

Insurance as a Social Science and as a Mathematical Problem"; the third in Kansas City by James Pierpont on the topic, "Some Modern Views of Space"; the fourth in Philadelphia by H. B. Williams on "Mathematics and the Biological Sciences"; the fifth in Nashville by E. W. Brown on "Resonance in the Solar System"; the sixth in New York City by G. H. Hardy on "An Introduction to the Theory of Numbers"; the seventh in Des Moines by Irving Fisher on "The Application of Mathematics to the Social Sciences"; the eighth, entitled "Reminiscences of Gibbs by a Student and Colleague," by E. B. Wilson in Cleveland; the ninth by P. W. Bridgman in New Orleans on "Statistical Mechanics and the Second Law of Thermodynamics"; the tenth in Atlantic City by R. C. Tolman on "Thermodynamics and Relativity," and the eleventh, entitled "An Elementary Proof of the Theorem Concerning the Equivalence of Mass and Energy," was delivered by Albert Einstein in Pittsburgh. The twelfth lecture was given in St. Louis in December, 1935, by Vannevar Bush on the subject "Mechanical Analysis."

It is the custom of the society to invite the lecturer to print in the *Bulletin* of the American Mathematical Society if he so wishes. Pupin printed elsewhere, a large part of what he had to say appearing in *Scribner's Magazine*; the others have printed in the *Bulletin* and occasionally in addition elsewhere. For example, Professor Tolman's address was printed simultaneously in *SCIENCE*. The number of people who attend the lectures varies greatly and depends on the nature of the lecture and on the place where it is given. It is not intended that the lectures be popular in the ordinary sense of the term, but that the educated public, including scientists in other fields, should gain from them further insight into the rôle of mathematics.

MEDAL AWARDS OF THE SOCIETY OF CHEMICAL INDUSTRY

THE American section of the Society of Chemical Industry has announced the award of the Chemical Industry Medal for 1936 to Dr. Walter S. Landis, vice-

president of the American Cyanamid Company, New York, "for valuable application of research to the chemistry and economics of the fertilizer industries," and of the William H. Perkin Medal for 1937 to Thomas Midgley, Jr., vice-president of the Ethyl Gasoline Corporation, New York, and of Kinetic Chemicals, Inc., Detroit, "for distinguished work in applied chemistry, including the development of anti-knock motor fuels and safe refrigerants."

Dr. Landis was a pioneer in the application of chemistry to the production of concentrated fertilizers, and has played an important rôle in that industry for thirty years. He was probably the first to produce argon in large commercial quantities.

Mr. Midgley's work resulted in the creation of the entire Ethyl gasoline industry with all that this implies—use of higher compression engines, greater flexibility of automobile operation and other advances. Tetraethyl lead in motor fuels adds forty times as much horsepower annually as that which will be supplied by Boulder Dam. Mr. Midgley's more recent discovery of non-toxic refrigerants promises to be equally fundamental in refrigeration and air conditioning.

Dr. Landis will receive the Chemical Industry Medal, founded in 1920 as an "annual tribute to distinction in applied chemistry," formerly called the Grasselli Medal, at a joint meeting of the Society of Chemical Industry and the American Chemical Society on November 6 at the Chemists' Club, New York. He will speak on "Concentrated Fertilizer."

Mr. Midgley will be presented with the Perkin Medal on January 8, 1937. The Perkin Medal was founded in 1906 in commemoration of the fiftieth anniversary of the coal tar color industry, the first medal being awarded to Sir William H. Perkin, discoverer of aniline dyes. The medalist is chosen by a committee representing the American Section of the Society of Chemical Industry, the American Chemical Society, the Electrochemical Society, the American Institute of Chemical Engineers and the Société de Chimie Industrielle.

SCIENTIFIC NOTES AND NEWS

At a meeting of the General Committee of the British Association on September 11, Sir Edward Poulton, from 1893 to 1933 Hope professor of zoology at the University of Oxford, was elected president for the year 1937. The meeting will be held at Nottingham from September 1 to 8. The present general officers were reappointed and five vacancies on the council were filled by the appointment of Dr. F. W. Aston, Professor Debenham, Professor T. G. Hill, Campbell

Smith and J. S. Wilson. The meeting at Cambridge in 1938 will be held from August 17 to 24. The question of a meeting in Australia is under consideration.

