knowledge concerning the various departments of science; to promote intercourse among men engaged in scientific work, especially in Pennsylvania; to assist by investigation and discussion in developing and making known the material, educational and other resources and riches of the commonwealth; to arrange and prepare for publication such reports of investigation and discussion as may further the aims and objects of the academy." Three classes of membership were provided for in this constitution: active, for those actually engaged in scientific work; associate, for those interested in science who are not qualified for active membership; and honorary, for those who have attained special prominence in science. A meeting will probably be held in November and an annual meeting next spring. Officers for the academy were elected as follows:

President: Dr. O. E. Jennings, University of Pittsburgh.

Vice-president: Dr. C. E. McClung, University of Pennsylvania.

Secretary: Mr. Joseph Illick, State Department of Forests and Waters.

Assistant Secretary: Dr. T. L. Guyton, State Department of Agriculture.

Treasurer: Dr. Frank D. Kern, Pennsylvania State College.

Editor: Dr. George H. Ashley, state geologist, Department of Forests and Waters.

Press Secretary: Mr. J. P. Kelly, Pennsylvania State College.

The executive committee is to consist of the officers and former presidents. Since there are no former presidents to serve, the following names were added to the executive committee: Dr. J. B. Miller, Lehigh University (4 years); Dr. W. V. Bingham, Carnegie Institute of Technology (3 years); Dr. John A. Miller, Swarthmore College (2 years), and Professor S. H. Derrickson, Lebanon Valley College (1 year).

JOHN SCOTT MEDAL AWARDS

AT a special meeting of the American Philosophical Society held on Friday, May 2, the City of Philadelphia through its Board of Directors of City Trusts made the annual presentation of the John Scott Medal Awards as follows:

TO FREDERICK G. BANTING, M.D., physiologist, of London, Ontario, who in 1920 and 1921 succeeded in preparing a potent extract of the experimentally atrophied pancreas; a condition produced by ligating the pancreatic duct. The injected extract increased materially the life of depancreatized dogs by enabling them to retain larger amounts of sugar. In these researches there were associated with Dr. Banting, Drs. Macleod, Best and Callip.

TO WILLIAM W. COBLENTZ, Ph.D., physicist of the U. S. Bureau of Standards, for his unsurpassed skill in the design and construction of thermopiles and radiometers of the highest sensitivity with which he has actually measured the radiation of the fainter stars.

TO ELMER VERNER MCCOLLUM, Ph.D., Sc.D., professor of biochemistry, School of Hygiene and Public Health, Johns Hopkins University, who demonstrated in 1913 a growth promoting vitamin in butter fat, the first of a long series of researches by him and his collaborators on the presence in various foods of other similar substances, promoting growth and maintaining health.

TO RALPH MODJESKI, D.Eng., of New York City, for his skill in bridge designing, having designed and built the Columbia and Williamette River bridges in Oregon, the McKinley bridge at St. Louis, the Broadway bridge at Portland, Oregon, the Cherry Street bridge at Toledo. He is now chief engineer of the Delaware River bridge.

SCIENTIFIC NOTES AND NEWS

AT the meeting of the National Academy of Sciences held in Washington on April 30 new members were elected as follows: Arthur Byron Coble, University of Illinois, mathematician; Charles Edward St. John, Mt. Wilson Solar Observatory, astronomer; Harlow Shapley, Harvard College Observatory, astronomer; Karl Taylor Compton, Princeton University, physicist; Arthur Becket Lamb, Harvard University, chemist; William Crowell Bray, University of California, chemist; Frederick Belding Power, Bureau of Chemistry, chemist; Andrew Cowper Lawson, University of California, geologist; Charles Elmer Allen, University of Wisconsin, botanist; Lorande Loss Woodruff, Yale University, zoologist; Stanley Rossiter Benedict, Cornell Medical College, physiological chemist; Frederick George Novy, University of Michigan, pathologist; Hans Zinsser, Harvard Medical School, bacteriologist; George Sumner Huntington, Columbia University, anatomist; Raymond Dodge, Wesleyan Univresity, psychologist.

MEDALS of the National Academy of Sciences have been presented as follows: The Agassiz medal to Otto Sven Pettersson, of Sweden; the Henry Draper medal to Arthur S. Eddington, of the University of Cambridge; the Watson medal to C. V. L. Charlier, of Sweden; the Daniel Giraud Elliot medal, for 1921, to Bashford Dean, of Columbia University; for 1922, William Morton Wheeler, of Harvard University, and for 1923, to Ferdinand Canu, of Versailles, France.

