1, at which time Dr. Samuel Colville Lind, dean of the Institute of Technology of the University of Minnesota, becomes president, succeeding Professor Charles A. Kraus, of Brown University.

The president-elect was chosen by the council of the society from four nominees receiving the largest number of votes in a national poll by mail of the 24,000 members of the society. The council includes national officers, directors, editors of the publications of the society, past presidents, chairmen of eighteen professional divisions and councilors of the ninety-two local sections.

Other elections were:

Directors: Dr. Elmer K. Bolton, chemical director of E. I. du Pont de Nemours and Company, Wilmington, Del., *director-at-large.*

Leason H. Adams, director of the Geophysical Laboratory of the Carnegie Institution, for the fourth district of the society, comprising Alabama, Arkansas, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia and West Virginia.

Dr. Robert E. Swain, head of the department of chemistry at Stanford University, reelected for the sixth district, including Arizona, California, Colorado, Idaho, Iowa, Kansas, Minnesota, Missouri, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oregon, South Dakota, Utah, Washington, Wyoming, Alaska and Hawaii.

Councilors-at-large: Dr. Per K. Frolich, director of the chemical laboratories of the Standard Oil Development Company, Elizabeth, N. J.; Dr. Edward Mack, Jr., of the Battelle Memorial Institute, Columbus; Dr. C. E. K. Mees, vice-president in charge of research and development of the Eastman Kodak Company; Professor William A. Noyes, Jr., of the University of Rochester, New York.

Professor Evans, who received the William H. Nichols Medal of the New York Section of the society in 1929 for his work on the chemistry of carbohydrates, has been a member of the faculty of the Ohio State University for thirty-five years and has been chairman of the department of chemistry since 1928. From 1892 to 1894 he was chemist of the American Encaustic Tile Company, Zanesville, Ohio. He served as assistant in the department of ceramics at the Ohio State University from 1896 to 1898, and instructor in the Colorado Springs High School from 1898 to 1902. He became assistant professor of chemistry at the Ohio State University in 1905, associate professor in 1908 and full professor in 1911.

SCIENTIFIC NOTES AND NEWS

THE American Association for the Advancement of Science and some thirty of its associated and affiliated societies are meeting this week at Columbus. The address of the president, Professor Wesley C. Mitchell, is printed in the present issue of SCIENCE. This will be followed by other addresses of special interest. A general report of the meeting, edited by the permanent secretary, will be printed in the issue for February 2.

DR. ALEXANDER WETMORE, assistant secretary of the Smithsonian Institution, has been elected a corresponding member of the Royal Australasian Ornithologists' Union.

IT is stated in *Nature* that Dr. Gerhard Domagk, who was recently awarded the Nobel Prize for Physiology and Medicine for 1939, has been elected an honorary member of the Pharmaceutical Association of the Hindu University of Benares.

DECORATIONS of the Chinese Order of the Jade were presented on December 20 at a reception in New York City to Dr. John Dewey, professor emeritus of philosophy of Columbia University, in recognition of his work for Chinese students, and to Dr. Nicholas Murray Butler, president of Columbia University. The presentations were made by Dr. Tsune-chi Yu, Chinese Consul-General in New York.

PHILIP TORCHIO, who retired in 1938, at the age of seventy years, from the position of vice-president of the Consolidated Edison Company of New York, Inc., has been awarded the Edison Medal for 1939 of the American Institute of Electrical Engineers in recognition of "distinguished contributions to the art of central station engineering and for achievement in the production, distribution and utilization of electrical energy." The presentation will be made on the evening of January 24 during the winter convention of the institute, which will be held in the Engineering Societies Building, New York.

E. MEAD JOHNSON awards of $500 each were presented by the American Academy of Pediatrics at its annual meeting in Cincinnati to Dr. Frederic A. Gibbs, instructor in neurology, Harvard Medical School, and Dr. Dorothy H. Andersen, New York. The award was made to Dr. Gibbs in recognition of his work on epilepsy and to Dr. Andersen for her work on pancreatic disorders.

E. R. SQUIBB AND SONS have established an annual award of $1,000 to encourage investigation in endocrinology. The administration of this award has been intrusted to the Association for the Study of Internal Secretions, of which Dr. Philip E. Smith is president. Dr. Edward A. Doisy is chairman of the Committee on Awards. Nominations for the 1940 award must be received before March 1 by the secretary of the so-

ciety, E. K. Shelton, 921 Westwood Boulevard, Los Angeles, Calif.

DR. T. L. ALTHAUSEN, associate professor of medicine in the Medical School of the University of California, has been awarded the Van Meter Prize of the American Association for the Study of Goiter in recognition of his work on the thyroid gland.

