Program 10
Friday afternoon, December 30
2:00 p.m.–6:00 p.m.
Same as Program 5.

Program 11
Saturday morning, December 31
9:00 a.m.–1:00 p.m.
Selections from Programs 1–5.

NEWS and Notes

Reports on Antiseptics Conference, New England Geologists' Meeting, and Optical Society Meeting

A Conference on Mechanism and Evaluation of Antiseptics was held October 28–29 under the sponsorship of the Section of Biology of The New York Academy of Sciences. A registered attendance of 518 was reported by Herbert L. Davis, of the Ethicon Suture Laboratories, conference chairman.

The purposes of the conference were: (a) to summarize and evaluate existing information on the mode and extent of antimicrobial agents *in vitro* and *in vivo*, and (b) to reveal those avenues of investigation likely to produce more active compounds and more effective application of them. Perhaps the most significant outcome of the conference was the general acceptance of the view that the action of antimicrobial agents is governed significantly, if not primarily, by the principles of colloid chemistry, whether these agents be rapidly lethel disinfectants, skin antiseptics, or chemotherapeutic drugs. Living organisms are colloid structures, and antimicrobial substances of both biological and synthetic origin must first be adsorbed on or in the organism. Although some of the mechanisms of antimicrobial action, such as protein coagulation and poisoning of essential enzyme systems, are well recognized, others are only suggested by present evidence. Of particular interest is the observation made in several separate studies that adsorbed substances alter the permeability of the cell wall, causing release of bacterial protein, other nitrogenous materials, and electrolytes. Thus, the cell is no longer in equilibrium with its environment. It became increasingly clear during the sessions that empirical testing of compounds should yield to a systemic and rational study of the mechanisms by which existing antimicrobial substances act.

The 25 papers presented at the conference dealt with a wide variety of compounds, including antibiotics, cationic, anionic, and nonionic agents of high surface activity, halogens, heavy metals, and ethyl alcohol. Several authors emphasized the frequent lack of correlation between results with antiseptics *in vitro* and *in vivo*. Because results *in vitro* are frequently false due to inadequate test conditions, considerable discussion concerned the need and continued search for better antiseptic neutralizers with which to distinguish between bacteriostatic and bactericidal effects. It was generally agreed that once activity *in vitro* is established the crucial tests are those which simulate actual clinical use. Here toxicity to tissue is of primary importance, but there is still disagreement as to the proper type of tissue to use. One new procedure which directly measures the prevention of sepsis *in vivo* was presented at the conference and well received.

Microbial populations are heterogeneous in that the constituent cells possess varying degrees of resistance. This is not a new concept, but one too frequently ignored in the field of disinfection. One paper at the conference explored the nature of this variation and the factors influencing it; another proposed that the commonly applied all-or-none end point be replaced by a less severe criterion of antiseptic usability, the count of surviving organisms.

This report would be incomplete without mention of the fact that the value of ethyl alcohol as an antiseptic and disinfectant was reaffirmed and that the addition of antiseptics to 70 percent ethanol failed in some instances to increase activity. Another point of interest was the reported antiviral activity of several types of antiseptics.

There emerged from the conference a clear recognition that a whole panel of tests are necessary to establish the value of an antiseptic, and that the greatest emphasis should be placed upon those procedures *in vivo* which measure prevention of sepsis. It was equally apparent, however, that many fundamental problems remain almost untouched. It is not known, for example, whether the same or different mechanisms are involved when bacteria are rapidly killed by a strong concentration but merely inhibited by a weaker one. Nor was any new information presented as to how bacterial spores are destroyed.

EARLE H. SPAULDING

New England Field Geologists. More than 165 geologists, representing 20 colleges, attended the 42nd annual field meeting of the New England Intercollegiate Field Geologists, meeting October 14–16, 1949. Robert L. Nichols and Charles Stearns, Department of Geology, Tufts College, were hosts and were assisted by Marland P. Billings, Harvard University, L. W. Currier, U. S. Geological Survey, and Robert Shrock, Massachusetts Institute of Technology.

Prof. Shrock led a group on Friday afternoon to study the critical exposures of the well-known Squantum tillite complex which is, in places, underlain by similar rock in which thin bedding, interpreted as varves, is developed. Other microstructures in tillites and associated stratified rocks were studied.

