International Commission on Zoological Nomenclature** will start to vote on the following cases involving the possible use of its plenary powers for the purposes specified against each entry (full particulars of these cases were published on May 11 in the *Bulletin of Zoological Nomenclature,* parts 6, 7, and 8, vol. 9): (1) *immigrans* Sturtevant, 1921 (*Drosophila*) (Cl. Insecta, Order Diptera), validation of; (2) *pruni* Geoffroy, 1762 (*Aphis*) (Cl. Insecta, Order Hemiptera), validation of; (3) *Lachnus* Burmeister, 1835, and *Cinara* Westwood, 1835 (Cl. Insecta, Order Hemiptera), designation of type species for; (4) *Stentor* Oken, 1815 (Cl. Ciliophora), validation of, and designation of type species for; (5) *Melanargia* Meigen, 1828 (Cl. Insecta, Order Lepidoptera), validation of; (6) Geoffroy, 1762, *Hist. abrégée,* validation of six generic names (*Stratiomys, Stomoxys, Volucella, Nemotelus, Scatopse, Bibio*) in the Order Diptera, published in; (7) *Palmatotriton* Smith, 1945 (Cl. Amphibia), suppression of; (8) *Ammonites mammillatus* Schlotheim, 1813, designation of neotype for; and *Douvilleiceras* de Grossouvre, 1893, designation of type species for (Cl. Cephalopoda, Order Ammonoidea).

Comments on these cases should be sent promptly to Francis Hemming, Secretary to the Commission, 28 Park Village East, Regents Park, London, N.W.1.

The **National Society for Crippled Children and Adults,** Chicago, has announced that 20 percent of the skilled professional positions in the 874 facilities of the Easter Seal Society are vacant. There are some 200 vacancies among the 800 positions for program directors, physical therapists, occupational therapists, speech therapists, special education teachers, medical social workers, and psychologists. Still other jobs are available in the administrative force. It is estimated that, within the next 5 yr, 7200 occupational therapists must be added to the present 3600 in that field; that 5000 physical therapists must be added to the present 5000; and that 8000 medical social workers must augment the present force of 6000.

The Army Chemical Center, Md., has **openings for chemists,** GS-9 through GS-15, with salaries ranging from $5060 to $10,800 per year. Application information may be obtained from any U.S. Post Office.

Announcement has been made that the monthly journal, ***Proceedings of the National Academy of Sciences,*** is to be published by the University of Chicago Press. Official organ of the National Research Council as well as the NAS, the *Proceedings* is edited by a board of 17 members of the Academy. Linus Pauling is chairman of the board, and Edwin B. Wilson is managing editor.

The **Western Society of Periodontology** has a new quarterly publication, the third issue of which is now in preparation. The object of the publication is to abstract all periodontal literature written in the English language. Certain French, German, and Spanish articles will also be abstracted as they become available. The journal is self-supporting, and the editorial staff and secretarial work is done gratis in the hope of promoting better periodontal understanding. The editor is Max Shapiro, 202 S. Hamilton Dr., Beverly Hills, Calif.