DR. CHARLES GORDON HEYD, professor of surgery at Columbia University and consulting surgeon of the Woman's Hospital of New York City, vice-president of the American Medical Association, has been elected president of the association. He succeeds the late Dr.

James Tate Wilson, of Seattle, who died last June soon after taking office.

DR. EDWARD CHACE TOLMAN, professor of psychology at the University of California, was elected president of the American Psychological Association at the recent meeting at Dartmouth College. He succeeds Dr. Clark Hull, of Yale University.

DR. JEAN PERRIN, professor of physical chemistry at the University of Paris, has been appointed French under-secretary of state for scientific research to succeed Mme. Irene Joliot-Curie. It is stated in *The New York Times* that it has been known for some time that Mme. Joliot-Curie desired to drop her connection with the Popular Front Government, but she and M. Perrin have denied that there is any question of conflict of ideas in regard to scientific research.

THE Chemical Society of France has awarded the Lavoisier Medal to Dr. Julius von Broun, professor of chemistry and applied chemistry at the University of Heidelberg.

THE Association of German Chemists has awarded the Justus Liebig Memorial Medal to Dr. Gustav Hüttig, professor of inorganic and analytical chemistry at the University of Prague.

ACCORDING to the *Journal* of the American Medical Association Dr. Fred H. Albee, formerly professor of orthopedic surgery at the New York Post-Graduate Medical School, on a recent trip to South America was made an honorary member of medical organizations in Brazil, Peru, Chile, Argentina and Ecuador; he was elected honorary president of the Brazilian Society of Orthopedic Surgery and Traumatology and appointed a member of the faculty of medicine and surgery of the University of Chile.

MRS. MARGARET M. NICE, review editor of *Bird-Banding*, has been awarded honorary membership in the German Ornithological Society.

At the Iowa State College John F. Calvert, of the Westinghouse Electric Company, has been appointed associate professor of electrical engineering, and Lewis Miller Headley, of the Johns Hopkins University, associate professor of mechanical engineering. Elizabeth Sutherland has been appointed associate professor of foods and nutrition.

DR. GILBERT LLEWELLYN WOODSIDE has been appointed assistant professor of biology in the department of entomology, zoology and geology at the Massachusetts State College.

DR. CARL HABICH, of Indianapolis, has been appointed chairman of the department of gynecology at the Indiana University School of Medicine. Dr. Jackson T. Witherspoon, of the Tulane University School

of Medicine at New Orleans, has been placed in charge of research in the department.

DR. ERNEST C. MCCULLOCH has been appointed associate professor of bacteriology and parasitology in the College of Veterinary Medicine of the State College of Washington and research veterinarian in the experiment station. H. F. Hollands, instructor in agricultural economics in the University of Minnesota, has become assistant agricultural economist.

DR. ELLIS HAWORTH, for the past five years head of the department of science in the junior and senior high schools of Washington, D. C., has been appointed professor of natural sciences and chairman of the division of science and mathematics of the Wilson Teachers College, Washington, D. C.

FRANK C. HOWARD, formerly a member of the department of chemistry at the University of Illinois, has been appointed assistant professor in charge of chemical engineering at the Worcester Polytechnic Institute. Professor Howard succeeds Dr. Daniel F. Calhane, professor of industrial and applied electro-chemistry, who retired this summer.

DR. R. J. GARBER, head of the department of agronomy and genetics of West Virginia University and Experiment Station, has resigned to become director of the Regional Laboratory for Pasture Research of the U. S. Department of Agriculture at the Pennsylvania State College.

DR. CLARENCE H. CLEMINSHAW has been appointed assistant professor of astronomy at the University of Southern California and assistant director of the Griffith Observatory, Department of Parks of the City of Los Angeles, dividing his time between the two institutions. He will not be connected with the University of California, as recently reported in *SCIENCE*.

WM. E. DICKENSON, for the past thirteen years a member of the staff in zoology of the Milwaukee Museum, has become director of the new Kenosha Municipal Museum.

MAURICE L. HIGGINS has resigned as associate at the Johns Hopkins University to become research chemist with the Eastman Kodak Company, Rochester, N. Y.

Industrial and Engineering Chemistry states that L. C. Flowers, professor of chemistry in the Canal Zone Junior College of the Panama Canal Service, has become associated with the Westinghouse Electric and Manufacturing Company at Springfield, Mass., where he will be engaged as materials and process engineer in the development of processes of refrigerator manufacture.

