

ROBINSON, Department of Chemical Engineering, Massachusetts Institute of Technology.

Heat transfer in enamel-lined equipment: E. P. POSTE, Elyria Enameled Products Co.

Forced convection of heat in cases and liquids, II: C. W. RICE, Research Laboratory, General Electric Co.

The film concept of heat transmission applied to a commercial water heater: D. K. DEAN, Alberger Pump and Condenser Co., Boston.

Characteristics of air blast heaters: F. R. ELLIS and J. D. WHITE, B. F. Sturtevant Co., Hyde Park, Mass.

Heat transfer from bare and insulated pipes: R. H. HELLMAN, Mellon Institute of Industrial Research.

Loss of heat from furnace walls: R. CALVERT and LYLE CALDWELL, the Celite Company, Lompoc, Calif.

Optimum operating conditions for pipe heating and cooling equipment: W. K. LEWIS, J. T. WARD and E. VOSS, Chemical Engineering Department, Massachusetts Institute of Technology.

A heat meter: PERCY NICHOLS, Research Laboratory, U. S. Bureau of Mines Experiment Station, Pittsburgh.

Heat losses from various shapes: L. B. McMILLAN, Johns-Manville Co., New York City.

Evaporator design: W. L. BADGER, Department of Chemical Engineering, University of Michigan.

Practically all of the papers of this symposium, which will occupy all of Tuesday afternoon and Wednesday morning, have been preprinted and distributed to the paid members of the industrial division. By this method it is anticipated that much valuable discussion will take the place of the formal reading of the papers. It is planned to edit this discussion and print it at a later date. This symposium promises to be one of the most important which the division has ever held.

THE YALE SCHOOL OF FORESTRY

SAGE HALL, the building of the Yale School of Forestry, was dedicated on February 23. The building, one of the finest of its kind in the country, is the gift of William H. Sage, Yale, 1865, Albany, in memory of his son, De Witt Sage. Mr. Sage, who was unable to be present at the dedication, was represented by his son, Henry W. Sage, Yale, 1895.

Dean Henry S. Graves, of the School of Forestry, presided at the formal dedicatory exercises. The keys to the building were accepted by President James Rowland Angell in behalf of the university. The program included a short address by the architect, William Adams Delano, Yale, 1895, of New York City. The principal address was made by Professor James W. Toumey, former dean of the school.

At the close of the formal exercises the alumni and other guests inspected the building, reassembling at 3:30 P. M. for a program of addresses on forestry subjects by foresters of prominence in their fields. These included Earl H. Frothingham, director of the

Southern Appalachian Forest Research Station of the United States Forest Service; Professor John S. Ferguson, for many years director of forest education in the Pennsylvania State College of Agriculture and Mechanic Arts; Rufus S. Maddox, head of the State Forest Research Service in Tennessee, and Ferdinand A. Silcox, formerly of the United States Forest Service.

SCIENTIFIC NOTES AND NEWS

THE Nichols Medal of the New York Section of the American Chemical Society was presented to Professor Charles A. Kraus, of Brown University, at the Chemists' Club on March 7. Presentation addresses were made by Dr. Clarke E. Davis, Dr. F. G. Cottrell and Professor Marston T. Bogert, and Dr. Kraus made an address on "The theory of radicals as applied to modern chemistry."

A CHAPTER of Sigma Xi was installed at the University of Virginia on February 28. Professor F. K. Richtmyer, of Cornell University, president of the national society, made an address on "X-rays and the structure of the atom."

PROFESSOR MICHAEL I. PUPIN, of Columbia University, delivered the first annual Willard Gibbs memorial lecture under the auspices of the American Mathematical Society in the Engineering Societies Building, on February 29. His subject was "Coordination."

ON the evening of February 11, the seventy-seventh anniversary of the birth of Thomas A. Edison, an address in celebration of the occasion was broadcasted by L. D. Gibbs, chairman of the public speaking committee of the National Electric Light Association.

