

President Livingston Farrand, of Cornell University, has accepted the invitation of the committee to deliver the opening address at the Washington ceremonies, which will be witnessed by an invited audience of eminent scientists and other distinguished men and women.

The executive committee in charge of the celebration consists of Dr. Flexner, chairman; John A. Kingsbury, 49 Wall Street, secretary; Dr. William H. Howell and Dr. William G. MacCallum, of Baltimore; Dr. William T. Councilman and Dr. Harvey Cushing, of Boston; Abraham Flexner, Homer Folks, John D. Rockefeller, Jr., and Wickliffe Rose, of New York; Dr. Eugene L. Opie, of Philadelphia, and Vernon Kellogg and Senator Frederic C. Walcott, of Washington. Professor Albert A. Michelson, of the University of Chicago, has accepted the chairmanship of the general committee, which is now being formed.

"America owes more to Dr. Welch than can ever be told in any tributes," according to the statement issued by the committee. "Half a century ago he began his leadership in modernizing American medicine. Through the reforms which he has instituted in medical study, through his researches, the many hundreds of doctors trained by him, and the vital public health measures which he has inspired, it is literally true that millions have benefited from his contribution."

THE NINTH PLANET

ANNOUNCEMENT was made on March 13 by Dr. V. M. Slipher, director of the Lowell Observatory at Flagstaff, Arizona, of the discovery of a celestial

body whose rate and path among the stars indicate a new planetary member of the solar family beyond the outermost known planet, Neptune.

Twenty-five years ago Dr. Percival Lowell, who founded Lowell Observatory, began a mathematical investigation for a planet beyond Neptune. The probability of locating such a body, however, was difficult and involved enormous and intricate computations.

In 1914 he announced as the result of his calculations the possibility and distance of the predicted body in a large memoir, a Lowell Observatory publication.

The search of the skies directed by Dr. Lowell's theoretical work was begun by photography in 1905 and has been continued to the present time. The use was made of the best available instruments, the search covering that band of the skies in which the known planet traveled.

Early last year, the Lawrence-Lowell telescope, a highly efficient special instrument for the search, was put in operation. Some weeks ago (January 21) Mr. C. W. Tombaugh detected an object on a plate made with the telescope, which has since been followed carefully.

It has been observed photographically with the large Lowell reflector by C. O. Lampland and it has been observed visually with the larger refractor by the various members of the staff.

All observations indicate the object to be the one which Lowell saw mathematically.

SCIENTIFIC NOTES AND NEWS

THE annual stated meeting of the National Academy of Sciences will be held in Washington on April 28, 29 and 30.

THE regular spring meeting of the executive committee of the American Association for the Advancement of Science will occur at Washington on Sunday, April 27. Memoranda concerning business to come before the committee at that meeting should be received at the permanent secretary's office in the Smithsonian Institution Building by April 21.

PROFESSOR KARL TAYLOR COMPTON, now head of the department of physics of Princeton University, has been elected president of the Massachusetts Institute of Technology. Dr. Compton will take office next July, when Dr. Stratton will become chairman of the executive committee and of the corporation, a newly created position in which he will share the responsibilities of administration.

THE American Institute of Chemists has awarded

its medal "for noteworthy and outstanding service to the science of chemistry and the profession of chemist in America" to Mr. George Eastman, of the Eastman Kodak Company.

THE Society of Arts and Sciences has awarded its annual gold medal to Dr. J. McKeen Cattell, psychologist of New York, and to Professor Gilbert N. Lewis, physical chemist of the University of California, for outstanding accomplishment in the field of science. Mr. Walter Russell, president of the society, announces that the formal presentation will be made at a dinner at the Hotel Biltmore on April 17. Last year Professor A. A. Michelson and Professor R. A. Millikan received the medals. Mr. Thomas A. Edison was the recipient in 1928.

THE Medical Faculty of the University of Freiburg on March 11 conferred an honorary doctorate on Dr. Herbert M. Evans, professor of anatomy in the University of California, in recognition "of his conspicu-

ous anatomical and biological discoveries, especially in the sphere of vitamin research, both of which are scientific and of world interest."

