PRESIDENT ROOSEVELT'S LETTER ON THE OFFICE OF SCIENTIFIC RESEARCH AND DEVELOPMENT

THE President has written the following letter to Dr. Vannevar Bush, Office of Scientific Research and Development:

Dear Dr. Bush:

The Office of Scientific Research and Development, of which you are the Director, represents a unique experiment of team-work and cooperation in coordinating scientific research and in applying existing scientific knowledge to the solution of the technical problems paramount in war. Its work has been conducted in the utmost secrecy and carried on without public recognition of any kind; but its tangible results can be found in the communiques coming in from the battle-fronts all over the world. Some day the full story of its achievements can be told.

There is, however, no reason why the lessons to be found in this experiment can not be profitably employed in times of peace. The information, the techniques, and the research experience developed by the Office of Scientific Research and Development and by the thousands of scientists in the universities and in private industry, should be used in the days of peace ahead for the improvement of the national health, the creation of new enterprises bringing new jobs, and the betterment of the national standard of living.

It is with that objective in mind that I would like to have your recommendations on the following four major points:

First: What can be done, consistent with military security, and with the prior approval of the military authorities, to make known to the world as soon as possible the contributions which have been made during our war effort to scientific knowledge?

The diffusion of such knowledge should help us stimulate new enterprises, provide jobs for our returning servicemen and other workers, and make possible great strides for the improvement of the national well-being.

Second: With particular reference to the war of science against disease, what can be done now to organize a program for continuing in the future the work which has been done in medicine and related sciences?

The fact that the annual deaths in this country from one or two diseases alone are far in excess of the total number of lives lost by us in battle during this war should make us conscious of the duty we owe future generations.

Third: What can the Government do now and in the future to aid research activities by public and private organizations? The proper roles of public and of private research, and their interrelation, should be carefully considered.

Fourth: Can an effective program be proposed for discovering and developing scientific talent in American youth so that the continuing future of scientific research in this country may be assured on a level comparable to what has been done during the war?

New frontiers of the mind are before us, and if they are pioneered with the same vision, boldness, and drive with which we have waged this war we can create a fuller and more fruitful employment and a fuller and more fruitful life.

I hope that, after such consultation as you may deem advisable with your associates and others, you can let me have your considered judgment on these matters as soon as convenient—reporting on each when you are ready, rather than waiting for completion of your studies in all.

Very sincerely yours,

FRANKLIN D. ROOSEVELT

SCIENTIFIC NOTES AND NEWS

THE James Watt International Medal for 1945 has been awarded to Dr. F. W. Lanchester, F.R.S., consulting engineer, for his work on the development of the motor-car and the aeroplane. The medal is awarded by the council of the British Institution of Mechanical Engineers, with the collaboration of engineering institutions in some eighteen countries. He is the fourth recipient of the medal; the others were Henry Ford, Orville Wright and M. Michel.

THE Clough Memorial Medal of the Geological Society of Edinburgh for the year 1943–44 has been awarded to Dr. Murray Macgregor in recognition of his contributions to the geology of Scotland and in particular to the geology of the Scottish coalfields.

THE American Academy of Pediatrics presented at the St. Louis Wartime Conference on Child Health on November 3 the first annual Borden Award to Major Harry H. Gordon, M.C., assistant professor on leave, and Dr. Sam Z. Levine, professor of pediatrics at the Cornell University Medical College, in recognition of their work on "Metabolic Studies on Nutritional Requirements of Premature and Full Term Infants." The award consists of a bronze medal with the inscription "award for outstanding achievement in research in nutrition of infants and children" and a prize of $1,000.

A BANQUET was held on December 4 in honor of James Fisher, for forty-five years head of the depart-

ments of mathematics and physics of the Michigan College of Mining and Technology, who has been connected with the college since 1895. Tributes were paid by President Grover C. Dillman and members of the faculty and alumni. A number of congratulatory letters were read from alumni organizations, individual alumni, former colleagues and officers of national organizations. Dr. Fisher retains his connection with the college as head of the Extension Division.

SIR FREDERICK HANDLEY PAGE, the British aircraft constructor, has been elected an honorary fellow of the Institute of Aeronautical Sciences of America.

DR. WILLIAM WORTHINGTON HERRICK, professor of clinical medicine at the College of Physicians and Surgeons of Columbia University, has been elected president of the New York Academy of Medicine for a term of two years.