DR. GEORGE F. FORSTER, professor of biology at Olivet College, Michigan, has been appointed bacteri-

ologist to the Michigan State Department of Health. He will be on leave of absence from the college for a year.

DR. JAMES BRYANT CONANT, president of Harvard University, sailed for England on September 23.

THE first lecture of the 1936-1937 series of the Harvey Society will be given at the New York Academy of Medicine on Thursday evening, October 15, by Dr. Wilder G. Penfield, professor of neurology at McGill University, on "The Relationship of the Cerebral Cortex to Consciousness."

DURING the past academic year the Sigma Xi Club of the University of Florida held public meetings addressed by the following scientific men: Dr. R. A. Emerson, professor of plant breeding, Cornell University, on "The Physical Basis of Heredity"; Dr. E. F. Kohman, research chemist, National Canners Association, on "Chemistry in Relation to Nutrition and Food Preservation"; Dr. J. A. Bargen, surgeon, Mayo Clinic, on "The Repair of Intestinal Tissue after Injury and Inflammation," and Dr. Robert M. Yerkes, director, Yale Laboratories of Primate Biology, on "Anthropoid Apes as the Servants of Man." Officers for the year 1936-37 are as follows: *President*, Dr. W. R. Carroll; *Vice-president*, Dr. P. A. Foote; *Secretary-treasurer*, Dr. P. H. Senn, and *Program Chairman*, Dr. R. B. Becker.

THE Committee on Grants of the American Association for the Advancement of Science desires to call attention to present regulations governing the distribution of funds designated for the support of individual research. Extended notice of the committee and its work was published in *SCIENCE* for June 12. Blanks for making application for grants may be secured from the Permanent Secretary, Smithsonian Institution Building, Washington, D. C., and when duly filled out should be returned to that officer. All applications for funds to be available in 1937 must reach the Washington office before November 1. The report of the committee will be presented to the council at the Atlantic City meeting and as approved will be published immediately afterwards.

THE educational "Prospectus" of the Brooklyn Botanic Garden for the school year 1936-37, just issued, announces fifty-six courses of instruction—including fifteen for members and the general public, ten primarily for teachers, a course for student nurses and thirty courses for boys and girls of eight to nineteen years of age. The entire nurses training classes of three city hospitals are enrolled for the nurses course. In addition to these courses, the educational program of the garden includes radio talks on plant life, broadcast throughout the year, regular press re-

leases to metropolitan papers, a bureau of free public information on all aspects of horticulture and botany and assistance for those who wish to visit the labeled collections under educational guidance.

Museum News states that an amendment to the state constitution of California giving authority to the state legislature and to local governing bodies to enter into contracts with non-profit corporations, organized under the laws of California, for the management and control of public museums, has been passed by the legislature and will be submitted to a popular vote in the coming election this fall. The amendment was proposed by a legal committee of the Los Angeles Art Association. Its purpose is to make possible permanent, non-political control of public museums, and particularly art museums, in the state.

THE residuary estate of Dr. Horace Phillips will become, after the death of the survivors of four life tenants, the property of the University of Pennsylvania, for the education of young men, "preferably those who take military training in the Officers Reserve Corps of the Army or Navy." It is stipulated that no part of the fund accruing to the university is to be used for the construction of buildings.

ACCORDING to the *Journal* of the American Medical Association, contracts have been awarded for a new clinical building at the School of Medicine of Indiana University, Indianapolis, and construction is expected to begin soon. The total cost of the building will be about \$550,000, of which the Federal Government will pay 45 per cent. as a PWA project; the remainder will be paid by the university through a bond issue.

THE College of Medicine of the University of Illinois has received from the Rockefeller Foundation a fund of \$15,000 per year for a period of three years to promote undergraduate instruction in psychiatry. This work is under the immediate supervision of Dr. H. Douglas Singer, professor and head of the department of psychiatry. The program in general involves the extension of psychiatric teaching into other departments of medicine, particularly that of internal medicine.

