A letter received from Dr. Luigi Castaldi by Dr. Homer B. Latimer, of the University of Kansas, stated that he was well and was visiting in his home town of Florence. He has been able to continue his work except during the year of 1944 when, as he says, none of the Italian anatomists did any research. He has been at the University of Cagliari for the past seventeen years, but now that the fascist party is no longer in power he will become the director of the Anatomical Institute at Genoa. He has edited the "Scritti Biologici" since 1926. His address is Lungarno Archibusieri 4, Firenze, Italia.

Professor Dr. M. J. Sirks, Genetisch Instituut der Rijksuniversiteit Huis de Wolf, Haren (Groningen), Holland, has written the letter given below to Professor A. M. Banta, of Brown University.

One of our greatest difficulties in renewing our scientific life is the very great gap we have in our scientific knowledge by our isolation during the last five years. You could lend me a very valuable support by sending every reprint you have published since the spring of 1939 on genetics (including cytology, sexuality, human genetics, animal and plant breeding) and secondly by asking your colleagues to do the same.

SCIENTIFIC NOTES AND NEWS

THE Willard Gibbs Medal of the Chicago Section of the American Chemical Society was presented at a meeting of the section on the evening of September 29 to Dr. Frank C. Whitmore, dean of the School of Chemistry and Physics of Pennsylvania State College, in recognition of "outstanding contributions to organic chemistry, and vigorous leadership in organizations devoted to the advancement of chemistry." The presentation was made by Professor Carl S. Marvel, of the University of Illinois, president of the American Chemical Society.

DR. THEODORE P. WRIGHT, administrator of the Civil Aeronautics Administration, has been awarded the Daniel Guggenheim Medal for 1945 in recognition of his "outstanding contributions to the development of civil and military aircraft, and for notable achievement in assuring the success of our wartime production program."

THE honorary degree of doctor of science was conferred upon Dr. Henry S. Conard, professor emeritus of botany of Grinnell College, Iowa, at the commencement exercises of Haverford College, fifty years after he had received his master's degree from the same college.

DR. J. C. GEIGER, director of public health of the City and County of San Francisco, has been granted by the Dominican Republic the Supreme Decoration of the Order of Merit of Juan Pablo Duarte, grade of Knight Commander, with the following citation: "For distinguished service in public office as director of a noteworthy and alert Department of Health, and as a civic statesman in the field of foreign affairs."

SIR ALEXANDER FLEMING, the discoverer of penicillin, has been made a Commander of the Legion of Honor in Paris.

IT is reported in the press that Dr. B. A. Houssay, of the Instituto de Biología y Medicina, Experimental, Buenos Aires, has again been arrested by the Argentine Government.

DR. ROBERT L. SPENCER, professor of mechanical engineering and dean of the School of Engineering of the University of Delaware, has resigned because of ill health.

PROFESSOR ARTHUR M. BANTA, of the department of biology of Brown University, has at his request retired from teaching and is engaged in completing some papers for publication and in further research.

PROFESSOR WILLIAM ALLAN, chairman of the department of civil engineering of the College of the City of New York, has been appointed acting dean of the School of Technology, in the absence of Dean Albert B. Newman, who is in Germany as adviser in chemical engineering to the economic division of the United States Group Control Council.

PROMOTIONS and appointments in physics at Cornell University have been made as follows: Robert F. Bacher and Bruno Rossi have been advanced from the rank of associate professor to full professorships; Richard P. Feynman has been appointed assistant professor; Kenneth I. Greisen and Herbert F. Newhall have been advanced from the rank of instructor to assistant professorships.

DR. CARL TOLMAN has resigned from his position of section chief in the Minerals Division, Foreign Economic Administration, effective on September 27, to become professor of geology and head of the department at Washington University, St. Louis.

DR. JOHN V. SCUDI, formerly head of the Biochemical Research Laboratories of Merck and Company, Inc., Rahway, N. J., has been appointed assistant professor of pharmacology in the College of Physicians and Surgeons of Columbia University.

DR. LINDSAY S. OLIVE, of the Emergency Plant Disease Prevention Project at Beltsville, Maryland, has been appointed assistant professor of botany at the University of Georgia.

