SCIENTIFIC NOTES AND NEWS

DR. GEORGE B. PEGRAM, professor of physics and dean of the Graduate School of Columbia University, will become acting president of the university when the resignation of Dr. Nicholas Murray Butler becomes effective on October 1.

SIR ALEXANDER FLEMING, the discoverer of penicillin, has been elected an honorary member of the Philadelphia College of Pharmacy and Science.

THE Illuminating Engineering Society has awarded its gold medal to Preston S. Millar, president of the Electrical Testing Laboratories, Inc., for his contributions to illuminating engineering.

DR. J. C. GEIGER has been nominated by the Executive Council of the Egyptian Public Health Association as honorary vice-president of the association.

MISS MABEL COLCORD, for over thirty-five years librarian of the United States Bureau of Entomology and Plant Quarantine, and who later served as chief of the entomological work of the Library of the Department of Agriculture, has been elected a member of Phi Beta Kappa. This action was taken in recognition of her high attainments in liberal scholarship and with particular reference to the compilation of the "Index to the Literature of American Economic Entomology" from 1915 through 1939. Miss Colcord retired from active duty on June 30, 1942.

A RECEPTION was held on August 21 at Columbia University under the auspices of the American-Soviet Science Society in honor of those who had attended the recent scientific congress in Moscow. These included Dr. Irving Langmuir, Dr. Harlow Shapley, Dr. Detlev W. Bronk, Dr. Jacob Heiman, cancer research specialist, Dr. Arthur Upham Pope, of the Iranian Institute, and Dr. Arpad L. Nadai, of the Westinghouse Laboratory. Dr. Leslie C. Dunn, of Columbia University, chairman of the American-Soviet Science Society, presided. Three hundred attended the reception.

THE honorary degree of doctor of science has been conferred by the University of Oxford on Professor H. M. Turnbull, professor of morbid anatomy in the University of London and director of the Pathological Institute of the London Hospital.

DR. ROBERT A. MILLIKAN retired on August 20 as administrative head of the California Institute of Technology, where since 1921 he has been chairman of the Executive Council of the institute. He will become a member of the board of trustees and its vice-president, and will assist the president of the board, James R. Page, in public relations and institutional development. He plans to continue his research work. Dr. Max Mason, formerly president of the University of Chicago, has retired from the Executive Council. He will continue as chairman of the Observatory Council and expects to resume work on the 200-inch telescope for the Palomar Observatory.

DR. ARTHUR C. COPE, professor of chemistry at the Massachusetts Institute of Technology, has been appointed head of the department. He succeeds Frederick G. Keyes, who has asked to be relieved of administrative work in order to devote his time to research in physical chemistry.

DR. JAMES G. POTTER, for a number of years head of the department of physics of the South Dakota School of Mines and Technology, and more recently physicist for the Bell Telephone Laboratories, has been appointed head of the department of physics of the Agricultural and Mechanical College of Texas at College Station. He will take up this work on September 1.

DR. HORACE W. DAVENPORT, associate in physiology of the Harvard Medical School, has been appointed professor and head of the department of physiology of the University of Utah.

DR. H. FREDERIC BOHNENBLUST, associate professor at Princeton University, has been appointed professor of mathematics at Indiana University.

DR. GORDON L. WALLS, of the scientific bureau of the Bausch and Lomb Optical Company, Rochester, N. Y., has been appointed for one year a research associate in the department of psychology of the University of Rochester. Dr. Walls plans to continue his work with the optical company.

PROFESSOR A. C. HARDY, regius professor of natural history in the University of Aberdeen, has been appointed Linacre professor of zoology and comparative anatomy in the University of Oxford.

JAMES A. REYNIERS, on leave for active duty in the United States Naval Reserve, has returned to the University of Notre Dame as research professor of bacteriology and director of the laboratories of bacteriology.

DR. IRENE MANTON, lecturer in botany in the University of Manchester, has been appointed professor of botany in the University of Leeds, in succession to the late Professor J. H. Priestley.

AT the University of London, Dr. D. H. Hey, since 1941 director of research at the British Schering Research Institute, has been appointed to the university chair of chemistry tenable at King's College; Professor C. Daryll Forde, to the university chair of

anthropology, and D. W. Harding, special lecturer in psychology in the University of Manchester, to the chair of psychology tenable at Bedford College. The title of reader in bacteriology has been conferred on J. C. Cruickshank, in respect of the post now held by him at the London School of Hygiene and Tropical Medicine.