DR. H. SHIPLEY FRY, professor and head of the department of chemistry of the College of Liberal Arts of the University of Cincinnati, on account of ill health will resign on February 1 after nearly a half-century of university work. He will receive the honorary title of professor emeritus.

DR. WILLIAM OTIS HOTCHKISS, who recently resigned as president of the Rensselaer Polytechnic Institute at Troy, N. Y., will be succeeded by Livingston W. Houston, chairman of the Board of the Ludlow Valve Manufacturing Company.

JULIAN L. CULBERTSON, professor of chemistry at Washington State College, has been appointed visiting professor at Columbia University.

DR. J. P. QUIGLEY, formerly professor of gastro-intestinal physiology at the School of Medicine of Western Reserve University, has been appointed professor of pharmacology and chief of the division in the University of Tennessee at Memphis.

DR. ROBERT R. SEALOCK, assistant professor of physiological chemistry at the University of Rochester, has been appointed associate professor of chemistry at Iowa State College.

DR. FRANK GOLDBY, Elder professor of anatomy in the University of Adelaide, has been appointed professor of anatomy at St. Mary's Hospital Medical School, London.

THE retirement is announced of Professor H. Stanley Allen, professor of natural philosophy at the University of St. Andrews. He is succeeded by Dr. J. T. Randall, lecturer in the Cavendish Laboratory of the University of Cambridge.

DR. ROGER ADAMS, professor of organic chemistry and head of the department of chemistry of the University of Illinois, has been elected chairman of the board of directors of the American Chemical Society to succeed the late Thomas Midgley. Professor Adams is now on leave from the university for work with the National Defense Research Committee in Washington.

DR. WALTER LEWIS TREADWAY, medical director of the U. S. Public Health Service, has retired from active duty for disability incurred in service. Since July, 1941, he had been stationed in Los Angeles as medical officer in charge of public health service activities.

PHILIP LEVINE, research chemist at Mount Sinai Hospital under the Office of Scientific Research and Development, and at the Squibb Institute of Medical Research, has joined the research staff of the Apex Chemical Company at Elizabeth, N. J.

DR. KURT G. STERN, of the department of physiological chemistry at the Yale University School of Medicine, was awarded recently a grant available for use at any institution amounting to $19,000 for fundamental research on proteins and high polymers from the Carrie S. Scheuer Foundation of New York. He has selected the Polytechnic Institute of Brooklyn, N. Y., where he will work in cooperation with the research group of Dr. Herman F. Mark, professor of organic chemistry at the institute, where a new laboratory will be installed.

ELI LILLY AND COMPANY, Indianapolis, have made a gift of $15,000 to the University of Cincinnati for research in nutrition under the direction of Dr. Tom D. Spies, associate professor of medicine at the College of Medicine and director of the nutrition clinic at Hillman Hospital at Birmingham, Ala., where the work will be carried on.

AN anonymous gift of $5,000 has been made for the research on high blood pressure being carried out by Dr. Harry Goldblatt, professor of experimental pathology and associate director of the Institute of Pathology of Western Reserve University. This work has been supported chiefly by funds from the Commodore Louis P. Beaumont Foundation.

DR. CLARENCE T. VAN METER, assistant professor of chemistry and physics at the School of Pharmacy of the University of Pittsburgh, has become scientific director of the physiological laboratories of Reed and Carnrick, Jersey City, N. J.

DR. R. R. SPENCER, chief of the National Cancer Institute, Bethesda, Md., delivered on November 21 the annual Barnard Hospital Lecture of the St. Louis Medical Society. His subject was "Federal Cooperation in the Cancer Problem."

DR. MARK G. FOSTER, physicist at the Naval Ordnance Laboratory of Washington, D. C., on the evening of November 30 gave a lecture at Miami Univer-

sity under the auspices of Sigma Xi and Sigma Pi Sigma. The lecture was entitled "The Qualifications of a Research Physicist."

DR. HOMER L. DODGE, president of Norwich University, Northfield, Vt., on November 24 addressed the Sigma Xi Club of the University of Vermont on "The Impending Post-War Shortage of Scientists and Engineers."

THE Harben Lectures of the Royal Institute of Public Health and Hygiene were delivered on December 11, 12 and 13 by Sir Alexander Fleming, F.R.S. He spoke on "Penicillin—Its Discovery, Development and Uses in Medicine and Surgery."