DR. G. H. BENHAM, assistant professor of agricultural chemistry at Macdonald College, McGill University, has been appointed associate professor of biochemistry at the Illinois Institute of Technology, Chicago.

DR. GEORGE W. FISCHER, pathologist with the United States Department of Agriculture, a former instructor in the department of plant pathology at the State College of Washington, has been appointed head of the department and chairman of the Division of Plant Pathology in the Agricultural Experiment Stations. He took up this work on September 15, succeeding Dr. E. J. Anderson, who resigned to return to his former position as plant pathologist with the Pineapple Research Institute of Hawaii.

A GRANT has been made by Sharp and Dohme, Inc., of Glenolden, Pa., to the department of bacteriology of the University of Tennessee, Knoxville, for a study of sulfa drugs in the control of fowl-typhoid infection. The investigation will be conducted by Dr. D. Frank Holtman, professor of bacteriology and head of the department.

DR. E. W. LINDSTROM, head of the department of genetics and vice-dean of the Graduate College of the Iowa State College, has recently returned from a year's work in Colombia, South America. He served as visiting professor in the Facultad Nacional de Agronomia, at Medellin. This was a cooperative project between the United States State Department and the National University of Colombia. Courses in genetics, plant breeding and applied statistics were given to the university students and to the government "agronomos" (experiment station workers) of Colombia. A new maize hybrid program was also inaugurated.

DR. JULIAN HUXLEY, F.R.S., lectured in Switzerland during September under the auspices of the British Council.

A PARTY of eight French agriculturists and farmers, headed by M. Raymond Braconnier, director of agricultural production, recently spent ten days in England as guests of the British Council. They visited the Cambridge School of Agriculture, the Rothamsted Experimental Station, the National Institute for Research in Dairying at Reading and the Windsor Estate.

A JOINT meeting of the National Academy of Sciences and the American Philosophical Society will be held in Philadelphia on November 16 and 17. A special committee appointed by the two organizations will have charge of the program arrangements.

THE American Society of Mechanical Engineers met at the Hotel Netherland-Plaza, Cincinnati, on Tuesday and Wednesday, October 2 and 3. A memorial session in honor of the late Dean Herman Schneider, of the University of Cincinnati, concluded a two-day program with a symposium on cooperative education on Wednesday evening. There were twelve technical meetings, several of which were in session at the same time, starting at 9:45 on Tuesday morning. Dr. Raymond Walters, president of the University of Cincinnati, addressed the management session on Wednesday afternoon.

THE Institute of Radio Engineers will hold its annual winter technical meeting at the Astor Hotel, New York, from January 23 to 26.

A SYMPOSIUM on "Industrial Radiography and X-Ray Diffraction" will be held at Marquette University, Milwaukee, on November 9 and 11. This symposium will stress industrial and applied x-rays.

A FRIEND of the Harvard Apparatus Company, Inc., of Dover, Mass., has made a gift of $5,694 to this company. The company is a non-profit organization, and its spare funds support the annual W. T. Porter fellowship, administered by the council of the American Physiological Society.

APPLICATIONS can now be sent to the department of chemistry of the University of Pittsburgh for a graduate research scholarship in biochemistry of $1,200 for the twelve-month year with remission of tuition and fees. The scholarship is supported by Standard Brands, Incorporated. United States and Canadian citizens are eligible.

FELLOWSHIPS are available now at the Betatron Laboratory of the Ohio State University for both pre-doctorate and post-doctorate experimental physicists. The stipend will depend upon the individual's qualifications. Correspondence concerning these fellowships should be addressed to the director, Betatron Laboratory, Ohio State University, Columbus 10, Ohio.

THE University of Chicago has established, as a part of the division of biological sciences at the university, an institute for applying the results of research in nuclear physics to such problems as cancer, heredity and the aging process. The institute will be under the direction of Professor Raymond E. Zirkle, who has specialized in the effect of radiations on living organisms. It will be known as the Institute of Radiobiology and Biophysics, and will study the improvement of techniques for the protection of workers using radioactive materials. Members of the institute will work in close cooperation with members of the Institute of Nuclear Studies, which is under the direction of Professor Samuel K. Allison, physicist.

THE Massachusetts Institute of Technology has received gifts amounting to half a million dollars for the establishment of a gas turbine laboratory for graduate instruction and for research.