A TESTIMONIAL number of *The Boston Medical and Surgical Journal*, dedicated to Dr. John P. Sutherland, dean-emeritus of Boston University School of Medicine, has been issued. The contributors to the number are members of the faculty of the school of medicine with the exception of Dr. Murray P. Horwood, who was formerly instructor at the school and is now teaching at Massachusetts Institute of Technology. Among the faculty members whose articles appear in the number are the following: Dean Alexander S. Begg, Dr. W. H. Watters, Dr. David W. Wells, Dr. Leroy M. S. Miner, Dr. Charles T. Howard, Dr. Samuel R. Meaker, Dr. Allan Winter Rowe, Dr. Sanford B. Hooker, Dr. David L. Belding, Dr. Frederick A. Pratt, Dr. Charles H. Lawrence, Dr. Walter L. Mendenhall and Dr. Solomon C. Fuller.

THE annual general meeting of the Physical Society of London, held on February 8, was marked, as we learn from *Nature*, by the presentation to Professor

H. L. Callendar of the first Duddell Memorial medal. This medal, which was instituted last year, in honor of the late William Du Bois Duddell, is awarded to "persons who have contributed to the advancement of knowledge by the invention or design of scientific instruments or by the discovery of materials used in their construction." Dr. Alexander Russell, the retiring president of the society, in making the presentation, mentioned briefly the many contributions to the science of heat and allied subjects which Professor Callendar had made.

MAJOR A. G. CHURCH, secretary of the National Union of Scientific Workers, has been appointed Parliamentary private secretary to Mr. Sidney Webb, president of the Board of Trade.

SIR JOHN BLAND-SUTTON, president of the Royal College of Surgeons, has been elected a member of the Athenaeum Club for distinction in science and public service.

THE chancellor of the University of Cambridge has appointed Sir Richard Glazebrook, of Trinity College, who recently retired from the directorship of the National Physical Laboratory, a member of the court of the University of Liverpool until December 31, 1926.

ON nomination of the President the Senate has confirmed the reappointment of Dr. Hugh S. Cumming as surgeon-general of the U. S. Public Health Service. Dr. Cumming, who has been in the Public Health Service since 1894, was nominated surgeon-general by former President Wilson in January, 1920, and continued in that post through the Harding administration.

DR. ROGER I. LEE, who has been for ten years Henry K. Oliver professor of hygiene in the Harvard Medical School, will resign at the end of the current academic year and resume the practice of medicine in Boston. Dr. Lee was the first appointee to the Oliver professorship.

As we have already noted, Dr. Otto R. Eichel, Albany, N. Y., director of vital statistics for the New York State Department of Health, has been appointed to direct the epidemiologic intelligence and statistics section of the League of Nations. Dr. Hugh S. Cumming, Surgeon-General of the U. S. Public Health Service, Washington, D. C., has been elected one of the vice-presidents of the permanent health organization. Dr. Alice Hamilton, professor of industrial medicine, Harvard Medical School, has been appointed a member of the committee.

T. T. READ, of the Bureau of Mines, has been made acting assistant to the director to perform that portion of the duties formerly done by F. J. Bailey, re-

signed, which in the interval between the resignation and now have been performed by the director. Mr. Read will be the administrative and directing official in charge of the mine safety service and D. J. Parker, chief engineer, will report to Mr. Read. W. D. Ryan and C. L. Colburn will continue to report to Mr. Parker.

THE following men have recently joined the Development Branch of the Western Electric Company at Hawthorne: Mr. T. B. Hine, Ph.D., University of California, is working on electro chemical problems. Mr. Hine was formerly with the Chemical Warfare Service in charge of the physico chemical work at Edgewood Arsenal. Mr. Leslie D. Smith, Ph.D., Johns Hopkins, recently associate chemist in the Bureau of Chemistry at Washington, is engaged in the standardization of methods for the analytical laboratory.

PROFESSOR ROSCOE SHAW, head of the nutrition department of the American Institute of Baking, has been placed in charge of a newly completed laboratory with a capacity for 1,000 test animals.

GEORGE F. WARREN, head of the department of agricultural economics and farm management, of Cornell University, has been elected vice-president of a new organization known as the Economic Foundation, whose purpose is "to further investigation in the field of economic, social and industrial science."

HAROLD E. BABCOCK, formerly professor of marketing in the State College of Agriculture, at Cornell University, has been named as a member of the State Council of Farms and Markets.

DR. ARNO B. LUCKHARDT, professor of physiology in the University of Chicago, has been granted leave of absence to enable him to accept the invitation of the General Education Board to go abroad for a year of travel and research.

DR. A. S. HITCHCOCK, botanist in charge of systematic agrostology, in the U. S. Department of Agriculture, has returned from South America. He left Washington in May of last year, spending four months in Ecuador, two months in Peru, and about six weeks in Bolivia.