The lithology and stratigraphy of the area surrounding the Chemsford granite were discussed at selected points by a group led on Saturday by L. W. Currier. Problems of granitization and the relative degrees of "invasive metamorphism" were noted. The stratigraphic sequence of rocks in the area was noted, and it was illustrated on the trip that 1) pebbles of the Merrimack quartzite (oldest in series) occur in the overlying Harvard conglomerate; 2) that the Harvard conglomerate, at the base of the Worcester phyllite, should be considered a local member of the phyllite; 3) that this phyllite grades upward into the Brimfield schist; and, that the schist grades upward into a paragneiss. Correlation of the Merrimack with the Oakdale quartzite farther southwest and with the Kittery quartzite to the northeast was suggested. Characteristic outcrops of the several formations and the border zone of granitized quartzite were studied.

Profs. Nichols and Stearns led a large group on Saturday to study bedrock geology, glacial geology, and shoreline geomorphology in the area of the north shore from Winthrop and Ipswich. Recently built tombolos near Winthrop, drumlins northeast of Boston, and deposition of flying bars were observed. Peat deposits, older than the present beach deposits, were studied near Revere Beach. Blue Clay deposits, with Greenland fossils, resting beneath beach sands and gravel in some areas, indicated a previously higher stand of the sea. On Nahant, the group examined Cambrian metamorphosed sediments, including diabase sills, folded into synclinal structures and invaded by gabbro.

Another large group, led by Prof. Billings, studied the stratigraphy of the Boston Basin in the vicinity of Nantasket on Sunday. Interbedded basic tuffs and basic flows constituting the north limb of a syncline were examined and conglomerate outcrops on the south limb of the anticline were visited. It was possible to observe that the conglomerates fingered out northward into volcanic rocks. In places, the Roxbury conglomerate rests uncomformably on the Dedham granodiorite and encloses large (6-ft diameter) blocks of the Dedham. The leader pointed out evidence to sustain the thesis that the Roxbury was deposited on a surface of perhaps 500-ft relief in the Nantasket area and 2500 ft in the Hingham area. The evolution of Nantasket Beach was discussed by Nichols, who pointed out wave-cut cliffs now one-quarter mile landward from present sea level.

At the regular business session of the group, held in Barnum Museum, Tufts College, the 1950 field trip was assigned to Joseph Trefethen, head of the Maine University Department of Geology at Orono.

LLOYD W. FISHER

OSA at Buffalo. Optical microscopes and microscopy received major attention at the 34th annual meeting of the Optical Society of America, which was held at the Hotel Statler, Buffalo, New York, on October 27, 28, and 29. Five excellent invited papers were followed by a group of contributed papers on aspects of microscopy, and gave the listeners a very well-rounded picture of the distinguished history, current practice, and new frontiers of this important branch of applied optics.

Leon V. Foster, of the Bausch and Lomb Optical Company, surveyed the steady development of the optical microscope as he has observed it and participated in it during the past 30 years. Harold Osterberg, of the Scientific Instrument Division of the American Optical Company, discussed in a scholarly fashion the somewhat academic subject of microscope imagery and its interpretations, progressing beyond the classical work of Airy and Abbe on the diffraction field resulting from a test object with periodic structure, and suggesting a new criterion for computing the resolving power of a lens. Peter Gray, of the Biology Department of the University of Pittsburgh, spoke on the optical microscope as seen by a user. In a good-humored blast at microscope manufacturers, he pointed out various items which he felt were worthy of improvement in the several standard types of commercial microscopes. It is this reporter's opinion that many of his criticisms were unduly severe and that solutions to his problems are already available, although the rhetorical technique of exaggeration for emphasis is not to be discouraged! John R. Loofbourow, of the Massachusetts Institute of Technology, spoke on the relatively new field of microspectroscopy in which, by a combination of techniques of microscopy and spectroscopy that are almost standard, analyses can be carried out on one-hundredth to one-thousandth the amount of material ordinarily needed—an absorption spectrogram can be obtained from a sample weighing as little as one-millionth of a gram. Among the techniques presently available in this new field are the use of fluorescence spectra, of emission spectra, and of absorption spectra in the ultraviolet, visible, and infrared regions. Receptors other than the photographic plate can be used—for instance, photomultiplier tubes in the ultraviolet and bolometers in the infrared. Single crystals of organic materials can be studied, as can very small sections of tissues, or solutions, by employing special specimen holders or cells. Prof. Loofbourow is interested in the extension of these techniques to the very low temperatures of liquid nitro-

gen or even of liquid hydrogen or helium. L. Marton, of the National Bureau of Standards, gave a careful comparison and contrast of the capabilities of optical and electron microscopes. Although electron microscopes sometimes achieve the resolution of details as small as 10 angstroms in dimension, they do suffer from several operational disadvantages of a practical nature.

