

on "Michael Faraday and the Theory of Electrolytic Conduction." Section C (Geology), Professor J. W. Gregory. Section D (Zoology), Professor E. B. Poulton, F.R.S., on "A Hundred Years of Evolution." Section E (Geography), Sir Halford J. Mackinder on "The Human Habitat." Section F (Economic Science and Statistics), Professor E. Cannan on "Internationalism in Economic Theory." Section G (Engineering), Sir Alfred Ewing on "Power" (including the thesis proposed by Sir Frederick Bramwell in 1903 to deal with "the whole question of the prime movers of 1931, and especially with the then relation between steam engines and internal combustion engines"). Section H (Anthropology), Professor A. R. Radcliffe-Brown. Section I (Physiology), Dr. H. H. Dale on "The Biological Nature of Filtrable Viruses." Section J (Psychology), Dr. C. S. Myers on "The Nature of Mind." Section K (Botany), Professor T. G. Hill on "The Advancement of Botany." Section L (Educational

Science), Sir Charles Grant Robertson on "Educational Theory, 1831 and 1931." Section M (Agriculture), Sir John Russell on "The Changing Outlook in Agriculture."

Excursions and visits, both general and sectional, will be arranged to many points of scientific interest in and near London. An invited party will visit York, the birthplace of the association, on Saturday and Sunday, September 26-27. Down House, the home of Darwin, now held by the association in custody for the nation, will be open to members throughout the meeting, as well as for sectional visits to be arranged. A geological excursion to East Anglia is contemplated during the week preceding the meeting, September 16-22.

It is anticipated that receptions will be given on Thursday, September 24, by the Royal Society in connection with the Faraday Centenary Celebration, and on Friday, September 25, by H.M. Government. Other receptions are expected to be arranged.

## SCIENTIFIC NOTES AND NEWS

DR. ALBERT A. MICHELSON, the eminent physicist, died at Pasadena on May 9, aged seventy-eight years.

THE National Advisory Council on Radio in Education announces the first of a series of radio lectures, entitled the "Men of America" series, to be broadcast over country-wide networks. President Hoover, speaking from the White House, will introduce the first speaker of the series, Dr. Robert A. Millikan, who will talk from Los Angeles at ten o'clock daylight saving, New York time, on the evening of Friday, May 22. Dr. Millikan's inaugural address will be transmitted to the first annual assembly of the council in session in New York at the New School for Social Research.

THE Institute of Human Relations was dedicated on May 9 at Yale University. Dr. Ray Lyman Wilbur, Secretary of the Interior, spoke on "The Institute and American Education"; Dr. George E. Vincent, formerly president of the Rockefeller Foundation, on "The Institute and the Broader Aspects of Public Health"; Governor Wilbur L. Cross, of Connecticut, on "The Institute and the Community"; and President James Rowland Angell on "The Organization and Work of the Institute."

DR. WILLIAM H. WELCH, professor of the history of medicine and director of the Institute of the History of Medicine at the Johns Hopkins University School of Medicine, sailed for Europe on May 2. He will receive a medal to be conferred on him by the Royal Sanitary Institute of London.

A MARBLE bust of Mr. Thomas A. Edison was un-

veiled on May 7 in Munich at the German Museum Hall of Fame beside that of Werner von Siemens, Germany's electrical pioneer. Mr. Howel Henry Barnes, Jr., of the General Electric Company, unveiled the bust for the Edison Pioneers Society and the American Institute of Electrical Engineers, the donors. He read a letter from Mr. Edison, who expressed the hope that international friendship might be promoted by electrical science.

THE Daniel Guggenheim Gold Medal for notable achievement in aeronautics has been awarded to Dr. Frederick William Lancaster, of Birmingham, England, for his contributions to "the fundamental theory of aerodynamics." Previous awards of the medal have been to Orville Wright and Dr. Ludwig Prandtl.

THE fifth award of the Charles B. Dudley medal, established by the American Society for Testing Materials for recognition of meritorious papers on research in engineering materials, has been made to Mr. A. H. Pfund, professor of physics at the Johns Hopkins University. The award was presented for a paper entitled "Hiding Power Measurements in Theory and Application," presented at the annual meeting of the society in 1930.

COLONEL WILLIAM L. KELLER, Medical Corps, chief of surgical service, Walter Reed General Hospital, Washington, D. C., will be the recipient on June 2 of the honorary degree of doctor of science at the commencement exercises of the Medical College of Virginia. Dr. Keller is an alumnus of this institution.