LIEUTENANT COMMANDER GORDON A. ATWATER, head of the Navigation Department of the Naval Training School Advanced at Fort Schuyler, has been appointed chairman and curator of the department of astronomy and the Hayden Planetarium of the American Museum of Natural History. Commander Atwater has been released from active duty with the U. S. Navy as of September 1, when he will take over the direction of the Planetarium, its public performances and its program of instruction in celestial navigation for the armed forces.

DR. H. A. K. WHITNEY, chief pharmacist of the University Hospitals of the University of Michigan, has accepted an appointment as director of pharmaceutical development with the Ortho Research Foundation, Linden, N. J.

F. S. RUSSELL has been appointed by the Council of the British Marine Biological Association to be director of the laboratory of the association at Plymouth, England, in succession to the late Dr. Stanley Kemp. Mr. Russell has been a member of the staff since 1921.

LIEUTENANT COLONEL JOHN H. BELKNAP, chairman of the Division of Engineering of the University of Rochester, has been assigned to duty with the U. S. Group Control Council in Germany as deputy chief of the Electrical and Communications Branch. He will be in charge of generation, transmission and utilization of electrical energy and the associated communications within the American zone of occupation. While in Germany, Colonel Belknap also will make a study of industrial manpower and the utilization of research and engineering skill within the Allied and enemy countries.

DR. CHARLES M. CARPENTER, associate professor of bacteriology and public health at the Medical School of the University of Rochester, has been sent to the Philippine Islands on a special medical mission by the U. S. Office of Scientific Research and Development. In cooperation with the U. S. Army Medical Corps, he will make an investigation on venereal diseases, on which he is a special consultant for the U. S. Public Health Service.

THE thirtieth annual meeting of the Optical Society of America will be held at the Hotel Pennsylvania, New York City, on October 18, 19 and 20. Because of existing travel conditions, it has seemed inadvisable to apply to the War Committee on Conventions for permission to hold the usual type of meeting. Instead, since there is no objection to the holding of a local meeting which draws its attendance from the metropolitan commuting zone, the forthcoming meeting will be of this character. The travel restrictions do not apply to officers of the society whose presence is required for the purpose of conducting society business, nor to the speakers at the several sessions.

WESTERN RESERVE UNIVERSITY has received appropriations from the Beaumont Foundation of $200,000 and $20,000. Half of the larger gift will be applied toward the cost of a new building to be constructed by the School of Applied Social Sciences, at an ultimate outlay by the university of approximately $500,000. The remainder will be devoted to research work in the department of pathology. The gift of $20,000 will be applied to help to finance a project to be undertaken jointly by Western Reserve University and the Cleveland Hearing and Speech Center, for completing the remodeling of the new headquarters of the center and for research and the training of teachers in speech and hearing.

THE first graduating class of the four-year School of Medicine of the University of Utah has contributed $2,850 to establish and incorporate the Utah Medical Foundation. "The object and purpose of this corporation shall be: To promote the cooperation of alumni and friends of the School of Medicine of the University of Utah in improving the undergraduate, graduate and research functions of that institution; to establish scholarships, lectureships, professorships, research and student loan funds in that institution. . . ." The foundation has established the Dr. W. R. Tyndale Lectureship in Medicine. Dr. George W. Thorn, Hersey professor of the theory and practice of physic of the Harvard Medical School, was the first lecturer. He discussed "The Role of Endocrine Glands in Adaptation" and "Fatigue of Thyroid and Adrenal Origin."

The Experiment Station Record reports that a committee appointed by the New York State Conference Board of Farm Organizations is endeavoring to raise $100,000 for a Memorial Fund to establish fellowships of $200 each in the College of Agriculture of Cornell University in memory of the late Dean Carl E. Ladd.

THE Department of Scientific and Industrial Research has made to the British Cotton Industry Research Association at Shirley Institute, Manchester, a grant of £30,000 a year for five years if the industrial income of the association reaches £70,000 a year, and an additional pound for pound grant on all industrial

income over this amount to a maximum of £50,000 a year. Dr. F. C. Toye, director of the institute, said that it was proposed to set up an engineering department the results from which would have considerable influence on the design and development of textile machinery.