FUNERAL services in memory of Ernest Fox Nichols were held at St. John's Episcopal Church, Washington, on the afternoon of May 3. The pallbearers, representing the National Academy of Sciences, were: Dr. George E. Hale, Mount Wilson Observatory; Professor William Duane, Harvard University; Professor M. I. Pupin, Columbia University; Dr. David Fairchild, the Department of Agriculture; Professor

Ernest Merritt, Cornell University, and Dr. C. G. Abbot, the Smithsonian Institution.

DR. ROBERT A. MILLIKAN, director of the Norman Bridge Laboratory of the California Institute of Technology, is about to sail for Sweden, where he will deliver on May 23 the lecture in connection with the award to him of the Nobel prize in physics.

DR. ELIHU THOMSON, one of the founders of the General Electric Company and director of the research laboratory at the Lynn (Mass.) works, sailed for Italy on April 26, to be gone for three months. In England he will receive the Lord Kelvin gold medal.

PROFESSOR GEORGE M. BERINGER, Camden, N. J., former editor of the *American Journal of Pharmacy* and president of the American Pharmaceutical Association, has been awarded the Remington Honor Medal of the association.

GILBERT RIGG, formerly with the New Jersey Zinc Co., is one of the joint recipients of the gold medal of the Institution of Mining and Metallurgy (London). The award was made conjointly to him and H. E. Gepp in recognition of their services to the science and practice of metallurgy, with special reference to the treatment of zinc ores and the development of electrolytic zinc in Australia.

THE President of Chile has conferred upon Wilson Popenoe, agricultural explorer of the U. S. Department of Agriculture, the decoration "Al Mérito" in recognition of his services to Chilean agriculture. This order was founded by the liberator O'Higgins, shortly after Chile gained her independence in 1818. Mr. Popenoe is the eighth North American to receive it.

FRANK B. GILBRETH, industrial engineer, of Montclair, N. J., and a member of the A. S. M. E., has been elected a member of the Masaryk Academy of Work in Czechoslovakia.

THE seventieth anniversary of the birth of Ehrlich, the distinguished pathologist, was celebrated at Frankfort, on March 14, when an address was delivered by his successor, Professor Kolle.

DR. JULIUS WATJEN, of Bremen, has been appointed director of the Pathological Institute of the University of Berlin to succeed Professor W. Ceeley.

BRIGADIER GENERAL HARRY TAYLOR, now assistant chief of the corps of engineers of the army, has been appointed chief, to fill the vacancy which will be caused by the retirement on June 18 of Major General Lansing H. Beach. He will have the rank of major general. The vacancy resulting from the promotion of General Taylor will be filled by the promotion of Colonel Edgar Jadwin to the rank of brigadier general and the post of assistant chief.

DR. L. B. BALDWIN, for many years superintendent of the University of Minnesota Hospital on a half-time basis, has accepted a full-time appointment from the regents. The change was made necessary by plans for immediately enlarging the hospital. Two units, one a cancer hospital and the other an eye, ear, nose and throat pavilion, will be erected this summer. The university has received a gift with which in about two years it will erect a hospital unit for the care of pediatric cases.

DR. ANTHONY J. LANZA has been appointed executive officer of the National Health Council to succeed Dr. Donald B. Armstrong. Dr. Lanza was for three years connected with the health organization of the commonwealth of Australia.

FRANK G. HORTON has been made assistant secretary of the Illuminating Engineering Society, succeeding the late Dr. Ralph Chapman Rodgers.

DR. H. A. GLEASON, of the New York Botanical Garden, sailed for England on May 3, and will spend three months in research on the flora of northern South America at the Royal Botanic Garden, Kew, England, and at the Museum of Natural History, Paris. He will attend the British Botanical Congress, to be held in London in July.

FREDERICK G. CLAPP, of New York, is absent on a geological exploring expedition into the heart of the Kimberley desert in the north-central part of Western Australia.

DR. MANUEL GAMIO, director of the Bureau of Anthropology of Mexico, recently visited the United States upon invitation of the Carnegie Institution of Washington and delivered two addresses in Washington on the anthropology and archeology of Mexico. These lectures were followed by conferences in which leading representatives of archeological studies in this country took part. The Carnegie Institution announces that as result of arrangements consummated during Dr. Gamio's visit, immediate steps will be taken to inaugurate its program for archeological investigations in Yucatan in accordance with agreement with the Mexican government on this subject which was reached prior to the outbreak of the Mexican revolution. The party which will take the field this spring for preliminary investigations and excavations at Chichen Itza will consist of S. G. Morley, associate in archeology; Earl H. Morris, archeologist in charge of excavations; Monroe Amsden and O. G. Ricketson, Jr., assistant archeologists.