It is announced in *Nature* that the Linnean Medal for 1931 of the Linnean Society of London has been awarded to Professor Karl E. von Goebel, professor of botany in the university and director of the Botanical Gardens, Munich. The following have been proposed as foreign members of the society: Professor Carl Christiansen, of Copenhagen; Dr. K. E. Correns, director of the Kaiser Wilhelm Institute of Biology, Berlin; Dr. L. Diels, director of the Botanical Gardens, Berlin, and Professor F. A. F. C. Went, professor of general botany in the University of Utrecht.

STUDENTS, colleagues and friends of Professor Duncan Starr Johnson gathered for dinner at the Belvedere Hotel in Baltimore on May 2 to celebrate the completion by Professor Johnson of thirty years as professor of botany at the Johns Hopkins University. Following the addresses, an oil painting of Professor Johnson, done by Mr. Thomas C. Corner, was presented to President Ames of the university to keep until a formal presentation can be made at a gathering of the university as a whole. There was also presented to Professor Johnson a book of letters and portraits.

ON the evening of May 4 the eighth annual meeting of the Virginia Chapter of Sigma Xi was held. Twenty-one candidates were admitted to membership at this meeting. The annual address was delivered by Dr. W. F. G. Swann, director of the Bartol Research Foundation of the Franklin Institute, on "The Philosophic Concept of Modern Physics." The seventh annual award of the President and Visitors' Research Prize of one hundred dollars was made to Dr. S. A. Mitchell, professor of astronomy and director of the Leander McCormick Observatory, for his work on "The Spectrum of the Chromosphere."

THE twenty-second Kelvin lecture of the British Institute of Electrical Engineers was delivered on April 30, by Professor William L. Bragg, on "The Architecture of Solids." On this occasion the Faraday Medal was presented to Mr. Charles H. Merz.

PROFESSOR GEORG TISCHLER, professor of botany at the University of Kiel, has accepted an invitation to occupy the Speyer professorship at the Johns Hopkins University for 1931-32.

DR. ALEXANDER MCADIE, since 1913 A. Lawrence Rotch professor of meteorology at Harvard University and director of the Blue Hill Observatory, will become professor emeritus next February. He will be on sabbatical leave during the first half of the next academic year.

DR. FRED GRIFFEE has succeeded the late Dr. Warner Jackson Morse as director of the Maine Agricultural Experiment Station.

MR. R. E. DOHERTY, consulting engineer of the General Electric Company, has been appointed professor of electrical engineering in the Sheffield Scientific School of Yale University. Professor Scott will continue as chairman of the department during the coming year when he will have reached the retiring age and Professor Doherty will then become the head of the department.

PROFESSOR JAN SCHILT, of Yale University Observatory, has been appointed head of the department of astronomy at Columbia University. He will take up his duties there about October 1.

DR. GEORGE SHERMAN AVERY, member of the staff of the Liggett and Myers Research Foundation at Duke University since 1928, has been appointed professor of botany at Connecticut College.

DR. JOHN A. KOLMER, professor of pathology and bacteriology at the Graduate School of Medicine, University of Pennsylvania, has been appointed professor of immunology and chemotherapy at Temple University School of Medicine on a part-time basis.

DR. N. B. MACLEAN, formerly professor of mathematics at the University of Winnipeg, has been appointed professor of mathematics at McGill University, as successor to Professor D. A. Murray, who has retired.

DR. M. N. STATES has resigned his professorship in physics at the University of Kentucky to accept the directorship of research and development of Central Scientific Company, succeeding Dr. P. E. Klopsteg, who became president of that company a year ago. Dr. States assumes his new duties at the close of the present school year.

DR. GEORGE N. WOLCOTT, identified with the early developments of economic entomology in Porto Rico, later working in Haiti and Peru, has returned to Porto Rico, being at present entomologist at the Isabela Sub-Station, of the local department of agriculture at Isabela.

DR. ROBERT M. OSLUND, acting head of the department of physiology at the University of Illinois College of Medicine, has resigned in order to complete his medical training. He will act as interne in California during the coming year.

MR. PAUL H. OEHSER was appointed editor for the U. S. National Museum on April 16, to succeed Dr. Marcus Benjamin, who has retired. Mr. Oehser for the past six years has been doing editorial work at the Biological Survey, U. S. Department of Agriculture. His office will be on the third floor of the Smithsonian Building.