A GIFT of $100,000 to be used in the encouragement of fundamental research has been received by the Ohio State University from its Research Foundation. This sum, according to Dr. A. R. Olpin, secretary and executive director of the foundation, represents a return to the university for the use of its facilities in governmental and industrial research. It is taken from its research reserve, accumulated through earnings from patent licensing and other sources. It is expected that all or most of the appropriation will be used in the creation of fellowships at the university. To assist in the drafting of policies and procedures, President Howard L. Bevis will appoint a committee, including representatives of his office, the foundation, the graduate school, engineering, the physical sciences, the biological sciences and the social sciences.

NEW research laboratories, to be erected at a cost of more than $2,000,000 by the Winthrop Chemical Company, are planned. A sixty-acre site at Rensselaer, N. Y., has been purchased for that purpose. In addition to offices, the administrative wing will have space for a technical library of eighty thousand volumes. The biological wing will contain twenty-five laboratory units, together with rooms for photography, x-ray and extreme temperature testing. The wing for chemistry will have thirty-two laboratory units, as well as special chemical and development facilities and a pilot development plant. The company reports that three hundred and fifty investigators will be employed exclusively on research, as compared with the present one hundred and seventy-five.

THE trustees of *Biological Abstracts* announce the establishment, beginning in January, 1946, of a new section of *Biological Abstracts*—Section H, for Abstracts of Human Biology—intended for anthropologists, sociologists, psychologists, neurologists and psychiatrists, students of child development and human welfare and students of man generally. The new section will be an assemblage of all abstracts published in *Biological Abstracts* dealing with the broad field of human and social biology. Biological studies on human inheritance, on population and fertility, on endocrine and neurological factors affecting growth, development and human personality, on alcoholism and drug addiction, and on nervous disorders and mental deficiencies, and broad nutritional and epidemiological studies affecting human welfare, are some of the many fields that will be covered. Full information may be obtained by writing to H. I. Anderson, Business Manager, Biological Abstracts, University of Pennsylvania, Philadelphia 4, Pennsylvania.

THE fifth annual Science Talent Search among high-school seniors to discover the forty students with the greatest scientific promise will open this month, according to an announcement by Watson Davis, director of Science Clubs. Two four-year Westinghouse science grand scholarships of $2,400 each will be awarded, and eight four-year science scholarships of $400 each. An additional $3,000 may be distributed at the discretion of the judges.

THE third in the series of conferences between Britain, Canada and the United States during the past two years under the auspices of the Combined Production and Resources Board, on the unification of engineering standards, opened at Ottawa on September 24. The delegation is headed by Stanley J. Harley, technical controller of Machine Tool Control.

THROUGH a typographical error in the issue of SCIENCE of September 21, the name of the newly elected president of the American Psychological Association was given as Barrett instead of Garrett.

UNDER the alumni fund of Norwich University, Northfield, Vt., known at the military college as "Living Endowment," special contributions have been received to be used to pay the transportation expenses of faculty members attending meetings of their professional societies. Faculty members who elect to make trips to professional meetings will pay their own expenses at the time, but at the end of the fiscal year the fund will be divided among them according to a formula that has been devised to provide fair distribution of the money in the form of dividends.

IT is stated in the *Journal* of the American Medical Association that Dr. Albert C. Furstenberg, dean of the Medical School of the University of Michigan, has announced that there are ten one-year fellowships in psychiatry now available at the university. These fellowships, which offer an annual stipend of $2,000 and which are under the sponsorship of the Office of Veterans' Affairs of the State of Michigan, include training at the Neuropsychiatric Institute of the university. Candidates must be graduates of an approved medical school and must complete a rotating internship before beginning their fellowships. Applications should be made to Dr. Raymond W. Waggoner, professor of psychiatry, University Hospital, Ann Arbor.

LEDERLE LABORATORIES, a unit of the American Cyanamid Company, has renewed for the second year a grant of $1,500 to the School of Medicine of Western Reserve University in support of a fellow-

ship in the department of pharmacology. The fellowship will aid in training pharmacologists and in the conduct of research, both fundamental and applied.