DR. FLOYD K. RICHTMYER, professor of physics at Cornell University, will receive the Louis E. Levy Medal awarded by the committee of science and arts of the Franklin Institute of Philadelphia, at the annual medal-day exercises to be held in the hall of the institute on May 21, for his paper on "Some Secondary Phenomena in X-ray Spectra," which appeared in the *Journal* of the institute for September, 1929.

DR. THOMAS DARLINGTON, of New York City, celebrated on March 12 the fiftieth anniversary of the beginning of his practice. In recognition of his service to the city as head of the Health Department from 1904 to 1910, he received from Dr. Shirley W. Wynne a gold badge bearing the title "Health Commissioner Emeritus."

BARON KOI FURUICHI, of Tokyo, has been elected an honorary member of the British Institution of Civil Engineers.

THE council of the Royal Society, at its meeting on February 20, as reported in *Nature*, has recommended for election into the society the following fifteen candidates: Herbert Stanley Allen, professor of natural philosophy, University of St. Andrews; Edward Battersby Bailey, professor of geology in the University of Glasgow; Frederick T. Brooks, university lecturer in botany, Cambridge; Paul Adrien Maurice Dirac, university lecturer in mathematics, Cambridge; Harold Ward Dudley, chemist, National Institute for Medical Research, Hampstead; Charles Alfred Edwards, principal and professor of metallurgy, University College, Swansea; Harry Eltringham, entomologist, Hope Collections, University of Oxford; Charles Edward Inglis, professor of mechanism and applied mechanics, University of Cambridge; Harold Spencer Jones, H.M. astronomer at the Cape of Good Hope; Eric Keightley Rideal, lecturer in physical chemistry, University of Cambridge; Robert Robison, assistant chemist, department of biochemistry, Lister Institute; John Stephenson, formerly lecturer in zoology, University of Edinburgh; George Paget Thomson, professor of natural philosophy, University of Aberdeen; Charles Todd, department of experimental pathology, National Institute for Medical Research; William Whiteman Carlton Topley, professor of bacteriology and immunology, London School of Hygiene and Tropical Medicine.

At a meeting of the Geological Society of London, held on February 21, the following officers and new members of council were elected: *President*, Professor

E. J. Garwood; *secretaries*, Mr. W. Campbell Smith and Professor W. T. Gordon; *foreign secretary*, Sir Arthur Smith Woodward; *treasurer*, Mr. F. N. Ashcroft; *new members of council*, Professor P. G. H. Boswell, Professor C. G. Cullis, Mr. J. F. N. Green, Sir Albert Ernest Kitson and Dr. Bernard Smith.

THE retirement is announced of Dr. Charles A. Wheeler, professor of mathematics at the Connecticut Agricultural College, after thirty-three years of service.

PROFESSOR RODNEY W. BABCOCK, head of the department of mathematics at De Pauw University, has been appointed dean of the division of general science at Kansas State Agricultural College, and will enter upon his new work on July 1. Dr. Babcock succeeds Dr. J. T. Willard, who is serving his forty-sixth year as a member of the faculty of the college and who will be assigned exclusively to the duties of vice-president.

DR. FREDERICK A. COLLIER, professor of surgery, has been named director of the department of surgery in the medical school of the University of Michigan. The appointment took effect on the first of March. Dr. Collier, who succeeds Dr. Hugh Cabot, went to the university in 1920 as an assistant professor of surgery. In 1928 he was advanced to the standing of full professor. Dr. Cabot has been appointed senior consultant at the Mayo Clinic, Rochester, Minnesota, effective on June 1.

DR. THOMAS PARRAN, JR., assistant surgeon general in the U. S. Public Health Service, was appointed New York state commissioner of health on February 19. His appointment was confirmed by the Senate on March 5.

CYRIL AINSWORTH, formerly director of the Bureau of Industrial Standards of the Pennsylvania Department of Labor and Industry, has been appointed to direct the national safety code work of the American Standards Association, as announced by William J. Serrill, president of the association. Mr. Ainsworth will direct the work of the association in the establishment of national codes for the guidance of state and municipal governments, industrial organizations and insurance companies. The appointment to the American Standards Association staff has also been announced of John Wilson McNair, formerly of the standards department of the American Institute of Electrical Engineers, and Clarence Edward Darling, formerly of the staff of the American Society of Mechanical Engineers. These appointments are part of a program of extension of national industrial standardization activities. It is expected

that the association will have nearly \$500,000 available for its work during the next three years.