FREDERICK G. CLAPP, consulting geologist of New York City, has been engaged in geological work in New Zealand for some weeks.

THE department of zoology of West Virginia University has secured the services, for one year, of Mr. P. C. Bibbee, a recent graduate of the university and an expert taxidermist, to collect animals in all parts of the state. Especial attention will be paid to birds and mammals. When the capitol at Charleston burned, a few years ago, a valuable and nearly com-

plete collection of West Virginia birds was destroyed. Mr. Bibbee's collections will be deposited in Morgantown.

DR. JOHN M. CLARKE, director of the State Museum, Albany, New York, during the past week gave three lectures before the geological department of McGill University, Montreal, on "Recent developments in the science of geology."

ON February 16, Professor Henry N. Russell, director of the observatory of Princeton University, delivered an address before The Royal Canadian Institute, in Toronto, on "The nebulae; clouds of light and darkness in outer space."

DR. F. G. COTTRELL delivered an Aldred lecture at the Massachusetts Institute of Technology on February 22, on "Fixation of Nitrogen."

DR. JACOB G. LIPMAN, dean and director of the New Jersey State Agricultural College and Experiment Station at New Brunswick, N. J., was the main speaker at the annual banquet of the International Agricultural Society at Cornell University on March 1st.

DR. C. L. DAKE, professor of geology at the Missouri School of Mines and Metallurgy, spoke before the Geological Society of Tulsa, Okla., on February 16 on the subject of "The Ozark Uplift." Dr. Dake outlined the chief movements of the Ozark dome in Paleozoic time, particularly with reference to the distribution and relations of the pre-Pennsylvanian formations in the mid-continent field.

A BUST of Professor H. B. Dixon was unveiled on February 1 in the Chemical Theater of the University of Manchester by Dr. H. G. Colman. The bust is the work of Mr. John Millard and has been fixed to the wall of the theater, which also carries the plaques of Sir Edward Frankland and Sir Henry Roscoe.

A COMMITTEE of physicians of Havana, Cuba, is planning to erect a monument at the entrance to Havana Harbor in memory of Dr. Carlos J. Findlay, who died in 1915.

HENRY N. BABCOCK, for more than forty years employed by the United States Government as a civil engineer, who planned and directed most of the improvements in the New York Harbor, including the survey and construction of the Ambrose Channel and the Jamaica Bay project, died on February 25, in his home in Pelham Manor, at the age of seventy-four years.

ROMEYN HITCHCOCK, of Ithaca, N. Y., author of contributions to botany, chemistry and other subjects, died on November 30, aged seventy-three years.

THE Fourth International Conference of Soil Science will be held at the International Institute of Agriculture, Rome, during the period May 11 to 19. A large number of papers dealing with problems of soil physics, chemistry, microbiology, soil classification and plant physiology will be presented. A number of American soil investigators and plant physiologists are to participate in the program. Those who may wish to inform themselves further concerning the conference should communicate with Professor G. De Angelis d'Ossat, International Institute of Agriculture, Villa Umberto I, Rome (10), Italy.

THE sixth annual meeting (the fifth anniversary) of the American Society of Mammalogists will be held in Cambridge-Boston, Massachusetts, on April 15, 16 and 17. Sessions the first two days will be devoted to the reading of papers, discussion and business, and will be held from 10:00 A. M. to 4:30 P. M., each day, in the Museum of Comparative Zoology, Harvard University. A session will also be arranged for the evening of April 15 at the Boston Society of Natural History. As a part of the general program it is planned to have a symposium on "The scientific and economic importance of predatory mammals." On April 17, through the invitation of Professor W. E. Castle, the society will visit the genetics laboratories at Bussey Institution, Forest Hills, where experiments in variation, heredity and evolution are being made. There will also be opportunities to visit other places of interest.

THE creation of the Lillia Babbitt Hyde Foundation, with a \$2,000,000 fund, was approved by the New York State Board of Charities at the meeting, February 8. This money is to be used for medical research and philanthropic use in the metropolitan area.

PART of the \$600,000 estate of Mrs. Clara A. Abbott, widow of the founder of the Abbott Laboratories, has been left to "advance the causes of medical, surgical and chemical charities," according to the terms of her will.