DURING the week of April 7 to 12, Dr. Charles P. Berkey, professor of geology, Columbia University,

lectured before the Geographic Society of Chicago, the Sigma Xi Society of Northwestern University and the Union League Club of Chicago on the "Exploratory investigations of the third Asiatic expedition in the Desert of Gobi." On the tenth a lecture was given before the Dip and Strike Club of Northwestern University on "The geologic problems of the Catskill aqueduct."

PROFESSOR WILLIAM A. NOYES, of the University of Illinois, gave an address on "Positive and negative valences" at University College, London University, the University of Cambridge, the University of Oxford and Manchester University during the first week in May. The lecture was given before the French Chemical Society in Paris on February 22.

PROFESSOR A. S. EDDINGTON, of Cambridge University, after attending the meeting of the British Association at Toronto, will proceed to the University of California, where he will lecture in the department of physics during the first semester of 1924–25. He will offer a lecture course on general relativity and a seminar on problems of sidereal astronomy. He will also give a short course of popular lectures.

PROFESSOR W. L. BRAGG, of the University of Manchester, England, will give the two courses in the summer session of the University of Michigan on (a) X-ray crystal analysis and (b) Recent contributions in the field of x-rays and their interpretations. Professor Bragg will be in residence at Ann Arbor for four weeks beginning on July 14.

DEAN CONANT WORCESTER, formerly of the Department of Zoology of the University of Michigan and Secretary of the Interior of the Philippines from 1901 to 1913, since which he became manager for commercial companies in the islands, died suddenly on May 2, aged fifty-eight years.

DR. EUGENE DUPUY, formerly vice-president of the Société de Biologie of Paris and assistant to Brown-Séquard at the Collège de France, has recently died at the age of seventy-seven years. He was the author of publications on epilepsy and diseases of the nervous system.

DR. GARIEL, former professor of physics in the medical department of the University of Paris, has died at the age of eighty-three years. He had been previously chief engineer of bridges and highways, and professor of physics and chemistry at the École des ponts et chaussées.

A. L. LOVETT, professor of entomology at the Oregon Agricultural College, died on April 25, at the age of thirty-eight years. A correspondent writes: "Professor Lovett's studies of poison insecticides, spray solutions, their combinations and applications, are estimated to have saved hundreds of thousands of dollars to Oregon growers alone. He first developed the idea of using spreaders in sprays, which has been adopted all over the country, and worked out effective methods for combating European earwig, grasshoppers and other insect pests. He was known as a scientific man who made science meet the practical problems of agriculture."

THE eighty-eighth Congress of German Natural Scientific Men and Physicians and Medicine will be held at Innsbruck from September 21 to 26, under the presidency of Professors von Schweidler and Haberer. Among the papers that will be read are: Constitution and character, by Professor Gruhle, of Heidelberg; the problem of body and soul, by Professor Hoche, of Freiburg; the "speech" of bees, by Professor v. Frisch, of Breslau, and the blood and special senses of insects, by Professor Knoll, of Prague.

THE fifth national convention of Sigma Gamma Epsilon, the professional geological, mining and metallurgical fraternity, was held at Golden, Colorado, April 18 and 19, as the guest of the Lambda Chapter at the Colorado School of Mines. This organization has succeeded in arousing more vital interest of students in the work of the departments of geology, mining and metallurgy, has helped to raise the standards of scholarship in these departments, and has banded together an increasingly large, loyal and enthusiastic group of men who are worthily accomplishing the practical ends for which their training in school has prepared them. The fraternity was founded at the University of Kansas in 1915. C. E. Decker, secretary-treasurer, reported a growth in number during the past six years from four to thirteen chapters, with additional charters granted to Washington State College at Pullman and the University of California at Berkeley. There are active chapters at the universities of Kansas, Nebraska, Oklahoma, Texas, Utah, Missouri, Minnesota, Michigan, Pittsburgh and Cornell, Pennsylvania State College and at the Colorado and Missouri Schools of Mines. Officers of the Grand Council elected for the next biennium are: Charles E. Decker, president, University of Oklahoma; E. F. Schramm, vice-president, Univresity of Nebraska; C. B. Carpenter, secretary-treasurer, Colorado School of Mines; W. A. Tarr, editor, University of Missouri, and C. A. Bonine, historian, Pennsylvania State College.