DR. H. A. GLEASON, curator in the New York Botanical Garden, has been appointed associate editor of the new periodical, *Ecological Monographs*, to be published for the Ecological Society of America by Duke University. Publication will begin in 1931.

PROFESSOR ROBERT F. MCCrackAN, of the department of chemistry of the Medical College of Virginia, has been appointed chairman of the committee on education by radio of the American Chemical Society. Dr. Otto J. Sieplein, of the University of Miami, and Dr. S. B. Arenson, of the University of Cincinnati, are the other members of the committee.

DR. AND MRS. N. L. BRITTON, who have been spending the winter in Porto Rico, where they are continuing their studies of its flora, are expecting to return to New York in April.

AFTER a year of travel in which he covered a distance estimated at 43,000 miles, Professor H. L. Clark, of the Harvard Museum of Comparative Zoology, has returned. He is preparing for classification a large collection of specimens of marine life.

DR. W. W. SKINNER, of the Bureau of Chemistry and Soils of the U. S. Department of Agriculture, accompanied by several chemists of the bureau, is visiting Minneapolis, Madison, Dubuque and Chillicothe, to investigate activities in the utilization of corn-stalks, wheat straw, oat hulls, and other farm by-products. They plan to look further into the possibilities of combating the corn-borer by the commercial utilization of corn-stalks.

DR. LEE R. DICE, curator of the mammal division of the University of Michigan Museum, and William P. Harris, Jr., of Detroit, associate curator, will make their headquarters at the Desert Laboratory, in Tucson, Arizona, for the next two months, while they study wild life in the desert, particularly mice, rabbits and squirrels.

PROFESSOR HERBERT R. MOODY, director of the department of chemistry of the College of the City of New York, has received a leave of absence for the spring term. He will devote time to a study of chemical industries in Italy and southern France, and will also attend the annual meeting of the Society of Chemical Industry in Birmingham, England, in July. While he is away Professor Reston Stevenson will act as director of the department.

DRS. T. M. LOWRY, of Cambridge University, and R. A. Morton, of the University of Liverpool, will be visiting professors on the faculty of chemistry of the Ohio State University during the coming summer

quarter. Dr. Lowry will offer courses on optical activity in organic compounds and also on the physical basis (mainly spectroscopic) for chemical theory. Dr. Morton will offer a series of lectures in photochemistry. Professor H. A. Wilson, of the Rice Institute, and Professor W. W. Watson, of Yale University, will also be in residence during the summer quarter. Professor Wilson will lecture on the conduction of electricity through gases and the application of thermodynamics to chemical problems, and Professor Watson on molecular spectra and related topics.

DR. KIRTLEY F. MATHER, professor of geology at Harvard University, began on March 4 a course of eight illustrated lectures at the Lowell Institute on "The Geologic History of Mankind."

DR. WILLIAM F. FOSHAG, of the Smithsonian Institution and the U. S. National Museum, has been giving a series of twelve lectures at Princeton University at the invitation of the department of geology, on the "Ore Deposits of Mexico." One lecture was given on the "Saline Deposits of the Western United States."

PROFESSOR ALEXANDER SILVERMAN, head of the department of chemistry of the University of Pittsburgh, gave an address at the University of Wisconsin on March 19, on "Educational and Research Institutions of Europe." He addressed the Madison section of the American Chemical Society on the evening of March 19, on "Recent Developments in Glass Manufacture." Professor Silverman also addressed the Milwaukee Section of the American Chemical Society on March 21.

THE students of physics in the several collegiate institutions in and about Philadelphia held a second joint meeting for the discussion of "Opportunities in Physics" on February 18, in the hall of the Franklin Institute. The speakers were Dr. Horatio B. Williams, of the College of Physicians and Surgeons, New York City, who spoke on "Physics and Medicine"; and Dr. C. C. Kiess, of the Bureau of Standards, who spoke on "Physics and the Bureau of Standards."

AMONG recent speakers to the Gamma Chapter of Sigma Pi Sigma, honorary physics fraternity, at the Pennsylvania State College have been the following: Dr. Frank C. Whitmore, dean of the school of chemistry and physics at the Pennsylvania State College, who spoke on "Habits of the Atoms"; Mr. William F. Ruder, of the General Electric Company at Schenectady, who discussed "The Effect of Physical Condition on Magnetic Properties," and Dr. R. C. Gibbs, of

Cornell University, who presented an illustrated lecture on "Some Recent Advances in Atomic Spectra." Professor F. K. Richtmyer, of Cornell University, will address the chapter on May 7, on "X-ray Satellites."