The subject of phase contrast microscopy was dealt with in contributed papers by L. I. Epstein, of Bausch and Lomb, and by F. Zernike, C. P. Saylor, and A. T. Bryce, who suggested employing the great sensitivity of the human eye in hue discrimination in connection with the phase principle in what they called color phase contrast. This is reminiscent of the employment of the eye's color sensitivity in a color translation process for ultraviolet microscopy, which E. H. Land first announced in *Science* early this year (*Science*, April 15, pp. 371–4). Elkan R. Blout, of the Polaroid Corporation, described work under way in the field of infrared microscopy, wherein the apochromatic reflecting microscope objectives designed by David Grey of Polaroid and manufactured by Bausch and Lomb are combined in an ingenious fashion with a standard Perkin-Elmer infrared spectrometer to give infrared spectra of very small samples, such as single hormone crystals or single fibers far too small to be examined with standard infrared instruments.

The field of optics is so broad and has so many different aspects of a theoretical and applied nature, that in a three-day meeting a very large number of subjects are touched upon. Of interest to many were the papers on spectrochemical analysis and those on optical instrumentation techniques, such as new or improved light sources for interferometry, for ultraviolet microscopy, and for infrared spectroscopy; narrow-band interference filters with 80 percent peak transmission; infrared polarizers, which are efficient out to beyond a wavelength of two microns; the use of artificial sapphire in optical elements of complex lens systems; and new fluorescent and phosphorescent phenomena and their application. A. C. S. van Heel, of the Technical University of Delft, Holland, described in an invited paper the methods he developed during and after the war for using extremely simple equipment in making measurements of very high precision. The accurate establishment of angles to less than one-tenth second of arc, the measurement of optical flatness to one-hundredth of a wavelength of light, the alignment of ships' shafts in two dimensions, and the calibration of the vibration magnitude of a church tower when bells are ringing are all subject to handling by these very simple and direct means. In the invited paper which preceded the contributed program on infrared theory and applications, Donald F. Hornig, of Brown University, gave an elegant description of the use of infrared absorption spectra in the study of modes of molecular vibration and of the structure of the solid state. This relatively new technique is proving a powerful supplement to x-ray diffraction in unraveling the secrets of the solid state.

The biologist and the biophysicist found much to interest them at these meetings. George Wald, of the Biological Laboratories of Harvard University, presented a masterly paper which compared and contrasted the eye and the camera. He referred to the three mechanisms for minimizing the chromatic aberration of the eye—namely, the photopic sensitivity shift toward the red from the blue end of the spectrum, where the chromatic error is most troublesome; the strong absorption by the lens of the eye in the near ultraviolet; and the distribution of the yellow carotenoid pigment xanthophyll around the fovea. Dr. Wald recounted the experiments of Kuehne with animal and human eyes in obtaining "optograms," that is, in using the eye as a camera in fact, making on the retina of the eye a picture in terms of bleached and unbleached rhodopsin (visual purple) of an object recently viewed, and he dismissed again that attractive detective story solution wherein the murderer is identified by peering into the eyes of the dead victim. He closed this very interesting lecture by showing a print taken from a gelatin film in which the light-sensitive substance was not silver bromide but rhodopsin extracted from cattle retinas. The subjects of color measurement, color vision deficiency, and other phases of vision and physiological optics were explored in a number of contributed papers. S. Q. Duntley and N. A. Finkelstein, of the Massachusetts Institute of Technology, with Edward A. Edwards, of the Harvard and Tufts Medical Schools, reported on ultraviolet spectral reflectance measurements made on living human skin, and studies of the distribution over the body of ultraviolet-absorbing materials, such as hemoglobin, carotene, and melanin.

