

These officers, together with the following hold-over officers, will constitute the board of directors for the next administrative year, beginning August 1:

R. F. Schuchardt (retiring president), Chicago, Illinois; Bancroft Gherardi, New York, N. Y.; E. B. Merriam, Schenectady, N. Y.; H. A. Kidder, New York, N. Y.; W. T. Ryan, Minneapolis, Minnesota; B. D. Hull, Dallas, Texas; G. E. Quinan, Seattle, Washington; I. E. Moulthrop, Boston, Massachusetts; H. C. Don Carlos, Toronto, Ontario; F. J. Chesterman, Pittsburgh, Pennsylvania; F. C. Hanker, East Pittsburgh, Pennsylvania; E.

B. Meyer, Newark, New Jersey; H. P. Liversidge, Philadelphia, Pennsylvania; J. Allen Johnson, Niagara Falls, N. Y.; A. M. MacCutcheon, Cleveland, Ohio; A. E. Bettis, Kansas City, Missouri.

The annual report of the board of directors, presented at the meeting, showed a total membership on April 30 of 18,133. In addition to three national conventions and three regional meetings, 1,400 meetings were held during the year by the local organizations in the principal cities and educational institutions in the United States and Canada.

SCIENTIFIC NOTES AND NEWS

THE Lister medal of the Royal College of Surgeons has been awarded to Dr. Harvey Cushing, Moseley professor of surgery in the Harvard Medical School and surgeon-in-chief of the Peter Bent Brigham Hospital. Dr. Cushing has undertaken to give an address in London in 1930.

THE final banquet of the convention of New York State Veterinarians, which has been in session at Cornell University, was devoted to paying tribute to Dr. Veranus A. Moore, retiring dean of the college of veterinary medicine. A testimonial scroll was presented on behalf of his many colleagues, former students and members of the veterinary profession by Professor W. A. Hammond, dean of the university faculty, and a tribute was paid in an address by Dr. Frank H. Miller, of New York City. On June 30 Dr. Moore completed thirty-three years of service to Cornell University, the state and the nation, twenty-one years of which he was dean of the college.

PRESIDENT HERBERT HOOVER, Surgeon-General H. S. Cumming, of the U. S. Public Health Service, and Dr. Frederick F. Russell, of the Rockefeller Foundation, have been elected honorary members of Delta Omega, the honorary public-health society. The gold key and the certificate of the society were presented to Mr. Hoover at the White House on June 18, by Lieutenant-Colonel Edward G. Huber and Dr. James A. Tobey, national president and secretary, respectively. Surgeon-General Cumming also participated in this ceremony. The only other honorary member of Delta Omega is Dr. Charles V. Chapin, of Providence, R. I., former president of the American Public Health Association.

THE degree of doctor of engineering was conferred on June 14 on Dr. Wm. H. Hobbs, head of the department of geology in the University of Michigan, by the Worcester Polytechnic Institute, where he delivered the commencement address on "Engineering and Polar Exploration."

AT the commencement exercises of Williams College the doctorate of science was conferred on Dr. Robert Allyn Budington, head of the department of zoology at Oberlin College.

DR. FRANK C. JORDAN, professor of astronomy in the University of Pittsburgh, received the honorary degree of doctor of science at the ninety-fourth annual commencement of his alma mater, Marietta College, on June 17.

AT the recent commencement exercises of Lehigh University the honorary degree of doctor of engineering was conferred on Robert Ridgway, of New York City, chief engineer of the New York City Transit Commission and past president of the American Society of Civil Engineers; the degree of doctor of science upon John Arthur Wilson, of A. F. Gallun and Sons Company, Milwaukee, in recognition of his work in the fields of colloidal and biochemistry and his contributions to the knowledge of leather technology, and the degree of doctor of laws upon Henry Chapman Mercer, of Doylestown, Pa., for his contributions to research in archeology and his inventions in the manufacture of art tiling.

DR. THOMAS McCRAE, Philadelphia, has been elected president of the Association of American Physicians for the ensuing year. Dr. Rufus I. Cole, New York, has been elected vice-president, and Dr. James H. Means, Massachusetts General Hospital, Boston, secretary. The next annual meeting will be at Atlantic City on May 6 and 7, 1930.

PROFESSOR R. E. BUCHANAN, of the department of bacteriology at Iowa State College and dean of the graduate school, has been asked to serve as president of the section of bacteriology of the International Botanical Congress to be held in Cambridge, England, in August of 1930.