DR. W. F. G. SWANN, director of the Bartol Research Foundation of the Franklin Institute, will present one of the principal addresses at the Eugene meeting of the Pacific Division of the American Association which meets from June 18 to 21. The subject of his address will be "Philosophic Concepts in Modern Physics."

THE Wisconsin Academy of Sciences, Arts and Letters, the Wisconsin Archeological Society, and the Midwest Museums Conference will meet jointly at the University of Wisconsin on April 11 and 12.

ON March 8 the Akron Society of Applied Physics and the Central Ohio Physics Club held a joint meeting to which physicists and those interested in physics in the industries and colleges of the state were invited. The program included visits to the laboratories of the B. F. Goodrich Rubber Company and to the Goodyear-Zeppelin Corporation. At a dinner in the University Club the speakers were: Dr. Dayton C. Miller, professor of experimental physics, Case School of Applied Science, "New Evidences of Motion of the Solar System"; Dr. Ellis L. Manning, Research Laboratories, General Electric Company, "A Study of Physics in Industry—Vacuum Tube Research"; Dr. Alpheus W. Smith (represented by Dr. C. W. Jarvis), professor of physics and chairman of the department, the Ohio State University, and Dr. L. H. Thomas, visiting professor at the Ohio State University, from Trinity College, Cambridge University. Action was taken to formulate some sort of organization plans for those interested in physics in the state of Ohio so that this type of program and joint meetings may be a recurrent affair.

HARVARD UNIVERSITY eventually will receive \$50,000 for an endowed laboratory for applied practical hydraulics, under the terms of the will of the late Clemens Herschel, the hydraulic engineer. Mr. Herschel bequeathed to the Boston Society of Civil Engineers and the Boston Public Library the right to such of his books as they desire. He also provided that \$1,000 each shall go to the Boston Society and to the Harvard Engineering School to be invested to provide prizes for studies in engineering.

THE Carnegie Corporation has recently made a grant of \$7,500 to the Y. M. C. A. College Laboratory for Physiologic Research in Physical Education of Chicago. The funds were granted to further researches in the physiology of exercise now in progress.

THE Committee on Scientific Research of the American Medical Association has made a grant of \$1,200 to the Medical College of Virginia, Richmond, for the study of lung involvement in human ascariasis. This investigative work will be directed by Dr. F. J. Wampler, professor of preventive medicine, and Dr. Lee E. Sutton, assistant professor of pediatrics. Rather extensive field work as a part of the proposed study will be undertaken during the coming summer.

DR. WILLARD ROUSE JILLSON, state geologist of Kentucky, announces an appropriation by the General Assembly of Kentucky of \$100,000 annually during the next biennium beginning as of April 1, 1930, for cooperative topographic mapping in Kentucky. The state appropriation has been matched in the same amount by the topographic branch of the U. S. Geological Survey insuring an expenditure for the surveying of standard topographical sheets in Kentucky during the next two years of \$400,000. About 70 per cent. of the 40,598 square miles in Kentucky is now topographically surveyed, and it is hoped to complete the state within about three years.

AN Institute for Fisheries Research has been established at the University of Michigan. It will be responsible for conducting the investigations in economic ichthyology called for by the Michigan Department of Conservation, which is subsidizing the institute. In investigations on the commercial fishes and fisheries of the Great Lakes, the Department of Conservation will continue to cooperate with the Great Lakes Laboratory of the United States Bureau of Fisheries, which like the new institute, has headquarters in the Museum of Zoology of the University of Michigan. The institute is planning to add a number of men to its staff, and expects to offer a number of fellowships in fisheries research.

THE Home for Incurables, the Bronx, New York City, will receive a bequest of nearly \$900,000, according to the terms of the will of George W. Ellis, a real estate lawyer, who died on February 8. The State of Vermont will receive \$100,000, providing that the University of Vermont, Middlebury College, of which Mr. Ellis was a graduate, and Norwich University are merged into one institution under state control. "This institution should eliminate all needless duplications and waste," wrote Mr. Ellis in his will, "and, regardless of creed or birth or wealth or social position, shall aim to educate and train morally, mentally and physically those expecting to retain a residence or occupation or property interest in the State of Vermont." If this provision is not carried out, the \$100,000 bequest is to revert to Columbia University "for a like educational purpose."