CARL W. BUCHHEISTER, of the Lawrence School at Long Island and director of the new Audubon Nature Camp on Hog Island in Muscongus Bay, Maine, will become secretary of the recently merged Federation of the Bird Clubs of New England and the Massachusetts Audubon Society. He succeeds Winthrop Packard, who has retired after serving as secretary for over twenty-five years. Among the properties turned over to the Audubon Society by the federation are the Isaac Sprague Wild Life Sanctuary on Carr's Island off Newburyport; the Knight Wild Life Reservation on

Milk Island off Rockport; the Boxford Wild Life Reservation at Boxford; the Henry Cabot Lodge Bird Sanctuary at Nahant; the East Sandwich State Game Farm; the Ram Island Sanctuary at Mattapoissett; the Watatic Mountain Wild Life Reservation; the Edward Howe Forbush Wild Life Reservation in Hancock and Billingsgate Island, off North Eastham; the large Annie H. Brown Sanctuary at Plum Island, where the Audubon Society already owns fifty acres adjoining, and Tern Island, off Chatham, where thousands of tern breed. Wild life reservations secured by the federation by gift, purchase or legislation since 1924 amount to approximately 2,000 acres, scattered through the state.

AN Associated Press dispatch states that a new law bearing the signature of Premier Mussolini prescribes the oath of loyalty to be taken at once by members of institutes of scientific research in Italy. The oath, which the law says is of "absolute and urgent necessity," reads: "I swear to be faithful to the King, to his royal successors and to the Fascist régime; to observe the Constitution and the other laws of the State and to exercise the office intrusted to me in the spirit of bringing about the greater development of the national culture and science."

MEMBERS of the Oxford University Expedition to North East Land, Spitzbergen, arrived in London on

September 10. The party, under the leadership of A. R. Glen, has spent fourteen months in the Arctic. It was the first expedition to winter in the interior of North East Land and is reported to have carried out its program with complete success.

A SUMMARY of the annual report for 1935 of the Henry Lester Institute of Medical Research, Shanghai, is given in *The British Medical Journal*. In the Clinical Division Dr. Platt has carried out researches on vitamin B₁ with reference to beri-beri. In the Division of Physiological Sciences Chinese factory diets have been investigated as part of a general diet survey with a view to elucidating the nutritional factor in disease. In field medical research special attention has been paid to entomology and parasitology. Mosquito research has been carried out by breeding the insects in special "insectaries" in their natural environment. In the Division of Pathological Sciences advances have been made in the analysis of the antigenic structure of the typhoid bacillus, and in the preparation of a serum, which is already proving of value. Twenty hospitals in other towns, from Tientsin to Amoy, have availed themselves of the Lester Institute for section cutting and histological diagnosis. A bibliography gives a list of seventy-five publications by the staff, the Chinese members being especially prolific in this respect.

DISCUSSION

SUNBURN AND WINDBURN

It is generally believed that exposure of the human skin to ultra-violet light of the sun or to a strong wind may induce therein a red pigmentation, *i.e.*, erythema. As far as we are aware, however, it is not thoroughly understood whether windburn is entirely a direct result of the wind or whether the wind merely makes the skin more susceptible to sunburn. Does a strong wind produce erythema of the skin in the absence of ultra-violet light?

We have made preliminary experiments in pursuit of this question which indicate a negative answer. For example, we have exposed the inner side of the forearm of one of us to the blast of a 40-mile per hour wind in an experimental wind-tunnel. The forearm was covered with a piece of heavy rubber (inner tubing of automobile tire) except for a small area of about one square inch where the rubber was cut away, leaving the bare skin exposed to the blast. There was no ultra-violet light present. The relative humidity of the air was 50 per cent. and the dry bulb temperature was 66° F. During the half hour exposure to the blast the skin exhibited "goose flesh," but at no subsequent time was there the slightest evidence of

reddening or chapping of the exposed area of the skin.

Other experiments, to be published shortly in detail, indicate that human sweat partially absorbs ultra-violet light in the spectral region which is effective in producing erythema. A drop of perspiration was placed between two flat plates of crystal quartz separated by a 0.2 mm spacer. This was placed over the inner forearm of one of us and was irradiated with the total radiation of a quartz mercury arc lamp. The skin under the quartz plates developed, in due time, normal erythema, except for the small area of about a square centimeter directly under the 0.2 mm film of sweat, where the reddening of the skin was markedly less than that of the surrounding region.

Spectrophotometric measurements indicate that a 0.5 mm film of human sweat transmits only about 75 per cent. of solar radiation which is effective in producing sunburn. For the total radiation from a quartz mercury arc lamp the transmissivity is somewhat less than this figure.

From the foregoing observations we are led to wonder whether erythema usually attributed to strong winds may not be due, in part at least, to ultra-violet