DR. F. LAMSON-SCRIBNER, of the U. S. Department of Agriculture, who retired in 1922 and who was

eighty years of age on April 19, has been appointed by the Chicago Century of Progress Exposition to cooperate with the department and with the state agricultural experiment stations in planning an exhibit for the experiment stations.

THE Institute of International Education of New York City announces that Mr. Max Askanazy, director of the Pathological Institute of the University of Geneva and founder of the International Society for Geographical Pathology, will lecture this coming fall in the United States and Canada. He has recently lectured in various European centers and will speak on "The Pathology of Bone Marrow and Cancer." Mr. Hans Kleinmann, privatdozent of the Pathological Institute of the University of Berlin, inventor of the micronephelometer and microcolorimeter, will lecture from October 15 to December 15.

SIGMA PI SIGMA, honorary physics fraternity, recently elected Dr. W. E. Forsythe, of the Nela Research Laboratories, as an honorary member of the society. After addressing an open meeting of the Gamma chapter at the Pennsylvania State College on "The Production and Measurement of Ultra-Violet Radiation," Dr. Forsythe was initiated into the fraternity on April 27.

THE annual dinner of the Thomas Say Entomological Society of Purdue University was held April 15, at which time Dr. W. S. Blatchley addressed the society on "The Days of a Naturalist."

DR. FREDERICK P. GAY, of the College of Physicians and Surgeons of Columbia University, will deliver the eighth Harvey Society Lecture at the New York Academy of Medicine, on Thursday, May 21. His subject will be "Tissue Resistance and Immunity."

AT the invitation of the committee on the revision of the United States Pharmacopoeia to recommend standards for vitamins A and D to be incorporated in the next decennial issue of the volume, to be published in 1935, a number of students of vitamins met in New York at the Hotel Pennsylvania. A special committee was appointed, including Dr. H. C. Sherman, of Columbia University (chairman); Dr. E. V. McCollum, of the Johns Hopkins University; Dr. Lafayette B. Mendel, of Yale University; Dr. Arthur D. Holmes, director of research, The E. L. Patch Company, Stoneham, Massachusetts; Dr. E. M. Nelson, of the U. S. Department of Agriculture; Dr. Charles E. Bills, director of the biochemical research laboratory of Mead, Johnson and Company, Evansville, Indiana, and Dr. Harry Steenbock, of the University of Wisconsin.

DR. WHITMAN H. JORDAN, who resigned as director of the New York State Agricultural Experiment Sta-

tion at Geneva, N. Y., in 1921, after twenty-five years' service, died on May 8. He was seventy-nine years old. Dr. Jordan was director of the Maine State Experiment Station before going to New York in 1896 and before that was a professor at Pennsylvania State College.

DR. WARNER JACKSON MORSE died on March 25. He went to the Maine Agricultural Experiment Station in 1906 to head the department of plant pathology. In 1921 he became director of this institution and he held this title at the time of his death.

IRVING PORTER CHURCH, emeritus professor of civil engineering at Cornell University, died on May 7. He was eighty years old.

PROFESSOR HERBERT HAROLD WAITE, head of the department of bacteriology at the University of Nebraska, died on April 25, at the age of sixty-two years.

THE Botanical Society of New Orleans held its last regular meeting of the spring and summer on April 28, at Newcomb College, New Orleans. The following officers were elected for the coming year: *President*, Dr. Miriam L. Bomhard, department of biology, Newcomb College; *Vice-president*, Professor Wm. T. Penfound, department of botany, Tulane University; *Secretary*, Philip C. Wakeley, Southern Forest Experiment Station; *Treasurer*, Dr. L. J. Pessin, Southern Forest Experiment Station.

CHARLES H. TAYLOR, of the *Boston Globe*, was re-elected president of the Boston Society of Natural History at the annual meeting on May 6. Other officers are: *Vice-presidents*, Nathaniel T. Kidder, Glover M. Allen and William M. Wheeler; *Secretary*, Clinton V. McCoy; *Treasurer*, Augustus P. Loring, Jr.; *Trustees*, Thomas Barbour, Joseph A. Cushman, William L. W. Field, Laurence B. Fletcher, Frederic H. Kennard and John C. Phillips. The Walker prize committee reported awarding first prize for this year to Arthur Sylhla, of the State College of Washington, Pullman, Wash., for a paper on "A Comparative Life History Study of the Mice of the Genus *Peromyscus*." Second prize went to Tzetuan Chen, 3905 Spruce Street, Philadelphia, for a paper on "Sympathetic Nervous System of Annelids." Because of the "marked merit" of the first prize paper, it was voted to increase the amount of the award from the usual \$60 to \$100. Second prize consists of \$50.