George R. Harrison was presented with the Frederic Ives Medal of the Optical Society at the annual dinner, and in his responding speech he sketched the various important stages in his 30 years of spectroscopic research, which started at Stanford University with measurements of the intensity of spectral lines and is now progressing at the Massachusetts Institute of Technology in the modification of one of Michelson's ruling engines for the ruling of a new type of grating called the echelle, which is halfway between a conventional diffraction grating and a reflection echelon. It is Dean Harrison's hope that, by employing careful interferometric control in the ruling of a thousand or so lines spaced a fraction of a millimeter apart, he will be able to achieve the spectroscopist's dream of a resolving power of one million. As a climax to his paper, he showed his audience the first spectrograms taken with an echelle grating.

This meeting marked the end of the two-year term of Rudolf Kingslake, of the Eastman Kodak Company, as the society's president, and his replacement by William F. Meggers, of the National Bureau of Standards.

Your correspondent, who attends both larger and smaller meetings than the one reported upon here, cannot refrain from commenting on the pleasantness and efficiency of a scientific meeting of about this size—a registration of perhaps 500, a total of 50 or 60 papers in three days of sessions, but never more than two sessions proceeding simultaneously and the entire group convening for each invited paper. Let us hope that the Optical Society does not emulate some of its sister societies by becoming so overwhelmingly successful and popular that the size of its meeting is greatly multiplied!

STANLEY S. BALLARD

About People

Carl Barnett Allendoerfer, professor of mathematics at Haverford College, Haverford, Pennsylvania, has been appointed visiting professor of mathematics at Massachusetts Institute of Technology for six months beginning in February, 1950. Dr. Allendoerfer, who has conducted research in the field of differential geometry and the connections between differential geometry and topology, was recently on leave at the Institute for Advanced Study at Princeton.

Vernon L. Mattson, former chief engineer of the Consolidated Feldspar Corporation, Trenton, New Jersey, has been appointed director of the Colorado School of Mines Research Foundation. The foundation, organized early this year, will conduct research in industrial mineralogy.

Benjamin M. Siegel has been appointed head of Cornell University's new Electron Microscopy Laboratory. Before going to Cornell, Dr. Siegel was in charge of the design and construction of a new type of electron microscope at the Research Laboratory of Electronics at Massachusetts Institute of Technology.

X. J. Musacchia, veteran of several arctic biological expeditions, has been appointed to the faculty of the Department of Biology at Saint Louis University. Dr. Musacchia will take part in research experiments in the university's Arctic Research Program.

Philip S. Jastram, formerly instructor in the Physics Department at the University of Michigan, has been appointed assistant professor of physics at Washington University, St. Louis.

William F. Bale, professor of radiation biology at the University of Rochester, has received a leave of absence to act as radiobiologist in the Division of Biology and Medicine of the U. S. Atomic Energy Commission. Dr. Bale will be responsible for the biological and health aspects of the AEC's waste disposal program.

Harry Huger Houston, former vice president of the Brooks Manufacturing Company, Knoxville, Tennessee, has joined the staff of Armour Research Foundation of Illinois Institute of Technology. Dr. Houston will conduct research in the Department of Ceramics and Minerals.

Frederick D. Rossini, chief of the Thermochemistry and Hydrocarbons Section of the National Bureau of Standards, has been appointed professor and head of the Chemistry Department at Carnegie Institute of Technology. The appointment will become effective July 1, 1950.

Visitors

Under sponsorship of the Microbiological Institute, **Sir Philip Manson-Bahr,** of London, will conduct a seminar on "Problems of Filariasis," to be held in Wilson Hall, Administration Building of the National Institutes of Health, Bethesda, Maryland, at 3 p.m. Thursday, December 1. Sir Philip, author of *The dysenteric disorders, The life and work of Sir Patrick Manson,* and the 7th to 12th editions of *Manson's tropical diseases,* is in the U. S. on his way to Fiji, where he will join his son in studies of filariasis.

Pablo Kleinman was a recent visitor at the U. S. Geological Survey in Washington. He has been assigned by the Chilean government to study water resource developments in this country. Another caller at the Geological Survey was **R. J. Bocaranda,** of Venezuela, who is interested in ground-water investigations.