WE learn from the London *Times* that the Australian Government has decided to establish a solar observatory at Mount Stromlo, in the Federal capital territory, to link up with existing institutions in England, India, America and Central European countries. The world chain of solar observatories will thus be completed. The Minister for Home and Territories,

Senator Pearce, explains that the project, which is warmly supported by the Royal Society, the British Association for the Advancement of Science, the International Solar Union, and other scientific bodies, has been under consideration for some years, but its realization was delayed by the outbreak of war. Professor W. G. Duffield, of University College, Reading, an Australian by birth, has been instrumental in obtaining two valuable gift telescopes for the proposed observatory, and also about £1,500 for the purchase of other equipment. The remainder of the equipment required, and the necessary buildings for the housing of the instruments and staff, will be provided by the Australian government, which will undertake the maintenance of the observatory. One of the results hoped for from Australia's participation in the international scheme of solar research is a better knowledge of the causes of weather changes, which, in turn, should lead to more accurate and longer-range weather forecasting. The existing Australian observatories will remain under state control.

RECENTLY there was held at the Bureau of Standards a conference having for its object the reduction of the number of sizes and kinds of paper which have been carried in stock as well as the standardization of nomenclature and testing methods. The conference was attended by manufacturers, merchants and users of paper. Six committee reports, which had been submitted to the bureau, were placed before the conference, and they were accepted unanimously as a basis for further action. A list of the standard sizes of sheets and widths of rolls was proposed and approved, and lists of sizes for each kind of paper will be submitted for approval to the industries making and using such paper. When the standard sizes are finally adopted, these sizes will be regularly carried in stock by dealers, other sizes being made to special order only. This will reduce very much the amount of stock which must be carried by dealers and will decrease their overhead charges. It will also result in a more efficient utilization of the mills and in more prompt delivery of orders of standard sizes. The users will benefit by the change as they will be able to get paper to meet their needs on much shorter notice.

Nature writes: "In his recent presidential address to the Institute of Physics, Sir J. J. Thomson gave some account of the work he saw during his recent visit to America in the research departments of some of the great manufacturing firms. These laboratories were established in the face of considerable opposition, but now the unanimous opinion appears to be that the research department is one of the most profitable in manufacturing concerns, and, however great the necessity for economy, its cost would be the last to be reduced. The scale of the laboratories is far greater than anything in Great Britain, and much of the work carried out is not merely what may be called development work, but is fundamental scientific work, worthy of a university laboratory. On the other hand, the American universities do not seem designed to produce a large number of men qualified to take up advanced research work. For example, few of the science students have the necessary equipment in mathematics, and the stern training which a good honors man in a great English university has to go through appears to be unknown. The system is doubtless good for the average man, but a successful research institute requires something more than the average man: it needs men with high scientific knowledge. In this regard, Great Britain has a distinct advantage which is sorely needed if it is to hold its own in competition."

ACCORDING to an article in *Nature*, the Imperial Russian Government in 1912 ordered from Messrs. Sir Howard Grubb and Sons, Ltd., a forty-inch reflecting telescope for Simeis Observatory, Crimea, and the preliminary designs for the instrument were made in collaboration with Dr. Belopolsky, the late Dr. Backlund and Sir David Gill. In 1922 instructions were received from the Soviet Government to complete the instrument, and it is now undergoing tests at Messrs. Grubbs's works at St. Albans. The glass mirror, 40¼ inches diameter and 8 inches thick, weighs about 900 pounds, and is mounted on a system of levers so arranged as to cause an equal pressure on 9 out of 12 portions of equal area of the lower face of the mirror, the remaining 3 portions being supported on adjusting screws for squaring the mirror. Nine weighted levers mounted on universal joints compensate for the side pressure of the mirror, these levers being out of action when the tube is vertical, and gradually coming into action as the tube is moved towards the horizontal. These systems of levers are similar to those used in the sixty-inch Mount Wilson telescope.