AT the annual general meeting of the Institute of Physics, London, held on May 28, the following officers were elected: *President*, Dr. W. H. Eccles;

Honorary Treasurer, Major C. E. S. Phillips; *Honorary Secretary*, Professor A. O. Rankine. Sir Ambrose Fleming, Sir James Jeans and Sir Oliver Lodge were elected honorary fellows of the institute.

PROFESSOR CHARLES J. CHAMBERLAIN, who joined the department of botany of the University of Chicago in 1897 as specialist in plant morphology and cytology, retired at the end of the academic year. Dr. George W. Myers, professor of the teaching of mathematics and astronomy in the school of education, also retires from active service.

PROFESSOR DOUGLAS JOHNSON, of Columbia University, has been appointed consultant to the board recently established by the chief of engineers of the U. S. Army to study sand movements and beach erosion along the Atlantic coast.

IN accordance with the recommendation of the Committee on the Study of Educational Problems in National Parks, Secretary Wilbur has appointed a committee to advise the director of national parks on matters of educational policy and development. Its personnel is: John C. Merriam, *chairman*; Wallace W. Atwood, Isaiah Bowman, Hermon C. Bumpus, Vernon Kellogg, Frank R. Oastler and Clark Wissler.

THE commission appointed by President Hoover to study proposed changes in the boundaries of Yellowstone National Park is announced as follows: Dr. E. E. Brownell, of San Francisco, who introduced antelope into the Grand Canyon; Dr. T. Gilbert Pearson, president of the National Association of Audubon Societies; Dr. Arthur Morgan, president of Antioch College, an engineer; C. H. Ramsdell, of Minneapolis, a landscape architect, and Arthur Ringland, an expert in forestry.

DR. A. G. McCALL, chief of the soils investigations unit of the bureau of chemistry and soils, has been appointed chairman of the Federal-State Committee on Soil Erosion, appointed by Dr. A. F. Woods, director of scientific work of the department, to develop a national program for control of soil erosion and to set up erosion-prevention and moisture-conservation stations on eighteen erosion areas over the country, under an appropriation of \$160,000 made by Congress for this purpose. The four other members of the committee are: S. H. McCrory, chief agricultural engineer of the Bureau of Public Roads; Dr. E. H. Clapp, assistant forester in charge of the research of the Forest Service; Dr. J. G. Lipman, dean of the New Jersey State College of Agriculture and director of the New Jersey Agricultural Experiment Station, and A. B. Conner, director of the Texas Agricultural Experiment Station.

DR. F. S. BRACKETT, of the University of California, has joined the Smithsonian Institution to undertake studies in the correlation between wavelengths and intensities of radiation and the growth of plants, and also fundamental investigations of the chemical relations of radiation such as may throw light upon the problem of so-called photosynthesis. Dr. O. R. Wulf, of the Fixed Nitrogen Research Laboratory, is also associated with the institution in the study of methods of measurement of ultra-violet rays useful for the prevention and cure of rickets in human beings and animals.

EIGHT men under direction of Dr. E. A. Birge, president emeritus of the University of Wisconsin, will spend the summer among the lakes of northeastern Wisconsin to study the contents of lakes, a task which Dr. Birge began thirty years ago.

PROFESSOR H. V. WILSON, head of the department of zoology of the University of North Carolina, will be absent on leave on the Kenan Foundation during the session 1929-30. During his absence Professor R. E. Coker will be acting head of the department; Dr. J. Manson Valentine, now at Western Reserve University, will be assistant professor of zoology, and Alan Mozley, now of the Johns Hopkins University, instructor in zoology. Dr. C. Dale Beers was recently promoted to become associate professor of zoology. Professor Wilson's address after September 1 will be The Zoological Station, Naples, Italy.

DR. RICHARD G. TYLER, professor of sanitary engineering at the Massachusetts Institute of Technology, who was recently appointed dean of the engineering school of the University of Washington, will spend the summer in Europe.

THE Colorado State Historical Society expects to start its archeological field work for this season about July 1. The work will be under the direction of Dr. Paul S. Martin, who will continue his excavations in the towers, kivas, refuse heaps and unit-type pueblos which abound on the mesas in the vicinity of Ackmen, Colorado.