Grants and Awards

The National Cancer Institute has awarded Public Health Service grants of $907,212 to aid clinical and laboratory research in nonfederal hospitals and universities in 21 states and the District of Columbia. Fifty-nine awards were renewals. A list of the new grants follows: Stanford University, *E. L. Tatum and A. C. Griffin,* $4,104, nitrogen-mustard carcinogenesis; University of California at Berkeley, *H. M. Evans,* $20,000, relation of the growth hormone to neoplasms; University of Southern California, *D. C. Pease,* $4,536, the electron microscopy of ultrathin tissue sections; Chicago Medical School, *Israel Davidsohn,* $13,198, natural and immune antibodies in inbred mouse strains with low and high tumor incidence; University of Illinois College of Medicine, *A. C. Ivy and Rhoda Grant,* $3,870, a study of the chemical and mechanical factors which may alter the normal growth pattern of the gastric mucosa; University of Southern Illinois, *C. C. Lindegren,* $5,000, genetics of yeast; Indiana University, *E. E. Campaigne,* $1,998, chemotherapy and carcinogens of the carbazole series; Harvard University, *F. J. Stare and R. Olsen,* $6,423, metabolism of tumor tissues; Detroit Institute of Cancer Research, *A. R. T. Denues,* $8,370, fine structure of chromosomes of normal and malignant cells; University of Michigan, *H. M. Pollard,* $5,000, nutritional and blood changes resulting from gastrectomy for gastric carcinoma, and further study of gastric cancer cells, and *A. B. Lerner,* $8,748, investigation of the biochemistry, development, and diagnosis of melanomas; St. Louis University, School of Medicine, *E. A. Doisy,* $4,000, metabolism of radioactive cortisone; University of Missouri, *M. N. Green,* $5,184, the effect of furan derivatives on the metabolism of bacteria and on the growth of transplanted tumors in mice; Albany Medical College, *A. W. Wright and J. M. Wolfe,* $7,344, further study of the etiology of spontaneous mammary tumors in the Albany strain of rats, with particular reference to the possible presence of a milk agent; Brooklyn College, *Irving Kaye,* $6,350, synthesis of N-(2-pyridyl)-substituted-α, β-diphenyl-ethylamines; Columbia University School of Dentistry, *B. M. Levy,* $3,000, a study to determine whether tumors can be experimentally produced in the mouth and lips of animals; Hickrill Chemical Research Foundation, Inc., New York City, *W. von E. Doering,* $10,000, synthesis of colchicine molecule for possible inhibitory cell activity; Memorial Hospital, New York City, *R. W. Rawson and H. J. Tagnon,* $8,910,

studies on the inactivation of estrogens and other steroids by liver tissue from cancer patients; Montefiore Hospital, New York City, *E. J. Baumann*, $5,616, selective filtration of the thyroid; University of Rochester, *H. L. Segal*, $4,000, the use of exchange indicator compounds for detecting achlorhydria without intubation; Ohio State University, *H. A. Hoster*, $1,660, studies on Hodgkin's disease and related conditions; University of Cincinnati, College of Medicine, *R. W. Vilter*, $7,895, the culture of human bone marrow in a synthetic medium; The Institute for Cancer Research, Inc., Philadelphia, *G. L. Miller*, $1,296, study of cancer tissue proteins; Wm. H. Singer Memorial Research Laboratory, Pittsburgh, *R. C. Grauer*, $6,350, the influence of various fractions of estrogens on biologic response; University of Pennsylvania, *Charles Breedis*, $5,346, blood supply and drainage of neoplasms in the liver and lung, and *D. W. Wilson and J. M. Buchanan*, $10,800, nucleic acid metabolism; Medical Branch, University of Texas, *G. Sinclair*, $3,240, study of the effects of small amounts of urethane on mice; Medical College of Virginia, *G. Z. Williams*, $7,800, study of purines and pyrimidines in nucleoprotein fractions of precancerous rat livers, and *N. F. Young*, $7,344, influence of certain proteins on the ability of the liver to destroy a carcinogenic agent, *p*-dimethylaminoazobenzene; University of Washington, *R. J. Blandau*, $4,968, study of experimentally produced endometrial polyps in guinea pigs; University of Wisconsin, *Charles Heidelberger*, $4,644, a study of metabolism of carcinogenic hydrocarbons labeled with radioactive carbon; Georgetown University Medical School, *C. F. Geschickter, M. M. Copeland, and Martin Rubin*, $5,000, therapeutic procedures for the retention and redistribution of radioactive phosphorus in patients with malignant disease; and George Washington University School of Medicine, *C. E. Leese*, $6,120, physiological effects of bacterial polysaccharides.