THE first regular meeting of the American Association of Physics Teachers was held at the Bureau of Standards in Washington on Thursday, April 30. The meeting was addressed by Dr. Albert W. Hull, assistant director of research at the General Electric

Company, on the subject, "Qualifications of a Research Physicist." The discussion was led by President Karl T. Compton, of the Massachusetts Institute of Technology. The attendance was about six hundred. A dinner and business meeting were held in the evening at which there was general discussion of the plans of the organization. The first annual meeting will be held in New Orleans in connection with the meetings of the American Association for the Advancement of Science, probably on December 31. The programs for this meeting are being arranged by the executive committee. Application has been made for affiliation with Section B of the American Association for the Advancement of Science. The association, which was organized at the Cleveland meeting, now numbers four hundred members. The campaign for increase of membership is continuing. Applications received prior to June 1 will result in enrolment of the applicant as a charter member. The secretary of the association is Professor William S. Webb, University of Kentucky, Lexington.

THE North Texas Biological Society, an organization made up of teachers and major students of biology and geology of a number of schools of North Central Texas, held a spring field meeting on May 1 and 2. More than sixty were in attendance at the meeting, which was held at the Worth Ranch Boy Scout camp in the Palo Pinto Mountains, west of Mineral Wells. The Friday evening program was given over to talks on the natural history of the region, while Saturday was spent entirely in field work. The plant students, under the direction of Professor Albert Ruth, of Fort Worth, dean of southwestern botanists, now eighty-seven years old, enjoyed particularly rich collecting.

THE reconstruction of the Royal Institution, in Albemarle Street, London, was celebrated on the

evening of May 6 by a house warming, when guests were received by the president, Lord Eustace Percy, and the managers.

THE annual report of the National Institute of Industrial Psychology records that in every one of the many fields of the institute's activities 1930 has proved another record. Membership of the institute has increased from 1,430 to 1,600. The number of applicants for vocational guidance has increased by more than 50 per cent. compared with 1929. Investigations in factories, etc., have covered a varied field, and it is pointed out that "In a review of the past ten years the most satisfactory feature has been that not only have investigations been carried on for periods varying from one to eight years, but firms have come back to the institute for further help.

MR. SCOTT TURNER, director of the United States Bureau of Mines, estimated the total value of mineral products in the United States in 1930 to be approximately \$4,795,000,000. This is a drop of about 18 per cent. from the total value of mineral products in 1929. Declines in values, accounted for both by lower unit prices and by the falling off in output of nearly all mineral products, are principally explained by the depression prevailing during the year in most lines of industrial activity. The total value of metallic products in 1930 decreased about 33 per cent., as compared with 1929. Notable decreases in total values, ranging from approximately 25 to 50 per cent., were recorded for copper, iron, silver, lead and zinc, but the value of gold production increased slightly. The total value of nonmetallic mineral products in 1930 decreased about 15 per cent. from the preceding year. Of the mineral fuels, the total value of natural gas increased, while the total values of bituminous coal, natural gasoline and petroleum recorded sharp declines.

## DISCUSSION

### UNDERTOW AND RIP TIDES

SEVERAL years ago I contributed an inquiry to these pages on the disputed subject of the undertow, which is supposed to drag surf-swimmers below the water surface and drown them. The inquiry aroused some discussion but brought forward little positive knowledge. One correspondent described a *surface* current, deflected off shore by a groin, as an "undertow," but without citing any evidence to show that it towed swimmers *under* water. Another implied a dangerous state of things in the so-called "rip tide" at Long Beach, a shore resort south of Los Angeles, California, by writing that, if I would come out there and try sea bathing, he would pay my funeral ex-

penses; but apart from that tragic aspect of the case he gave no information whatever. One correspondent, a good swimmer, described a moderate, outgoing under-current that was felt outside of the surf in a small bay; such a current as one might suppose could be produced in compensation for an inward surface drift caused by a strong on-shore wind; but no on-shore wind or drift was mentioned. No one gave a careful description of an actual undertow that he had experienced, distinguishing it critically from the ordinary oscillatory movements of the water in the swell and surf near a beach; no one described an undertow as a recurring phenomenon, definitely related to the pattern of the shore and the form of the