PROFESSOR PANCHANAN MITRA, head of the department of anthropology and lecturer in ancient Indian history and culture at the University of Calcutta, is engaged in a study of Polynesian culture, with a view to tracing affinities of Indian culture. This study will be correlated with the work of Dr. E. S. Craighill Handy, ethnologist on the staff of Bishop Museum, who has been making a study of Indian culture. Professor Mitra, who is now completing his work in Hawaii, will, as a Bishop Museum fellow, extend his studies to the South Pacific, visiting Samoa, Fiji, Society Islands, Cook Islands and New Zealand.

DR. KARL MEYER, director of the University of California Hooper Foundation for Medical Research, left recently for Canada and Europe for a three-months' study of contemporary research in the Mediterranean and Malta fevers, and of public health problems in the canning industry. In Canada, he presided over a meeting of the American Association of Medical Milk Commissions, held in Montreal, on June 24 and 25.

DR. JEWELL B. KNIGHT, of Harvard University, formerly at the Agricultural College of Poona, India, sailed for Nicaragua on June 13 as a representative of the Tropical Plant Research Foundation. Dr. Knight will remain for several months to prepare a plan for an agricultural school and experiment station which the government of Nicaragua proposes to establish.

A CONTRIBUTION of \$1,000 has been received by Stanford University Medical School to start a memorial in honor of the late Dr. Richard G. Brodrick, superintendent of Stanford University hospitals and formerly president of the American Hospital Association. The income will be used for clinic free beds.

THE *British Medical Journal* states that the contributors to a fund to commemorate the late Sir David Ferrier and his pioneer work upon the functions of the brain have requested the council of the Royal Society to accept the sum of £1,000 in trust for the institution of a David Ferrier Lecture. The council, in accepting the trust, decided that the lecture should be given triennially on "a subject relating to the advancement of natural knowledge of the structure and function of the nervous system." The first David Ferrier Lecture was delivered by Sir Charles Sherrington, O.M., G. B. E., on June 20, at the rooms of the Royal Society, Burlington House, at 4:30 P. M. The title of the lecture was "Some Functional Problems attaching to Convergence."

A BRONZE portrait plaque of the late Sir William Schlich was recently unveiled in the School of Forestry at Oxford by the vice-chancellor, Dr. F. W. Pember. Sir William Schlich was at one time inspector-general of forests to the Government of India, and afterwards professor of forestry at Cooper's Hill and later at the University of Oxford. In addition to the bronze plaque, the committee formed in 1926 to raise a memorial fund has asked and received permission from the forestry commissioners to set apart an area of forest to be named the Schlich Forest, situated if possible within easy reach of Oxford, which will be available for experimental work. Subscriptions amounting to about £1,700 have already been received from various parts of the British Empire and the United States. The interest on the sum col-

lected will be paid each year in rotation to different parts of the Empire and to the United States, and devoted to some purpose calculated to further the cause of forestry.

THE United States Civil Service Commission announces the following examinations for associate and assistant civil engineer, at salaries from \$2,600 to \$3,700. Applications must be on file not later than July 24. The examinations are to fill vacancies in the Engineer Department at Large, War Department, throughout the United States and in positions requiring similar qualifications. Competitors will not be required to report for examination at any place, but will be rated on their education, experience and fitness. An examination will be held on July 23 for the position of junior mathematician in the U. S. Coast and Geodetic Survey at a salary of \$2,000.

THE Botanical Society of America met at Hanover, N. H., on June 25, for the first of two summer meetings. The delegates who were the guests of Dartmouth College planned field trips and discussion of botanical problems under the leadership of Harvard, Cornell, Yale and University of Toronto professors. The second meeting will be held at the University of Wyoming in August.

AN Associated Press dispatch reports that nearly two hundred scientific men sailed from Tilbury, England, on June 27, for South Africa on the *Llandovery Castle* for the annual meeting of the British Association scheduled in Cape Town, Johannesburg and Pretoria during July and August. The contingent was an advance guard of the 550 members of the association making the trip, the remainder traveling on other steamers on various dates. South Africa is allowing films and lantern slides for lectures to be imported free of duty and the shipping companies have placed projection lanterns on board so that lectures can be given *en route*.