The William H. Nichols Medal of the New York section of the American Chemical Society has been awarded for 1950 to Oskar Wintersteiner, head of the Organic Chemistry Division at the Squibb Institute for Medical Research, New Brunswick, New Jersey. The medal was awarded to Dr. Wintersteiner "in recognition of fundamental contributions to the fields of insulin chemistry, steroid hormones, antibiotics, and alkaloids, and the first isolation in crystalline form of penicillin-G and streptomycin."

The Roscoe B. Jackson Memorial Laboratory for cancer research at Bar Harbor, Maine, received a $15,000 gift recently from the cancer fund of the national women's auxiliary of the Veterans of Foreign Wars. The funds will be used by the laboratory in the rebuilding of its library rooms, which were destroyed in a forest fire in 1947.

The Priz René Leriche of the International Society of Surgery has been awarded to Alfred Blalock, chief surgeon of The Johns Hopkins Hospital. He was honored for his contributions to vascular surgery.

The Sir Henry Wellcome Medal and Prize of the Association of Military Surgeons of the United States was awarded to Elliott Hurwitt for his essay, "A Blood Vessel Bank under Military Conditions," at the association's annual dinner on November 11.

Four grants totaling $15,000 have been awarded the **University of Illinois College of Medicine.** A $10,000 grant from the Pauline E. Reutinger Memorial Fund will be used by the Department of Pathology for studies in arteriosclerosis by Maurice Lev. The Department of Medicine received two Abbott Laboratories grants, one for $2,500 for a study of dietary therapy in liver disease, and a second of $500 for studies in anesthesia. Smith, Kline and French has made a $2,000 grant for the study of the effect of amines in experimental renal and other experimental hypertensions, to be undertaken by E. A. Ohler in the Department of Physiology.

The Damon Runyon Memorial Fund has presented checks totaling $101,000 to eight institutions for the support of cancer research: New York University-Bellevue Medical Center, University of Rochester School of Medicine, University of Notre Dame, Tulane University School of Medicine, University of Pennsylvania, Rutgers University-Presbyterian Hospital (in New Brunswick and Newark, New Jersey), Harlem Hospital, and the Jewish Hospital in Brooklyn. The memorial fund has allocated nearly $3,000,000 since it was set up in 1947.

Fellowship

A predoctoral research fellowship for the fundamental study of the chemistry of glycerides has been established at the University of Pittsburgh by Armour and Company, Chicago. The fellowship, extending over a period of three years, will be under the supervision of B. F. Daubert, research administrator, Department of Chemistry.

Meetings and Elections

The third annual American Medical Association clinical meeting will be held at the National Guard Armory in Washington, D. C. December 6–9. The meeting will be devoted to the problems of the general practitioner.

The 1949 annual meeting of the **American Physical Society** will be held, for the most part, in the buildings of Columbia University, in New York City, February 2–4, 1950. Titles and abstracts of all contributed papers must reach the APS by *December 9*. Further details can be obtained from Karl K. Darrow, Secretary, American Physical Society, Columbia University, New York 27, N. Y.

A national meeting on histochemistry will be held at the Department of Anatomy, University of Pennsylvania, Philadelphia, on March 25, 1950. Workers in the fields of anatomy, pathology, biochemistry, endocrinology, bacteriology, and other related sciences are

invited to attend. Further information can be secured from R. D. Lillie at the Laboratory of Pathology and Pharmacology, National Institutes of Health, Bethesda 14, Maryland.

The Indiana Academy of Science, at its annual fall meeting, elected the following officers for 1950: president, S. S. Visher, Indiana University; vice president, O. B. Christy, Ball State Teacher's College; secretary, W. A. Daily, Eli Lilly and Company; and treasurer, W. P. Morgan, Indiana Central College.

Officers for 1949–50 elected at the annual general meeting of **the Indian Association for the Cultivation of Science** were M. N. Saha, president; C. C. Biswas, first vice president; J. C. Ghose, second vice president; and P. Ray, honorary director.