THE Moore School of Electrical Engineering of the University of Pennsylvania will be enlarged at a cost of nearly $125,000. A contract awarded by the university calls for construction of a third floor which will add 13,000 square feet of laboratory space. The additional laboratory area will be adapted for research in various phases of electronics, such as television and industrial control, and will be used also for the investigation of problems related to electrical machinery.

SPECIAL ARTICLES

SUSCEPTIBILITY OF THE YOUNG WHITE MOUSE (MUS MUSCULUS) TO EXPERIMENTAL LEPTOSPIROSIS

IN 1941 Larson reported[1] that white mice (*Mus musculus*) about 3 weeks of age were uniformly susceptible to experimental infection with *Leptospira icterohemorrhagiae* by practically all routes of infection. Inoculation was followed by the development of icteric and hemorrhagic lesions typical of this infection and by death within two weeks. Subsequently, the same worker perfected a diagnostic protection test[2] for leptospirosis based on the extreme sensitivity of young white mice to infection. Inasmuch as the guinea pig, the diagnostic animal now used, is less susceptible and more expensive than mice, the advantages of the new test are obvious. It was therefore considered worthwhile, in the course of other studies on experimental leptospirosis, to determine whether our strain of white mouse is susceptible to this infection.

For this purpose three cultures of *Leptospira icterohemorrhagiae* on Verwoort-Schuffner medium, strains labeled 626, 1653 and WRZ, were obtained from Dr. Larson, at the National Institute of Health, Bethesda, Maryland. Each of these strains had been passed by Larson through many generations of white mice and had killed practically 100 per cent. of injected animals. The mice used in our studies were a strain of *Mus musculus* which had been cage-inbred for many years in the Department of Bacteriology at the University of Minnesota. Unfortunately, no records are available revealing the origin of this strain.

Immediately upon receipt, each strain of spirochete was inoculated intraperitoneally in 0.5 ml amounts into 2 young white mice about 3 weeks old. One milliliter of each culture was subcultured on several tubes of Schuffner medium. As soon as subcultures revealed a heavy growth of organisms upon dark-field examination, they were used as inoculum in experiments. In order to test the virulence of the cultures, animals known to be susceptible to leptospirosis were inoculated. One milliliter was injected intraperitoneally into 2 deer mice and 2 young guinea pigs, and 0.5 ml by the same route into a young Syrian hamster.

One milliliter doses of culture were injected intraperitoneally and subcutaneously into young white mice between 2 and 3 weeks old, and 0.03 ml doses were injected intracranially. These inocula and routes of infection were also used in mice that had been inoculated intraperitoneally with 0.25 ml of a mixture of equal parts of benzol and olive oil 36 hours earlier. A third group of young mice was injected by the same routes and with the same volumes of leptospirae suspended in equal volumes of mucin prepared by Siler's method.[3] Another group of young mice were inoculated intraperitoneally with 0.5 ml of spirochetal culture 24 hours after establishment of a sterile inflammatory focus in the brain of each animal by intracranial inoculation of 0.03 ml of 5.5 per cent. starch solution in nutrient broth. Unless otherwise indicated, 3 mice were inoculated with each dose and by each route.

Daily cultures were made from the heart's blood of all animals for 3 weeks following inoculation. The mice were observed carefully daily for signs of generalized jaundice or hemorrhage and hyperemia of the bulbar conjunctivae. One, two and three weeks after inoculation, one animal from each group of 3 was killed by asphyxiation with gas. Subcultures, inoculations and tissue sections were made from the kidneys, livers and lungs of all animals, and also from the brains of animals inoculated intracranially or intraperitoneally following intracranial administration of starch solution. The sections were stained with hematoxylin and eosin.

All the inoculated guinea pigs and deer mice and the hamster developed typical signs of leptospirosis and succumbed within 10 days after injection. On the other hand, none of the injected white mice exhibited signs of frank leptospirosis and, in fact, none appeared sick. However, most of the blood cultures made from infected white mice were positive for about a week after subcutaneous and intraperitoneal inoculation, but were negative following intracranial injection. Organisms were isolated by animal inoculation

[1] C. L. Larson, *Pub. Health Rep.*, 56: 1546, 1941.
[2] *Ibid.*, 56: 1593, 1941.
[3] J. F. Siler, "Immunization to Typhoid Fever." Baltimore: Johns Hopkins Press, 1941.