THE president of the University of Cincinnati and the faculty of the College of Medicine sponsored a dinner on December 6 at the Netherland Plaza Hotel, Cincinnati, in honor of Dr. Albert H. Freiberg, who recently retired as professor of orthopedic surgery. Dr. Martin H. Fischer was toastmaster, and the speakers were Dr. Raymond Walters, president of the university; Drs. Stanley E. Dorst, Mont R. Reid and David I. Wolfstein, and the Rev. Jesse Halsey, pastor of the Seventh Presbyterian Church. A portrait of Dr. Freiberg was presented to him.

DR. HORACE B. ENGLISH, professor of psychology of the Ohio State University, was elected president of the Association of Applied Psychologists at the recent Washington meeting of the association.

THE thirty-second annual meeting of the American Society of Agronomy and the fourth annual meeting of the Soil Science Society of America were held in the Roosevelt Hotel, New Orleans, on November 22, 23 and 24, with an attendance of approximately seven hundred. During the session a hundred and seventy-seven papers on various phases of soils and crops problems were presented. At a general meeting W. C. Lasseter, editor of the *Progressive Farmer,* spoke on "The Social and Economic Problems of Southern Agriculture" and Dean M. J. Funchess, dean of agriculture at the Alabama Polytechnic Institute, discussed "Agronomic Problems of the South." Officers of the American Society of Agronomy elected for 1940 are: *President,* Dr. F. J. Alway, University of Minnesota; *Vice-president,* Dr. L. E. Kirk, Central Experimental Farm, Ottawa; *Secretary-Treasurer,* Dr. G. G. Pohlman, West Virginia University; *Editor,* J. D. Luckett, New York Agricultural Experiment Station, Geneva; *Chairman of Soils Section,* Dr. W. H. Pierre, Iowa State College; *Chairman of Crops Section,* Dr. S. C. Salmon, Bureau of Plant Industry. Officers of the Soil Science Society of America for 1940 are: *President,* Dr. W. H. Pierre, Iowa State College; *Secretary,* Dr. C. E. Kellogg, Bureau of Plant Industry; *Treasurer,* Dr. G. G. Pohlman, West Virginia University.

PROFESSOR HENRI DARWIN HASKINS, for nearly fifty years a member of the faculty of the Massachusetts State College and more recently chief of the laboratory for fertilizer control, having reached the state retirement age of seventy years, the title of emeritus professor of agricultural chemistry has been conferred on him.

THE title emeritus has been conferred by the University of Missouri on Sidney Calvert, who retired in September as professor of organic chemistry and director of the chemical laboratory.

NEW appointments at the New York Medical College include: Dr. Ferdinand C. Lee, associate professor of surgery at the Johns Hopkins University, as professor and head of the department of surgery and dean of the college; Dr. Thomas I. Hoen, of Montreal, as professor of neuro-surgery and head of the department of neuro-surgery and neuropsychiatry; Dr. R. Townley Paton, surgeon of the Manhattan Eye, Ear and Throat Hospital, as professor and head of the department of ophthalmology, and Dr. William H. Everts, of the Neurological Institute of New York, as professor of neurology.

DR. ARTHUR SULLIVAN GALE has resigned as dean of the College for Men at the University of Rochester, effective on January 1. Dr. W. Edwin Van de Walle, professor of philosophy and chairman of the Committee on Advice, will succeed him. Dr. Gale will continue as Fayerweather professor and chairman of the department of mathematics, a post that he has held since 1906.

DR. JOSEPH MURDOCH has been appointed associate professor of geology at the University of California at Los Angeles, where he has taught since 1928.

DR. TZE-TUAN CHEN, a research fellow in the department of zoology of the Johns Hopkins University, has been appointed research associate in protozoology in the School of Hygiene and Public Health.

DR. BIENVENIDO M. GONZALEZ, who for the past twelve years has been dean and head of the department of animal husbandry of the College of Agriculture, University of the Philippines, was formally inaugurated as president of the university on October 19. President Gonzalez is succeeded by Dr. Leopoldo B. Uichanco as dean of the College of Agriculture. Dr. Uichanco continues to be head of the department of entomology.

DR. JUAN BACIGALUPO has been appointed professor of parasitology in the Faculty of Medicine at Buenos Aires to succeed Dr. D. Greenway, who has reached the age limit.

DR. R. Y. WINTERS has been appointed assistant director of research in the Department of Agriculture. He has been a staff member of the Office of Experiment Stations since 1937.

DR. K. A. C. ELLIOTT has been appointed research biochemist at the Institute of the Pennsylvania Hospital, Philadelphia, which is initiating a new program of research in mental and nervous diseases. Dr. Elliott will be in charge of the laboratory.