THE London *Times* reports that Messrs. Henry Sotheman, Limited, of Piccadilly and the Strand, are offering for sale a large number of books, many of which, if not all, at one time formed part of the library of Sir Isaac Newton. The story of the "find" forms one of the romances of bookselling. The existence of Newton's library was quite unknown until recent times. In 1920 a sale of furniture took place in a country house, which contained about 30 lots of books, some of which were described "with the autograph of Isaac Newton." Some of these books came into the possession of Messrs. Sotheman, and were catalogued as such in their science catalogues. Quite recently the owner of these books discovered a number of other volumes that had formed part of this library, and on examination they were found to con-

stitute the larger and more important of Newton's library, and these books are now offered for sale *en bloc*. The collection consists altogether of 858 volumes, nearly all in contemporary binding. Eighty-three of the books show actual marks of Newton's handwriting, and 20 have his autograph signature. Four of these are of special interest, as they bear the date of 1661, the year in which Newton entered Trinity College, Cambridge. The most important items of the collection are the first and second editions of the "Principia," full of corrections, cancellations and additions, all in Newton's handwriting. There is also the corrected copy of the first edition of the "Opticks," 1704, with an important note by Newton on the limits of telescopic performance. There are also a large number of books and tracts on mathematics, navigation and political economy, and altogether the collection is one of remarkable scientific interest.

DURING the centenary celebrations of the Cockerill Works at Seraing, Belgium, the King made an appeal for the creation of a National Fund for Scientific Research. In less than a year a sum of 112,000,000 francs was subscribed by 1,200 contributors, and the fund began its work. The results so far achieved have now been made public. Grants have been made to enable thirty young doctors or engineers to devote themselves to scientific research under the aegis of their employers and 78 subsidies were allocated to other research students.

A COMPLETE modern hospital plant, valued at \$100,000, has been offered as a free gift to the town of Marblehead, Massachusetts, by Dr. Joel E. Goldthwait, of Boston, and his brother William J. Goldthwait, of Marblehead.

A LIFE-SIZE restoration of a Neanderthal family has been placed on exhibition in Ernest R. Graham Hall of Historical Geology at the Field Museum of Natural History, Chicago. The group consists of the hunter and head of the family, a mother and baby, a boy of about twelve years and an old woman, represented as engaged in occupations typical of their time and stage of development. For background the group has a reproduction of a cave at Le Moustier, France, and a scene representing the near-by country. The group is a gift to the museum from Ernest R. Graham, one of the institution's trustees. It is the work of Frederick Blaschke, sculptor, of Cold Spring, N. Y., who was a member of the recent Marshall Field, Jr., Archeological Expedition to Western Europe, led by Henry Field, assistant curator of physical anthropology at the museum. Through the cooperation of leading anthropologists of England and France, measurements, casts and data were obtained from Neanderthal skulls and skeletons for use in making the

reconstructions. Among those who assisted the members of the expedition were Professor Sir Arthur Keith, president of the Royal College of Surgeons, London; Professor G. Elliott-Smith, of University College, London; Abbé Henri Breuil and Professor Marcellin Boule, of Paris.

THE *Journal* of the American Medical Association writes that next September Italian students of genetics and eugenics will meet in Rome under the chairmanship of Professor Corrado Ricci. Foreign students of eugenics, who, on the occasion of the annual meeting of the International Federation of Eugenics, will be in Rome on that date, will be invited to attend this meeting. Among the speakers, Professor Artom will speak on genetic constitution and the changes that result from the union of different races; Professor Baglioni on somatic and genetic functions; Professor Enriquez on environment and heredity according to the most recent investigations; Professor Pestalozza on sterilization, and Professor Quagliarello, of Naples, on the influence of nutrition on the characteristics of the offspring. Professor Foà, physiologist of Milan, will illustrate the topic of biologic factors of birth control.

SIGMA DELTA EPSILON (Scientific Fraternity for Graduate Women) established a new chapter at Northwestern University on May 28. This organization, which meets a long-felt need by promoting closer association among women doing scientific work, has made rapid growth since its establishment at Cornell University in 1921. Since that date chapters have been established at the University of Wisconsin, the University of Illinois, the University of Missouri, the Iowa State College, Brown University, the University of Chicago, the Ohio State University, the University of Nebraska and in New York City. Dr. Stella M. Hague, of the University of Illinois, is national president of this organization, and Dr. Helen Jean Brown, of the Ohio State University, national secretary.