A COMMEMORATION of the hundredth anniversary of the discovery of anesthesia was held in San Francisco on December 10 and 11. On Sunday there was a tree planting and the dedication of a memorial tablet in Golden Gate Park, and on Monday there were exercises at the College of Physicians and Surgeons. The speakers included Dr. Chauncey D. Leake, dean of the Medical School of the University of Texas, formerly professor of pharmacology at the University of California, and Dr. William B. Neff, associate clinical professor of surgery at the School of Medicine of Stanford University.

IT is reported in the *Journal* of the American Medical Association that the ninety-fifth annual session of the association will be held in Philadelphia from June 18 to 22. This session was originally scheduled to be held in New York from June 11 to 15, but because of untoward conditions growing out of the war emergency it was found that needed facilities would not be available in that city. Hotel reservations will be made through a central office in Philadelphia.

THE Sociedad Mexicana de Historia Natural (Mexico City) at its regular meeting, held on November 17, elected the following officers for the year 1945: *President,* Ing. Julio Riquelme Inda; *Vice-president,* Dr. Arthur C. Baker; *Treasurer,* Professor Gilberto Najera A.; *Assistant Treasurer,* Professor Raul Chavez Lopez; *Recording Secretary,* Professor Dionisio Pelaez. Professor Enrique Beltrán remains as permanent secretary of the society.

PLANS for the 1945 George Westinghouse Scholarship contest, open to senior high school boys in the United States, have been announced by the Westinghouse Electric and Manufacturing Company, sponsor of the awards. Ten scholarships, valued at $1,850 each, will be awarded for education in engineering at the Carnegie Institute in Pittsburgh. Applications for the scholarships will be accepted only until February 1, 1945. Students who competed in the 1944 competition are not eligible. The tests will be administered in all parts of the country by the College Entrance Examination Board on April 7. The ten awards will be made early in May. Successful contestants will begin work at the Carnegie Institute of Technology in June.

A GIFT of $100,000 in recognition of the need for better facilities for training in the profession of pharmacy has been made by the F. W. Fitch Company for the erection at Drake University of a modern, well-equipped Pharmacy Building, to be constructed as soon as possible after material and labor are available and building regulations permit.

THE late Oscar M. Stewart, from 1901 to 1944 professor of physics at the University of Missouri, bequeathed to the university the sum of $1,000, to be used, principal and interest, for some educational or scientific purpose connected with the department of physics. This fund may be used for undergraduate or graduate scholarships or fellowships for students majoring or minoring in the department of physics. In addition to this gift, Professor Stewart set up a trust fund of considerably larger amount to serve the same purposes as the $1,000 gift. Applications for assistance from these funds for the session 1945–46 should be made at an early date to the chairman of the department of physics.

THE William Volker Charities Fund, Inc., of Kansas City, Mo., has made a gift of $425,000 to underwrite a five-year research on citizenship education which is to be conducted in the public schools of Detroit. The object is to study ways of increasing "the interest, competence and participation of boys and girls in the activities of the good citizen."

THE School of Medicine of St. Louis University is planning a post-war building program which includes two science buildings to be erected at a cost of $250,000 each, one for the departments of physics and geophysics and the other for the departments of chemistry and biology.

THE United States Airlines has made a gift of $600 to the College of Education of Wayne University for ten scholarships of $50 each for a study relating to aviation.

Engineering and Industrial Chemistry reports that it is planned to establish a Vitamin Foundation to be incorporated as a non-profit organization to initiate and develop research, to aid in financial support of groups investigating vitamins and nutrition, to serve as an authoritative body in negotiations with scientific and medical groups and government agencies, to acquire and use patents and trade marks, and to recommend proper standards and terminology.

THE University of New Mexico and the Laboratory of Anthropology (Santa Fe) announce their joint

publication of a new *Southwestern Journal of Anthropology*, to appear early in 1945. Supplementing existing periodicals, this quarterly will provide additional space for articles in general anthropology. Contributions are invited by the editor, Dr. Leslie Spier, of the University of New Mexico.

A FIVE-VOLUME collection of photo-micrographs of more than a hundred meteorites, made by Stuart H. Perry, of Adrian, Mich., has been presented by him to the University of Michigan, where he conducted his work, to the Chicago Natural History Museum and to the U. S. National Museum. Three sets only have been made.