ALBERT C. CLINE, who has been on the staff of the

Harvard Forest in Petersham, Mass., since 1924, has been appointed director of the forest. He succeeds Ward Shepard, who was director for three years while on leave of absence from the Federal Government, but who has now returned to Washington.

A UNIVERSITY Committee on Pharmacotherapy has been formed at Harvard University. The function of the committee will be to coordinate the efforts of practising physicians and the members of the faculty in biology, chemistry and medicine and to develop research and improved graduate training in pharmacology and experimental therapeutics. In carrying out this program, the committee will bring together chemists and biologists from the Harvard Faculty of Arts and Sciences, pharmacologists, physiologists and biochemists from the Harvard Medical School, and physicians working with patients in hospitals. Dr. Soma Weiss, Hersey professor of the theory and practice of physic at the Medical School, is chairman of the new committee. The other members are: Dr. Fuller Albright, assistant professor of medicine; Dr. Henry K. Beecher, associate in anesthesia; Dean Burwell, *ex-officio;* Dr. Walter B. Cannon, George Higginson professor of physiology; Dr. William B. Castle, professor of medicine; President Conant, *ex-officio;* Dr. Louis F. Fieser, professor of chemistry; Dr. A. Baird Hastings, Hamilton Kuhn professor of biological chemistry; Dr. Frederick L. Hisaw, professor of zoology; Dr. Otto Krayer, associate professor of comparative pharmacology, and Dr. Reginald P. Linstead, professor of chemistry. Funds to support the work for the next five years have been donated by a group of corporations interested in medical and therapeutic research.

THE Wilson photoalidade, that was designed and built in the U. S. Geological Survey several years ago, will be used again this winter by T. W. Ranta in the office-mapping of part of the north slope of the rugged Wrangell Mountains, Alaska, from oblique airplane photographs. Mr. Ranta established the necessary ground control during the recent field season and will use photographs taken by Gerald Fitzgerald, of the Geological Survey, and Bradford Washburn, of the Harvard Institute of Geographical Exploration.

DR. JULIAN A. STEYERMARK, assistant curator of the herbarium of the Field Museum, Chicago, who is conducting an expedition in Guatemala, has during the first month collected specimens of more than a thousand varieties of plants. In the course of his exploration he climbed to the summit of the Sierra de las Minas, which rises above the Motagua River, a region probably never before visited by a botanist. He has also collected the flora of the Motagua Valley desert region of the Atlantic watershed. Dr. Francis Drouet, curator of cryptogamic botany, who with Donald Richards, of the University of Chicago, is collecting in the southwestern United States and northwestern Mexico, has forwarded to the museum a collection of 1,200 algae and other plants from the general region of Las Vegas. N. M.

DR. G. H. PARKER, of Harvard University, lectured on December 18 at an open meeting of the Brown University Chapter of Sigma Xi on the question, "Is Natural Selection a Brutal Process?"

A SERIES of eight lectures at Yale University on the history of science is planned by the Yale Chapter of the Gamma Alpha Graduate Scientific Fraternity. The first seven lectures will trace the history of the basic sciences. The last one will deal with the development of medicine in relation to the other sciences. The program includes lectures by the following members of the faculty of the university: January 16, *Astronomy,* by Dr. Frank Schlesinger; January 30, *Mathematics,* by Dr. Oystein Ore; February 13, *Geology,* by Dr. Chester R. Longwell; February 27, *Chemistry,* by Dr. John A. Timm; March 12, *Physics,* by Dr. Henry Margenau; April 2, *Biology,* by Dr. Lorande L. Woodruff; April 16, *Psychology,* by Dr. Walter R. Miles; April 30, *Medicine and the Sciences,* by Dr. John F. Fulton. Until the time of his death the late Dr. Harvey Cushing was collaborating with Dr. Fulton on the last lecture. In general the plan and scope of the series is similar to the series presented by the fraternity in 1920. Two new subjects, Psychology, and Medicine and the Sciences, have been added.

THE fifth International Congress of Pediatrics, which was to have been held in Boston in September, 1940, has been postponed to an indefinite date. Dr. Henry F. Helmholz, Rochester, Minn., is president of the congress; Dr. Kenneth D. Blackfan, Boston, general secretary, and Dr. Charles F. McKhann, Boston, assistant secretary.

THE new building of the New York Medical College, Flower and Fifth Avenue Hospitals, erected at a cost of $1,500,000, was dedicated on December 12. The speakers included Mayor La Guardia, President Harold Willis Dodds, of Princeton University; Dr. Lewis Hill Weed, director of the School of Medicine of the Johns Hopkins University, and Charles D. Halsey, chairman of the board of trustees. Dr. Claude A. Burrett, president of the college, presided.