TENNESSEE is the first state selected by the Commonwealth Fund for carrying out its new rural health project in cooperation with health departments in two or three states. Gibson county in the western part of the state has already been chosen as one of the two counties in which field work will be developed. In accordance with the general plan, Vanderbilt University is to receive a grant for developing the teaching of preventive medicine and providing opportunities for graduate study by rural physicians, and the University of Tennessee will be given funds to organize training courses for teachers in health education.

THE Kentucky Legislature has passed over Governor Sampson's veto the bill providing for acceptance of the offer made by Former Senator T. Coleman du Pont, of Delaware, to provide \$230,000 for the acquisition for state park purposes of an area of approximately 2,200 acres at Cumberland Falls.

Museum News reports that an official party representing the Department of Interior and interested organizations made an inspection, lasting from February 11 to 15, of the site of the proposed Tropic Everglades National Park in the Cape Sable district of Florida. This party included Dr. Hermon C. Bumpus, of the American Association of Museums; Dr. T. Gilbert Pearson, of the Audubon Society of America, and E. K. Burlew, personal representative of the Secretary of the Interior, as well as Director Horace M. Albright, and other officials of the National Park Service. The inspection was made under congressional authority. The itinerary included a cruise over

the territory in a blimp, a trip by water down the Florida Keys and through Florida Bay and the upper reaches of White Water Bay, and an automobile tour out the Tamiami trail from Miami. The findings of the investigators have not yet been made public.

THE National Tuberculosis Association announces a limited number of fellowships in social research as related to tuberculosis, open to graduate students who have had special training in statistics, social science or public health. Preference will be given to candidates who are interested in pursuing research in public health after the completion of this fellowship. Researches on topics selected by the National Tuberculosis Association will be conducted in collaboration with colleges and universities, and each study will be under qualified academic leadership. Academic credit may be allowed for this research according to arrangements with the individual universities under whose supervision they are undertaken. Each fellow will be required to submit a written report at the completion of his fellowship grant, and the text of that report shall remain the property of the National Tuberculosis Association. Candidates will be considered not alone on academic standing, but on experience and general fitness for research work. The fellowship grants will date from the beginning of the academic year in the fall of 1930. They are for a twelve-month period, and the fellowship grant amounts to \$1,500 for that period with a month's leave for vacation. Interested candidates should write to Jessamine S. Whitney, Statistician, National Tuberculosis Association, 370 Seventh Avenue, New York City, for further information.

DISCUSSION

THE ECLIPSE OF APRIL 28

THE brief duration and the narrow path of totality of this eclipse, visible in California, make the question of the accuracy of the predictions of some interest to observers. Perhaps a brief statement of the problem, free from technical terms, may be of value.

The errors of the prediction arise mainly from two sources, namely, those due to lack of full knowledge of the motions of the Earth, Moon and Sun, and those due to the topography of the Moon's limb. Owing to a variety of causes, the former have been much diminished during the past six years. There is still some uncertainty due to the changing rate of rotation of the Earth, but this affects the position of the path less than it does the time at which totality occurs. In the coming eclipse the position is of importance because a small error may cause the observer to miss totality altogether. In a discussion just published in No. 934 of the *Astronomical Journal*, Dr. D. Brouwer has

used all the latest available information, and we estimate that the uncertainty, due to these causes, of the position of the path given by him in a direction perpendicular to the path is less than a quarter of a mile.

The uncertainty due to the topography of the Moon's limb is larger than this. We have plenty of evidence of valleys on the limb a mile or more deep, and of mountains even higher than this amount, but our knowledge of their exact position at the time of the eclipse is not sufficient to enable us to use it for prediction. A valley a mile deep at either of the positions where the grazing edges of the Sun and Moon give the limits of totality on the Earth may alter the edge of the path on the Earth by a like amount. In the present case, where the predicted width of the path is considerably less than a mile, it may result in a complete absence of totality anywhere. Professional observers are aware of these facts, and have made up their programs accordingly. Certain classes of ob-