

knock compounds, more efficient carburetion and other subjects which have a direct bearing on the problem of keeping the supply of motor fuels of all kinds equal to the demand.

The Division of Dye Chemistry has arranged for a symposium on "The coal tar dye industry in the United States prior to 1914." Nutrition will be discussed in the meeting of the Division of Biological Chemistry, which will hold a symposium on that subject. Attempts to isolate and get a better understanding of vitamins will be reviewed. Agricultural chemists have arranged a symposium on "Insecticides and fungicides" at the meeting of the Division of Agricultural and Food Chemistry.

Chemical problems involved in the production of artificial silk paper, gun cotton, smokeless powder, celluloid and pyroxylin lacquers will be discussed in various papers to be presented before the Division of Cellulose Chemistry. This division will deal particularly with recent achievements in the artificial silk industry at a symposium on "Oxycellulose, cellulose hydrate and hydrocellulose." The Division of Rubber Chemistry will honor the memory of Charles Goodyear, who, by his pioneer work on the vulcanization of rubber, made possible the rubber industry to-day.

Among those who have accepted invitations to speak at the general sessions of the society are Secretary of War John W. Weeks and Dr. Francis P. Garvan, president of the Chemical Foundation.

The dedication of the Sterling Chemistry Laboratory, of Yale University, will be held on Wednesday, April 4, at which members of the chemical society will be guests of the university. Chemists of international note who will be present and take part in the dedication exercises and also in the chemical society meetings will be Professor W. Lash Miller, of Canada; Professor G. Urbain, of France; Professor F. G. Donnan and Principal J. C. Irvine, of England; Professor G. Bruni, of Italy; Professor A. F. Holloman, of the Netherlands, and Professor The. Svedberg, of Scandinavia. Professors M. Gomberg, G. N. Lewis and A. A. Noyes, among others, will represent the United States.

SCIENTIFIC NOTES AND NEWS

DR. EDOUARD BENJAMIN BAILLAUD, director of the Paris Observatory, has been given the Bruce gold medal, awarded by the Astronomical Society of the Pacific. The presentation was made on February 27 by Myron T. Herrick, the American ambassador.

THE Nichols medal of the American Chemical Society has been awarded to Thomas Midgley, Jr., head of the fuel section of the General Motors Research Corporation laboratories at Dayton, Ohio. The medal will be presented in New York on March 9 by Dr. C. A. Browne, chairman of the New York section. Professor Wilder D. Bancroft, of Cornell University, will deliver an address on Mr. Midgley and his work. Mr. Midgley will review the effects of anti-knock compounds on gaseous detonation.

At the meeting of the Franklin Institute on February 21, Dr. Lee de Forest received the Elliott Cresson gold medal awarded to him for his invention of the three-electrode audion. In presenting Dr. de Forest for this award, his invention was characterized as one of the most important ever made in the field of the electrical transmission of intelligence and one which through its development has marked a profound revolution in the art of radio communication.

Two hundred members of the California section of the American Chemical Society attended dinner at the Hotel Bellevue, San Francisco, in honor of Professor E. C. Franklin, president of the American Chemical Society. Dr. Carl L. Alsberg, local chairman, presided, and Professor John M. Stillman was toastmaster. Addresses were made by Professors Leuschner and O'Neill, of the University of California; C. E. Grunsky, representing the Engineers' Society, and Dr. Alonzo E. Taylor and William L. Burdick, of Stanford University. Congratulatory letters and telegrams from many educators and chemists were read.

THE trustees of the University of Wyoming have passed the following resolution: "Be it resolved, that in recognition of the loyal and efficient service given to the University of Wyoming during the past five years by Dr. Aven Nelson, we, the members of the board of trus-

tees, express our appreciation of his untiring efforts toward the development and growth of this institution, and that we do hereby confer upon him the title of president emeritus of the University of Wyoming." Dr. Nelson is resuming his work as professor of botany.

As a result of the International Engineering Congress in Rio de Janeiro, the following North American engineers were elected to membership in the Club de Engenharia; *Corresponding members*: Josiah E. Spurr, editor of the *Engineering and Mining Journal-Press*; Louis J. Hirt, engineer, Pearson Engineering Corporation. *Honorary members*: Verne L. Havens, director *Ingeniería Internacional*; A. W. K. Billings, Canadian and General Finance Committee, Ltd.; Edward Wegmann, consulting engineer; Samuel M. Vanclain, president Baldwin Locomotive Works; Calvin W. Rice, secretary of the American Society of Mechanical Engineers.