THE Mawson Antarctic expedition ship, *The Discovery*, which has been laid up in the South India Dock for some time, has, according to the *London Times*, now been moved into the Blackwall Dry Dock, where she will be fitted with echo-sounding gear for measuring the depths of the ocean. It is expected that she will leave the dry dock early in July and will then be berthed in the East India Dock, where she will take on board stores and equipment for the expedition. *The Discovery* is due to sail from London on August 1, under the command of Captain J. K. Davis, Director of Investigation in the Marine Department of the Commonwealth Government, on a two years' expedition of research. She will have a

crew of 26, and a number of the scientific staff will sail with her from the Thames. The vessel will call at Cardiff, where her bunkers will be filled with patent fuel. She will then proceed to Cape Town and will take on board Sir Douglas Mawson, the leader of the expedition, and the remaining members of the scientific staff. Captain Frank Hurley has been appointed official photographer to the expedition. Mr. W. J. Griggs, who has been in the service of the P. and O. Company, has been appointed chief engineer of *The Discovery*. Captain Hurley accompanied the Antarctic expedition of 1911-14 as official photographer, and afterwards acted in a similar capacity with the *Endurance* expedition, under Sir Ernest Shackleton, in 1914-17. In the war, Captain Hurley served as official photographer to the Australian forces. He carried out exploratory work in New Guinea and recently made a flight from Australia to Europe.

UNIVERSITY AND EDUCATIONAL NOTES

THE University of Pennsylvania has received a gift of \$500,000 from Edward B. Robinette, Philadelphia banker and trustee of the university, for the establishment of three professorships. The gift was the third made by Mr. Robinette during the year. The first was of \$250,000 to the Robinette Foundation and later an additional \$250,000 was given for any use needed.

By the will of James B. Wilbur, Chicago banker and a summer resident of Manchester, Vermont, a trust fund of between \$2,000,000 and \$3,000,000 has been left to the University of Vermont, subject to the condition that the university limit its number of students.

Two Paul Williams research fellowships of \$1,000 have been established at Purdue University, one for the X-ray laboratory and one for the optical laboratory.

DR. JOHN FARQUHAR FULLER, JR., of St. Paul, Minnesota, who in 1928 received a three-year appointment as fellow of Magdalen College, has been appointed head of the department of physiology at Yale University. Dr. Farquhar will attend the Thirteenth International Physiological Congress in Boston in August and will then return to Oxford. He will begin his work at Yale on July 1, 1930.

APPOINTMENTS to professorships in the school of mines of Columbia University are of Dr. Thomas Thornton Read, in mining and metallurgy, and of Dr. Eric Randolph Jette, now associate professor of chemistry in New York University.

DR. K. LARK-HOROVITZ, professor of physics at Purdue University, has been appointed director of the laboratory of physics. Dr. G. E. Reed has been appointed assistant professor.

DISCUSSION

A MECHANICAL PARALLEL TO THE CONDITIONED REFLEX

It is common knowledge that when a person eats, his "mouth waters." It is well known that this mouth watering is apt to occur also when one merely catches sight of delicious food. The first reaction is an unconditioned (native, unlearned) reflex; the second is a conditioned (acquired) reflex. In the first reaction the food substance stimulates the sense organs in the mouth which, in turn, evokes a salivary reflex established before birth; in the second reaction the sight of food has been substituted for the contact of the food with the mouth. Nevertheless, in both cases substantially the same reaction follows.

It is believed by increasing numbers of students of human and other mammalian behavior that the conditioned reflex, with its power of substituting one stimulus for another, is the basic mechanism not only of ordinary habits but of the entire mental life. For some years this view has been vigorously advanced in this country by the behavioristic psychologists. In Russia, where the movement originated, its activity

has been characteristically experimental in nature. Thanks largely to the labor of the Russian reflexologists during the last quarter century there now exists a very substantial body of knowledge tending strongly to support this view.¹ As a result, psychologists more and more are looking to the conditioned reflex as an explanatory principle by means of which to understand the more complex forms of behavior and as a practical means of more effectively molding human nature in the education process. Physiologists, facing in the opposite direction, are stimulated to explore the still more basic physical and chemical processes upon which the conditioned reflex itself depends.

The belief of the reflexologists and the behaviorists that the mental life is essentially a function of various complex organizations of conditioned reflexes offers a challenge to the attempt at a synthetic verification. Logically, if it were possible to construct non-living

¹ The most significant summary of the Russian experimental results now available to English readers is the recent translation of I. P. Pavlov's great work, "Conditioned Reflexes." Oxford University Press, 1927.