DISCUSSION

AMPHIPATHIC CHARACTER OF GELATIN SHOWN IN ITS ADSORPTION TO POLAR SURFACES

SOME experiments on the retention of gelatin by silver bromide made in these laboratories were described in 1932.[1] They were made with silver bromide grains centrifugally separated from a diluted silver bromide emulsion, and indicated that continued washing (at pH 6.5) brought down the retained gelatin to a limit after which no more was removed. The specific area of the grains was determined[2] and the thickness of gelatin estimated from experiments on film spreading.[3] From these measurements there was indicated a layer of the order of two molecules thick, *ca.* 16 Å. Further experiments, washing at higher temperature (boiling in water), reduced the value to one half. It was concluded that "a monomolecular layer was actually present, and that the rest of the gelatin was occluded in the grain, or . . . that a secondary layer is attached to the primary layer by weaker forces."

Recent experiments, using techniques developed in connection with the study of dye adsorption,[4] have enabled us to confirm the latter hypothesis, and to show that gelatin is primarily and irreversibly adsorbed, by polar groups, to silver halide as a monolayer, exposing nonpolar groups to the solution. As more gelatin is added to this, a second layer is built up, in which the nonpolar groups of the second layer adhere to—or cohere with—the nonpolar groups of the primary (priming) layer, while the polar hydrophile groups solvate and repeptize the first precipitate. This second layer—which is relatively reversible (Langmuir type of adsorption isotherm)—it is which confers on protein-covered silica—and other—particles the characteristic electric potential and charge of "adsorbed" protein, which is identical, therefore, with that of dissolved protein.[5] Whether molecularly stratified systems of still higher order can be built up[6] is still uncertain, though a reconsideration of some experimental work of A. H. Nietz,[7] of these laboratories, suggests that it may not be impossible. Concerning this and other aspects of the general problem of protein lamellae, fuller publication by the writer and colleagues is in preparation.

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EFFECT OF VITAMIN B_6 (PYRIDOXINE) IN THE TREATMENT OF LEUCOPENIA AND GRANULOCYTOPENIA OF TOXIC ORIGIN IN HUMANS. PRELIMINARY REPORT

AGRANULOCYTIC angina is a disease characterized by an acute febrile illness, necrotic and ulcerative lesions in the mouth and pharynx and an extreme reduction of the granulocytes in the blood. Granulocytopenia is pathognomonic of the disorder, although leucopenia is usually present as well. The disease is uncommon in the idiopathic form but occurs more often secondary to the administration of certain drugs such as amidopyrine, some barbiturates and dinitrophenol. Since the introduction of sulfonamides in the treatment of bacterial diseases, this complication has been noted more frequently. Within the past year, a similar hematologic catastrophe was described by Astwood[1] following the use of thiouracil for the treatment of hyperthyroidism. His findings have been amply confirmed. This hazard seriously interferes with and restricts the use of a large group of valuable therapeutic agents.

The accepted therapy relies on the use of blood transfusions and on pentose nucleotides. The result obtained by these means is often disappointing.

[1] S. E. Sheppard, R. H. Lambert and R. L. Keenan, *Jour. Phys. Chem.*, 36: 174–184, 1932.

[2] By photomicrographic scanning, *cf.* A. P. H. Trivelli and R. P. Loveland, *Jour. Franklin Inst.*, 204: 193, 377, 1927.

[3] S. E. Sheppard and R. L. Keenan, *Nature*, 121: 982, 1928; S. E. Sheppard, A. H. Nietz and R. L. Keenan, "Supermolecular State of Polymerized Substances in Relation to Thin Films and Interfaces," *Ind. Eng. Chem.*, 21: 126, 1929.

[4] S. E. Sheppard, R. H. Lambert and R. D. Walker, *Jour. Chem. Phys.*, 7: 265, 1939.

[5] H. A. Abramson, "Symposia on Quantitative Biology" (Cold Spring Harbor, N. Y.), I, 39 (1933).

[6] K. Blodgett and I. Langmuir, *Phys. Rev.*, 51: 964, 1937.

[7] A. H. Nietz: "Molecular Orientation at Surfaces of Solids, Pt. III. Monomolecular Films Measured by a Contact Angle Method," *cf. Ind. Eng. Chem.* (*News Edit.*), 6, No. 16, Aug. 20, 1928. Part III was presented at the 76th meeting of the American Chemical Society, September 10–14, 1928, but not published.

[1] E. B. Astwood, *Jour. Am. Med. Asn.*, 122: 78, 1943.