THE central editorial offices of *The American Journal of Psychology* have been removed from Cornell University to the California Institute of Technology at Pasadena. Professor Madison Bentley continues as responsible editor. The business office remains at Morrill Hall, Ithaca, N. Y.

THE American Standards Association has published a new Safety Color Code for Marking Physical Hazards developed by one of its war committees. The purpose of this code is to unify on a national scale the colored markings used to warn employees of certain physical dangers to be avoided, to mark the location of safety equipment and to identify other protective equipment. The standard is a codification of certain already recognized concepts regarding use of color for safety purposes. Much of the standard deals with suggested applications for these colors such as the marking of safety cans, fire sirens, posts, hand rails, unguarded edges of platforms, location of gas masks, stretchers, etc. The investigation was undertaken at the specific request of the War Department, but it also has a wide application in industry. Neither the War Department nor industry intends to use color markings as a substitute for adequate guards or other safety measures, but to supplement them. The American Standards Association will welcome comments on: (1) difficulties that arise in using the standard, and (2) exceptionally good results from its use.

SPECIAL ARTICLES

QUANTITATIVE ACTION OF PENICILLIN INHIBITOR FROM PENICILLIN-RESISTANT STRAINS OF STAPHYLOCOCCI[1,2]

A POTENT inhibitor of penicillin has been obtained by Kirby[3,4] from coagulase-positive strains of staphylococci which were naturally resistant to penicillin. We have extended this observation and have shown that strains of staphylococci made resistant to penicillin *in vitro* do not produce a penicillin inhibitor, but strains which have become resistant in the human body following the administration of penicillin yield a potent inhibitor of penicillin.[5] This suggested to us a similarity between the development of resistance of staphylococci to the sulfonamides and to penicillin, though the underlying mechanism may differ.[6] The purpose of this preliminary report is to show that the degree of resistance which a group of selected strains of staphylococci has for penicillin, as measured *in vitro*, is quantitatively related to the penicillin inhibitor produced by these strains; that is, the greater the resistance, the more potent is the inhibitor. Furthermore, crude inhibitor prepared from resistant strains of staphylococci will inactivate varying concentrations of penicillin over a period of time in a quantitative manner, the time required for the inactivation being dependent upon the amounts of inhibitor and concentrations of penicillin which are used.

METHODS

Source of Strains. Seven strains of coagulase-positive staphylococci isolated from human patients were studied. Five of these strains had apparently become resistant in the body as a result of therapy with penicillin, since organisms obtained from the same lesions prior to treatment were sensitive to penicillin. The two remaining strains had not been previously exposed to penicillin and displayed a natural resistance to penicillin. We are indebted to Dr. Donald G. Anderson of Boston for providing us with three strains.

Determination of in vitro sensitivity to penicillin. The sensitivity of the strains of staphylococci to sodium penicillin was determined in the following manner: each of the strains was grown for two to three generations in Gladstone's synthetic and water-clear medium, the preparation of which has been described elsewhere.[7] Then 0.1 ml of a 10^{-3} dilution of a 24-hour culture was seeded to each of several tubes containing Gladstone's medium. The final volume of each tube was 10 ml. Poured plates indicated that such an inoculum contained approximately from 300,000 to 900,000 organisms. Freshly prepared aqueous solutions of commercial sodium penicillin were added in increasing concentrations to the series of tubes containing the bacterial suspensions. Incubation at 37 degrees C. was then carried out for 48 hours. The amount of penicillin necessary to inhibit growth completely was ascertained by selecting that tube which revealed no turbidity with the lowest concentration of penicillin.

[1] From the Division of Internal Medicine, University of Minnesota Hospitals and Medical School, Minneapolis.

[2] Supported by grants from Sharp and Dohme, Inc.; The Graduate School, University of Minnesota; and from the Committee on Scientific Research, American Medical Association.

[3] W. M. M. Kirby, SCIENCE, 99: 452, 1944.

[4] *Idem, Jour. Clin. Invest.*, 24: 170, 1945.

[5] W. W. Spink and V. Ferris, *Proc. Soc. Exp. Biol. and Med.* (in press).

[6] W. W. Spink, L. D. Wright, J. J. Vivino and H. R. Skeggs, *Jour. Exp. Med.*, 79: 331, 1944.

[7] W. W. Spink and J. J. Vivino, *Jour. Clin. Invest.*, 23: 267, 1944.