DR. RUDOLPH MATAS, of New Orleans, professor of surgery in Tulane University of Louisiana, has been notified of his election to membership in the Royal Academy of Medicine, Barcelona, Spain. He has also recently been elected a corresponding member of the Société Nationale de Chirurgie de Paris.

THE *Journal* of the American Medical Association reports that Dr. Juan Guiteras is living a quiet, rural life since his retirement from the charge of the national public health service in Cuba. On the occasion of the recent Sixth Latin-American Medical Congress at Havana, the Sociedad de Estudios Clínicos presented Dr. Guiteras with a gold medal as a tribute to his distinguished services to science. The address on the presentation of the medal was by Dr. Vicente Pardo Castello, followed by one of the delegates from Brazil to the congress. They spoke of Dr. Guiteras's work on yellow fever and his trip to Africa in 1916 to study epidemics under the auspices of the Rockefeller Foundation, and especially of his share in reducing the death rate from tropical diseases, not only in Cuba but also throughout the world.

THE Italian Association of General and Applied Chemistry has appointed a committee under the presidency of Senator P. Ginori Conti, to arrange a celebration in honor of the

seventy-fifth anniversary of Professor and Senator E. Paternó. As a permanent memorial of the occasion, the committee has decided to establish a memorial fund for the "Paternó medal" which will be conferred annually upon the author of the most important contribution to chemistry, regardless of his nationality. In order that the endowment of this medal may be given an international character, the committee welcomes contributions from the chemists of the world in support of the medal. Subscriptions from American chemists may be forwarded to the Division of Chemistry and Chemical Technology of the National Research Council, Washington, D. C., for transmission to the Italian committee.

A SPANISH journal gives a list of more than one hundred towns in Spain which have renamed a street in honor of Professor Ramón y Cajal. Some have installed large artistic tablets to designate the street.

PROFESSOR HEUBNER, the senior German pediatrician, who for many years was head professor of pediatrics on the University of Berlin Medical Faculty, and who, since his retirement, has been living in a suburb of Dresden, celebrated on January 21 his eightieth birthday.

OWING to a severe illness arising from a wound received during the war in France, Sir T. W. Edgeworth David has resigned his position as president of the Australian National Research Council. His place has been filled by the election of Dr. Orme Masson, professor of chemistry in the University of Melbourne. Professor David continues to serve the council as vice-president.

DR. HUBERT WORK has been transferred from the office of postmaster general to become secretary of the interior, succeeding Albert B. Fall, whose resignation became effective on March 4.

A JOINT resolution has been passed by the Senate and the House of Representatives reappointing Mr. Henry White as a regent of the Smithsonian Institution, appointing Mr. Frederic A. Delano to succeed the late John B. Henderson, and Mr. Irwin B. Laughlin to succeed the late Alexander Graham Bell.

THE Rockefeller Foundation announces that it has elected to its board of trustees Dr. Ray

Lyman Wilbur, president of Stanford University, California, and William Allen White, writer and newspaper editor, of Emporia, Kansas; and to membership on its International Health Board, Dr. David L. Edsall, dean of the Harvard Medical School.

MR. GEORGE W. HOOVER, chief of the Chicago station of the Bureau of Chemistry, has been appointed chief of the newly created Drug Control Laboratory. Mr. M. W. Glover, who has been in charge of the office of drug administration, has been recalled to the U. S. Public Health Service, and Dr. L. F. Kebler, chemist in charge of the Division of Drugs, has been promoted to the position of chemist in charge of special collaborating investigations and will direct the work involved in the enforcement of the Postal Fraud Law.

O. D. STREET, general manager of distribution of the Western Electric Company, has been elected a vice-president of the McGraw-Hill Company. He will have executive charge of *Electrical World*, *Electrical Merchandising*, *Journal of Electricity and Western Industry*, *Industrial Engineer*, *Electric Railway Journal* and *Bus Transportation*.

DR. H. C. COOPER, formerly in charge of physical chemistry and electrochemistry at the College of the City of New York, has removed to Chicago to become director of the scientific department of Bauer and Black, manufacturers of surgical dressings, etc.

W. F. LANTZ has been appointed chief chemist at the plant of the Bethlehem Steel Company, Bethlehem, Pennsylvania, to succeed A. D. Shankland.

W. D. RICHARDSON, chief chemist, Swift and Company; Paul Budnick, chief chemist, Armour and Company, and L. M. Tolman, chemical director, Wilson and Company, constitute a committee of the Institute of American Meat Packers to find a chemist qualified for the directorship of scientific research of the institute.