BEQUESTS of about $1,500,000 to Northwestern University and $1,000,000 to the University of Chicago for medical and chemical research are provided in the will of Mrs. Clara A. Abbott, who died in 1924. She was the widow of Dr. Wallace C. Abbott, founder of the Abbott Laboratories of North Chicago. The gift to the University of Chicago makes the institution eligible for an additional $1,500,000 grant, given by the Rockefeller Foundation for Research in the bio-

logical sciences, with the proviso that the university raise an additional $500,000 for that purpose.

THE Ruth Lucie Stern Research Laboratory, the gift of Mrs. Louis Stern, built at the cost of about $97,000, has been opened at the School of Medicine of Stanford University at San Francisco. It is three stories high and has more than 6,000 feet of laboratory space. The second floor is occupied by research in pediatrics and the top floor by research in pathological gynecology, endocrinology and cancer.

ERNEST L. WOODWARD has made a gift of $45,000 to the University of Rochester to support the research in epilepsy of Dr. W. P. Van Wagenen, associate professor of neurological surgery at the School of Medicine and Dentistry. The facilities of the Craig Colony for Epileptics, at Sonyea, and of the Rochester State Hospital have been extended to him during the past year. Previous support of the work had come from the Markle Foundation.

THE will of Charles R. Walgreen, founder of the Walgreen drug store chain, who died on December 11, provides for the transfer of the balance of the 19,000 shares of the stock he had pledged previously to the University of Chicago.

LORD NUFFIELD has placed in the hands of trustees ordinary shares of Morris Motors, Limited, worth approximately £1,250,000, to be the nucleus of a fund for the provinces to finance a scheme of hospital regionalization.

THERE will be available on September 1, 1940, a research fellowship in the laboratory of pathology at the Collis P. Huntington Memorial Hospital and in the Department of Pathology at the Harvard Medical School. This carries a stipend of three thousand dollars and may be renewed for a second year. The fellow will be expected to devote most of his time to histologic and cytologic studies of the effects of radiation of different types on normal and pathological tissue. Application should be made to Dr. Shields Warren at the Collis P. Huntington Memorial Hospital, Boston.

DISCUSSION

RADIOACTIVITY IN BIOLOGICAL EXPERIMENTS

THE successful production of radioactive materials by a cyclotron has led to interesting biological experiments in which these substances are used as tracers. In this new field many results have already been obtained, some of which are in disagreement with previously held opinions. This has given rise to the fundamental question of whether a radioactive element has the same properties as the element in its normal form.

Radioactivity. This question is unfortunately sometimes the result of a misunderstanding of the nature of radioactivity. It is sometimes erroneously believed that radioactive atoms continually emit radiations. A radioactive atom does not emit any radiation at all until the very end of its existence, when it changes into another element. The tracer experiments involve only atoms which have not yet radiated. It is clear that future emission of such radiations can not have any influence upon the present atomic properties.

Atomic Weight. The radioactive atoms have an atomic weight slightly different from normal atoms. This can have an effect upon some of their properties such as the rate at which they diffuse through a membrane. However, effects of this kind are well known to be exceedingly small and barely observable even in specially designed physical experiments.

Normal elements also consist generally of a mixture of atoms of different atomic weights, called isotopes. There is some evidence[1] that the mixture has a slightly different composition when taken from different parts of the animal system. This difference is very small, showing clearly that living tissue does not possess a pronounced ability to distinguish between isotopes. It is obvious that such minute effects need only be considered after the quantitative accuracy of the tracer experiments has been very much improved.

Presence of Radiation. A fraction of the tracer atoms will emit radiations during the progress of the biological experiment. Though such atoms lose their rôle as tracer, one may ask whether the presence of this radiation does not alter the properties of the living organism and influences the result of the tracer experiment. In these experiments the radioactive element is so greatly diluted and the radiation so weak that such an effect seems very unlikely. The following simple observation can verify this in doubtful cases. If the result of the tracer experiment were due to the presence of the radiation, the yield of the experiment should be approximately proportional to the *square* of the amount of tracer administered instead of in direct proportion to it.

In this connection it is also interesting to examine Zwaardemaker's well-known hypothesis that the radioactivity of potassium is responsible for its physiologi-

[1] A. Keith Brewer (*Jour. Am. Chem. Soc.*, 58: 869, 1937) finds that the potassium in bone marrow consists for about 6.75 per cent. of the isotope of atomic weight 41; in other organic and inorganic sources the percentage is 6.58 per cent.