AN aquarium to be erected at a cost of \$2,000,000 in Chicago, is the gift of John G. Shedd, chairman of the board of Marshall Field & Co. The building, as now planned, is to be 300 feet long, one story high, surmounted by a dome. It will be situated on the lake front near the Field Museum and adjacent to the municipal stadium, now building.

THE University of California has received from Mrs. May L. Cheney the extensive conchological collection made by her husband, the late Warren Cheney, of Berkeley.

THE *Presse médicale* states that the four universities in Belgium have recently received 8 gm of radium from the radium deposits in the Congo.

THE assistance publique of Paris has recently been left a legacy of one and a half million francs, a large part of which is to be employed for the supply of radium to the principal Paris hospitals.

IN transmitting to SCIENCE a letter concerning the Colombian earthquake an error was made in the name of the writer. It should have been given as the Honorable Samuel H. Piles, the American minister at Bogota.

UNIVERSITY AND EDUCATIONAL NOTES

MR. AND MRS. HENRY PHIPPS are announced as the anonymous donors of \$1,000,000 to Johns Hopkins University last year. The gift was conditional upon the university raising another \$1,000,000 to endow permanently the Phipps psychiatric clinic. Pledges to this amount have now been received. The General Education Board and Edward S. Harkness, of New York, were among the contributors.

THE General Education Board has appropriated \$400,000 to Washington University, St. Louis, for the endowment of a department of bacteriology and preventive medicine in the Medical School. This makes approximately \$4,400,000 that Mr. Rockefeller has given to the university.

THE Rockefeller Foundation has given a further \$250,000 to Hong-kong University for the chairs of surgery and medicine.

THE new science building at Tulane University, New Orleans, was formally opened on February 21. This building, the first constructed on the Tulane campus for years, contains experimental laboratories for the natural and medical sciences.

DR. PERCY E. RAYMOND, associate professor of paleontology at Harvard University and curator of the Agassiz Museum, will have charge of the Harvard Summer School of Geology this year, and will take the school to the Canadian Rockies.

DR. CHARLES SHATTUCK PALMER, who for the past two years has held a National Research Fellowship at Yale University, has been appointed assistant professor of organic chemistry at Northwestern University.

WITH the view to educating the Belgian public in matters not treated in the general university curricula, an institute of higher studies has been organized by private initiative under the chairmanship of M.

Guillaume De Greef, with the collaboration of Bordet, Brachet, Errera, Lameere, Massart, Zungz, Zwaerde-maker and others. There will be a section of natural science, in which instruction will be given in general biology, anatomy, embryology, physiology, pathology, anthropology, zoology, physical geography and paleontology.

DISCUSSION AND CORRESPONDENCE

A PROPOSED NEW "CHALLENGER" EXPLORING EXPEDITION

THE Navy Department through its Hydrographic Office has sent to some forty of representative national scientific societies a request for their opinions as to the value of a scientific exploring expedition which it is proposed to carry out within the Pacific region. Such an expedition would be a modernized "Challenger" expedition to extend over at least a number of years and to have for its primary purpose the preparation of a map of the bottom of the ocean. This can now be accomplished with use of the new sonic depth finder, which in 1921 was perfected within the Navy Department itself. To quote the circular letter of Commander Guy Davis, Acting Hydrographer, "it is now possible to survey the sea-bottom with an accuracy, speed and economy of effort and expense that has heretofore been considered impossible."

Accessory to these sounding operations, which would necessitate extended cruises throughout the Pacific and Caribbean regions, the opportunity would be afforded for taking scientists on board to make studies of oceanography, geology, zoology, botany and anthropology, either at sea or upon the oceanic coasts and islands. Moreover, it would now be a relatively simple matter to take on board a core drill and expert operator, so that with the aid of the enlisted men of the vessel it would be practicable to make deep borings in reefs and on atolls at such positions as to supply an answer for some of the most vexed questions of the day.

The Navy Department, it is assumed, would supply the vessel or vessels together with their navigating and operating personnel, as also the instruments and the staff necessary for the sounding operations. The remaining scientific personnel could, it is suggested, be secured from the educational and research institutions of the country, probably for the most part upon the plan of "leave of absence" with the pay either in whole or in part supplied by these institutions. If the scientific societies included in the questionnaire give their endorsement to the expedition, it is proposed by the Navy Department to invite a committee of scientists named by the National Research Council