THE division of chemistry and chemical technology of the National Research Council, Washington, D. C., has named Dr. James R. Withrow, professor of industrial chemistry at the Ohio State University, chairman of the National Research Council committee on the "Use of sodium compounds as a substitute for potas-

sium compounds, both in scientific and industrial work." Professor Withrow declined the position as chairman of this committee four years ago because of the pressure of university work.

DR. MAXIMILIAN TOCH has been invited to deliver a course of lectures as honorary professor of industrial chemistry at the University of Peking and has tentatively accepted for the latter part of 1923 or the beginning of 1924.

P. VAN DE KAMP, chief assistant at the Observatory at Groningen, Holland, has arrived at the University of Virginia, where he will start a year's research at the Leander McCormick Observatory.

DR. MICHAEL SIEDLECKI, formerly the rector of Vilnius University and now a professor of zoology at Cracow, has been invited to lecture at Vassar College during the absence of Professor Cora Beckwith, who has been granted a year's leave of absence.

ST. LOUIS UNIVERSITY announces a series of lectures on "The physiology of the lymphatics" to be given by Dr. Leon Asher, professor of physiology at the University of Berne. These lectures, five in number, will be delivered from March 5 to 9.

DR. E. V. COWDRY, of the Rockefeller Institute for Medical Research, will deliver the eighth Harvey Society lecture at the New York Academy of Medicine, on Saturday evening, March 10, 1923. His subject will be "The significance of the internal reticular apparatus of Golgi in cellular physiology."

PROFESSOR DANIEL STARCH, of Harvard University, gave on January 20 an address at the United States Naval Academy at Annapolis on "The use and limitations of psychological tests."

DR. COLIN G. FINK, head of the division of electrochemistry of Columbia University, gave an address on the "Corrosion of the non-ferrous alloys," at the meeting of the New Jersey Chemical Society on the evening of February 12.

DR. PAUL D. MERICA, director of research of the International Nickel Company, addressed a joint meeting of the Minnesota Sec-

tion, American Chemical Society and the Northwest Chapter of the American Society for Steel Treating on February 19 at the Manufacturers' Club of Minneapolis. His subject was "Nickel, its metallurgical and industrial applications."

ON February 16 and 17, Dr. C. E. Seashore, of the University of Iowa and the National Research Council, conferred with the faculty of the University of Kentucky on the problems connected with the encouragement of scholarship among college students. Dr. Seashore also lectured at an open session of the Kentucky Chapter of Sigma Xi on his work in the study of musical talent.

DR. E. D. BALL, director of scientific work of the United States Department of Agriculture, gave a lecture on "The insect transmission of plant diseases" before the Journal Club of the department of medical zoology of the School of Hygiene and Public Health, Johns Hopkins University, on February 23.

DR. GEORGE T. MOORE, director of the Missouri Botanical Garden, delivered the following addresses at Cincinnati on February 12 and 13: Before the Blue Hydra Society of the University of Cincinnati, "Botany and business;" before the Cincinnati Chamber of Commerce, "The relation of the botanical garden to business and industrial life," and before the Cincinnati Chapter of the Wild Flower Preservation Society, "The relation of a botanical garden to civic life, as illustrated by the Missouri Botanical Garden."

PROFESSOR ALBERT STOWELL FLINT, astronomer emeritus of the Washburn Observatory, University of Wisconsin, died on February 22, aged sixty-nine years.

DR. WALTER S. HAINES, for forty-six years professor of chemistry in Rush Medical College, died on January 27, aged seventy-two years.

DR. JAMES RITCHIE, Irvine professor of bacteriology at the University of Edinburgh, has died at Edinburgh, aged fifty-eight years.

Nature reports that "the centenary of the death of Edward Jenner on January 26, 1823, was celebrated by the Academy of Medicine in Paris on January 23. A large meeting was held at the academy in the Rue Bonaparte, when the president, M. Chauffard, gave a short address, followed by a speech by M. Lucien

Camus, and by communications on the subject of vaccination from MM. Pierre Teissier, Jeanselme, d'Espine and Sir St. Clair Thomson. The busts of Jenner and Pasteur were placed on the right and the left of the platform. After the ceremony a number of mementoes of Jenner in the form of letters by him, and of old cartoons commemorating or deriding vaccination, were shown in one of the halls of the academy. Sir Ronald Ross, a foreign associate of the academy, who represented the British Ministry of Health, handed in also a letter from the president of the Royal Society. Sir Almroth Wright, another foreign associate of the academy, was also present. After the ceremony the president and council of the academy, in honor of the commemoration, gave a dinner."