Deaths

Frank B. Jewett, 70, president of the Bell Telephone Laboratories from 1925 until his retirement in 1940, died November 18, following an emergency operation. Dr. Jewett was responsible for developing the Bell Laboratories into one of the great research institutions of the world. In 1933 he was elected president of the National Academy of Sciences, the first scientist from the industrial field of research to win this distinction. Dr. Jewett was the recipient of many honors and was to have received the Hoover Medal at the January meeting of the American Institute of Electrical Engineers.

Francis E. Randall was killed in the November 1 airplane crash at Washington at the age of 35. Dr. Randall was in charge of research in physical anthropology at the Quartermaster Climatic Research Laboratory, Lawrence, Massachusetts.

Paul G. Heineman, 88, bacteriologist, died November 4 after an extended illness. Dr. Heineman retired as chief bacteriologist of Sterling Drug Company, Cook Laboratories, in 1939. Prior to his service with this company, he had been director of biological laboratories at the U. S. Standard Serum Company.

George Francis Eaton, 77, former curator of osteology and associate curator of vertebrate paleontology at Peabody Museum, Yale University, died at the home of his son in Mystic, Connecticut, on November 6. Dr. Eaton was a member of the Yale Peruvian Expedition to Machu Picchu in 1912.

William J. Humphreys, meteorological physicist at the U. S. Weather Bureau for thirty years, died in Washington on November 10. Dr. Humphreys, who was 87, was professor emeritus at George Washington University at the time of his death.

The U. S. Civil Service Commission has announced an examination for geologists to fill positions paying $3,100 and $3,825 a year in federal agencies, primarily in the Geological Survey and the Bureau of Reclamation, Department of the Interior, in the Bureau of Plant Industry and Soil Conservation Service, Department of Agriculture, and in Corps of Engineers, Department of the Army. Full information is given in announcement No. 199, available at any first- or second-class post office. Applications must be received by December 6, 1949, in the commission's Washington office.

Japanese scientists will soon be receiving isotopes under the foreign distribution program of the Atomic Energy Commission. Surveillance will be maintained by headquarters of the Supreme Commander for the Allied Powers, to assure the isotopes' safe and effective use for work in medicine and biology and research in the physical sciences. Japan is the first occupied country to be admitted to the program. The total number of foreign nations now participating is 30.

Recently Received—

The Role of Very Fine Mineral Matter in the Hot Water Separation Process as Applied to Athabaska Bituminous Sand. K. A. Clark and D. S. Pasternack. Report No. 53, Research Council of Alberta, University of Alberta, Edmonton, Canada. 15¢.

A Short Biography of Japanese Scientists, 1948. Vol. V-2, Metallurgy. Scientific Education Bureau, Ministry of Education, Tokyo, Japan.

Vampyroteuthis Infernalis Chun: an archaic dibranchiate cephalopod; II External Anatomy. Grace Pickford. Dana Report No. 32, 1949. Carlsberg Foundation, Oxford University Press, London. 1£.

Problems of Vole Populations in the Middle East. F. S. Bodenheimer. Research Council of Israel. Azriel Printing Works, Jerusalem. 250 mils.

Research in Review, 6th Report of the Sugar Research Foundation, Inc., 52 Wall Street, New York City.

Inventory of Published and Unpublished Sediment-Load Data in the U. S. Bull. 1. Soil Conservation Service, U. S. Department of Agriculture, Washington 25, D. C. On request.

Yeast of Tomorrow. Anheuser-Busch, Inc., St. Louis, Missouri. On request.

Catalogue of Birds of the Americas. Charles E. Hellmayr and Boardman Conover. Part I, No. 4, Zoological Series, Vol. XIII, Field Museum of Natural History. $4.00.

An Introduction to the Dynamics of Compressible Fluids, PB 97906. Library of Congress, Photoduplication Service, Publication Board Project, Washington 25, D. C. Photostat, $20.00; microfilm, $6.00.

Testing of Hydrometers. Elmer L. Peffer and Mary G. Blair. Circ. C477, Superintendent of Documents, U. S. GPO, Washington 25, D. C. 10¢.

U. S. Atomic Energy Commission Contracting and Purchasing Offices and Types of Commodities Purchased. U. S. GPO, Washington 25, D. C. 10¢.

Report of the Joint Committee on Atomic Energy. Pursuant to Public Law 585, 79th Congress. U. S. GPO, Washington 25, D. C. On request.