THE London *Times* reports that the British Ministry of Health announces that a royal charter has been granted for the incorporation of the Governing Body of the London School of Hygiene and Tropical Medicine, which is to be established as a result of the donation of $2,000,000 given by the Rockefeller Foundation for the purpose. It will be remembered that the Rockefeller Foundation in 1922 offered to provide a sum of two million dollars towards the cost of building and equipping an Imperial and International School of Hygiene (to be affiliated with London University), on the understanding that the British government should accept the responsibility of providing for staffing and maintain-

ing the school when established. The government accepted the offer. The foundation then acquired a site near Gower street. More recently Dr. Andrew Balfour was appointed director. The departments of the school for which provision is to be made include (1) Applied physiology and principles of hygiene; (2) Chemistry and bio-chemistry; (3) Immunology and bacteriology; (4) Medical zoology; (5) Epidemiology and statistics; (6) the practice of preventive medicine, general sanitation, and administration; (7) Tropical medicine (and hygiene). The school will provide for the training and equipment of public health officers, and for research in the various branches of preventive medicine, and its objects have been defined by Sir George Newman as: (*a*) To make instruction of university standard available in every department of hygiene; (*b*) to further the practice of hygiene, not only in this country and the British Empire, but in all parts of the world.

UNIVERSITY AND EDUCATIONAL NOTES

BY the will of Dr. G. Stanley Hall, president emeritus of Clark University, the bulk of his estate is left to the university for the creation of "the G. Stanley Hall Foundation, the principal to be held intact forever, and the income used exclusively for research in genetic psychology."

THE will of Dr. Theophil Mitchell Prudden leaves to Yale University $5,000 for the study of American archeology.

THE new $300,000 electrical engineering building at the University of Minnesota will be open for use in May.

PROFESSOR ROSWELL PARKER ANGIER, director of the Psychological Laboratory of Yale University, has been appointed professorial lecturer in psychology at the University of Chicago; Dr. William Talioferio, of the Johns Hopkins University, associate professor of hygiene and bacteriology; Dr. G. K. K. Link, associate professor of plant physiology, and Dr. Fay Cooper Cole, assistant professor in anthropology.

ASSISTANT PROFESSOR H. HORTON SHELDON, of the department of physics of New York University, in charge of the Washington Square Laboratory, has been promoted to the rank of associate professor. New appointments for next year include Max Petersen, Lloyd B. Hamm, T. D. Phillips, Vernon Guthrie, F. C. Farnham and J. H. Rourbaugh.

PROFESSOR C. J. LYNDE, of Macdonald College, McGill University, has been appointed professor of physics in the school of Practical Arts, Teachers College, Columbia University.

DISCUSSION AND CORRESPONDENCE

THE SPECTRUM OF HELIUM IN THE EXTREME ULTRA-VIOLET

THE investigation of the spectrum of helium in the extreme ultra-violet on which I have been long engaged and which had pretty nearly come to a standstill for want of an untarnished diffraction grating, has recently been set in motion again by the energy and kindness of Professor R. W. Wood, who has furnished me with several instruments from the engine at Johns Hopkins University. As a result I am able to make some additions to the facts already announced.

In the first place several new terms have been added to the oS–mP series whose first member lies at λ-584.4, making seven lines in all. Moreover a continuous spectrum extending from the limit of this series toward the extreme ultra-violet has been observed. This phenomenon was obtained with a disruptive discharge and its reality is subject to all the uncertainties which accompany this form of excitation. However, as this type of spectrum is of some theoretical interest its appearance is worthy of note.

Secondly, I have found two members of the first, and probably the most important, enhanced series, $4N((1/1^2)-(1/m^2))$; they occur, as they should, at λ 303.6 and λ 256.3.

Lastly, there is a new line at λ 591.5 which fits the relation oS–1π, interesting because it furnishes the first experimental evidence for radiation from helium involving a so-called intersystem combination, that is to say, a jump from a doublet energy level to the fundamental singlet level.

These results have all been checked with two or more gratings.

THEODORE LYMAN

JEFFERSON LABORATORY,
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PORTRAITS OF NATURALISTS

PROFESSOR PIERCE'S letter in SCIENCE for April 4 (LIX, No. 1527, pp. 318–319) suggests a note which may interest readers of SCIENCE.

Many workers have collections of portraits (mostly photographic). When visiting laboratories, we frequently see large collections, framed and hanging on the walls, as notably, for example, in George H. F. Nuttall's laboratory at the Molteno Institute, Cambridge University, England. In his letter in SCIENCE, Professor Pierce speaks of the fading of photographs and the attempt which they make at Stanford to collect engravings and prints, for permanence.

For many years I have kept in my office in the Bureau of Entomology at Washington a registration