THE herbarium and library of the late Professor Elias J. Durand, who at the time of his death was chairman of the botany department of the University of Minnesota, have recently been purchased by Cornell University to be installed in the department of plant pathology of the New York State College of Agriculture. The herbarium, which contains over 12,000 specimens, consists almost exclusively of discomycetes, the group on which Dr. Durand was a recognized authority.

THROUGH the generosity of the Botanical Society of Pennsylvania purchases for the botanical department of the University of Pennsylvania have been made from Europe of valuable collections of Cryptogams, especially Bryophytes. These increase manyfold the usefulness of this part of the herbarium, previously insignificant. Additions of this nature approximate 4,000 specimens, with more to come. Further collections include donations from the universities of Copenhagen and Upsala; flowering plants from Scandinavia by Dr. J. W. Harshberger, from Mt. Rainier and the Selkirk Mountains by Dr. R. E. Cleland, from the Northwest Territories by Mr. R. Holroyd, and Algæ and Bryophytes from the Selkirk Mountains and the Bay of Fundy region by Dr. W. R. Taylor.

AN International Geographical and Ethnological Congress will be held in Cairo, Egypt, in 1925.

AN International Air Congress will be held

in London from June 25 to 30 at the invitation of the British government under the presidency of the Duke of York. The Air Ministry has arranged a pageant on June 30.

UNIVERSITY AND EDUCATIONAL NOTES

ACCORDING to a new agreement between the board of permanent officers of the Yale School of Medicine and the corresponding boards of Yale College and the Sheffield Scientific School, admission to the combined course in either undergraduate school will be on a competitive instead of an automatic basis as heretofore. Those seniors will be eligible as candidates for the course whose scholarship standing during the junior year has been seventy-five or above, and who have satisfied the science and language requirements of the medical school. Their applications, which are due before July 1, following the completion of junior year, will, however, be considered in conjunction with all other applications, and the medical class chosen from the entire number of candidates. The Yale undergraduates who are admitted will take the entire first-year medical work and receive credit for the B.A. or B.S. degree. The degree of M.D. is awarded after three years' additional study. As only sixty students are admitted each year from several hundred applicants, the decision to select all members of the first year class in the Yale School of Medicine on the same basis will interest pre-medical students throughout the country.

DR. W. A. WHITE, superintendent of the Government Hospital for Insane at Washington, D. C., announced the establishment of a school at St. Elizabeth's for the instruction of physicians in the treatment of mental and nervous diseases.

PROFESSOR D. H. DAVIS, of the department of geology of the University of Michigan, has accepted a professorship in the University of Minnesota.

DR. EDWARD A. DOISY has been appointed professor of biochemistry at St. Louis University, the appointment to take effect on August 1, 1923. Dr. Doisy is at present associate professor of biochemistry at the Washington University School of Medicine.

DR. J. C. M. BRENTANO has been appointed lecturer in physics at Manchester University.

DISCUSSION AND CORRESPONDENCE

THE FEEDING POWER OF PLANTS

IN a recent paper in *SCIENCE*¹ under the caption quoted above, Mr. Truog elaborates and supplements the discussion of his theory on the "feeding power of plants" as detailed in earlier publications.² His most recent discussion, as well as his earlier ones, are open to such serious question in many important respects that we deem it essential to comment on the principal objections to his theory and his assumptions. Several minor points in the paper first cited above which are open to serious question are not discussed in this review because of the limited space available (in this paper) and because the importance of the points which we do discuss should not in any wise be dimmed by matters of lesser magnitude.

Mr. Truog makes the fundamental assumption that each and every plant species, or group of plants, is characterized by what we may term a specific avidity for the ions in solution in the root medium, and that such specific avidity is contingent upon the reaction of the cell sap and the behest of the law of mass action. This assumption is, in turn, based on the alleged or actual percentages of the various ions found in different kinds of plants. This implies, of course, the fundamental power of the individual root cell to absorb ions in a characteristic manner. In all this discussion, Mr. Truog evidently underestimates the fact that the differences between plants which are in question may be caused, not by the difference in the specific absorbing powers of individual cells, say of legumes and grasses for example, nor yet by the specific reaction of the cell sap, but by the difference in extent of root system, and the difference in the amount and intensity of CO₂ production by roots. The enormous differences which obtain among different kinds of plants as regards the extent of

¹ *SCIENCE*, N. S., 56, 1922, pp. 294-298.

² *SCIENCE*, N. S., 41, 1915, pp. 616-618. *Res. Bull.* 41, 1918, Wis. Agr. Exp. Sta. *Soil Science*, 5, 1918, pp. 169-195, and others there cited.