standard and two one-meter standards, the comparisons forming a closed series, has given results for the four-meter bars with a probable error of one part in five millions. The length obtained for the old four-meter bar shows that it continues to grow at the rate previously anticipated."

It is reported that the section of the laboratory dealing with barometers has been assisting the Air Ministry and the British Engineering Standards Association in establishing a basis for the graduation of aircraft altimeter aneroids, and that the construction of a new fundamental standard barometer is proceeding. With reference to the work of the physics department, the report says: "Considerable progress has been made with work bearing on the international temperature scale. Proposals for determining this scale will be laid before the Commission Internationale des Poids et Mesures in 1927; it will probably be a practical scale, approximating to the thermodynamic scale as closely as present knowledge will permit, based on a number of fixed points with definite methods of interpolation and extrapolation between and beyond these points."

Mention is made of research into the illumination of rooms by daylight and artificial light, and the effect of different kinds of illumination on the accuracy, speed and comfort of working. It is stated that tests have been made for the Office of Works to determine the minimum daylight factor satisfactory for clerical work. Also the lighting of the Raphael Cartoon Gallery at the Victoria and Albert Museum has been investigated with a view to securing the maximum illumination consistent with the elimination of those portions of the spectrum most likely to cause fading.

Dealing with the program of aeronautical research, the report says: "It is clear that valuable information is being obtained as to the nature of the air flow round an aeroplane and other structures which must in the long run, and probably at no very distant date, profoundly influence both theory and practice in aeronautics. The complications of aerodynamics as applied to the modern problems of flight are very great, and without the guidance that is provided by the study of the essential phenomena and the fundamental principles, the designer would indubitably continue to grope for many years through a tangle of disconnected and often apparently contradictory experimental data."

The report records the assistance given by the laboratory to firms and other bodies from whom inquiries and requests have been received. Frequent visits to the laboratory have been paid by representatives of these bodies and also by visitors from Dominion, Colonial and foreign institutions. An interesting report on the wireless work of the laboratory is included. This concerns an examination of signal strengths under a set of varying conditions. For this purpose a motor-car was equipped with receiving apparatus and in the course of tours extending from Bexhill in the south to Aberdeen in the north and Dartmoor in the west readings were taken about every 20 miles. The transmitting station at St. Assise, near Paris, was used, and one remarkable result of the observations was that signals taken in the vicinity of York were only about 15 per cent. of the intensity of those taken simultaneously at Aberdeen. Apparatus for the measurement of intensity of signals on short wave lengths is now under construction.

NEW FOREIGN MEMBERS OF THE ROYAL SOCIETY

THE Royal Society has elected eight foreign members, to fill vacancies, occasioned by deaths, since 1921. The names of the newly elected members with some details of their respective careers, as given in *Nature*, are as follows:

PROFESSOR MARTINUS WILLEM BEIJERINCK

Professor Beijerinck is regarded as the foremost bacterial physiologist of his time. He was the first to isolate in pure culture the bacteroids of the Papilionaceae and to study filter-passing viruses of plant. He began in 1884 an important series of memoirs, which were published by the Amsterdam Academy of Sciences. They dealt with photogenic bacteria, anaerobes and kindred subjects. Two of his papers may be cited: (1) "Die Bacterien der Papilionaceen-Knöllehen" (*Botanische Zeitung*, 1888), (2) "Les expériences sur les bactéries lumineuses" (*Journal de Micrographie*, 1891).

PROFESSOR NIELS BOHR

Born at Copenhagen in 1885, Professor Bohr received his academic training at the universities of Copenhagen, Cambridge and Manchester. At the last-named he spent four years working with Sir Ernest Rutherford. Returning to Copenhagen in 1917, he gathered round him a band of helpers in attacking the complex problem of atomic structure from the spectroscopic side. Author of the conception to which the name Bohr-atom has been attached, he has made fundamental advances in interpreting spectroscopic phenomena in terms of quantum dynamics. He was Hughes medallist of the Royal Society in 1921, and received the Nobel Prize for Physics in 1922. Professor Bohr delivered the seventh Guthrie lecture of the Physical Society, in 1922, on "The Effect of Electric and Magnetic Fields on Spectral Lines."

PROFESSOR ERNST COHEN

Born at Amsterdam in 1869, Professor Cohen was formerly occupant of the chair of physical chemistry in the university of that city. He is now professor of physical and general chemistry and director of the Van't Hoff

Laboratory in the University of Utrecht. He has published many chemical memoirs through the Amsterdam Academy of Sciences and in the *Zeitschrift für physikalische Chemie*. He is distinguished for his researches on the allotropic states of the chemical elements. As a pupil and follower of Van't Hoff, chemists owe much to him for methods by which sound foundations have been laid for physico-chemical theory. Professor Cohen recently was elected president of the International Union of Pure and Applied Chemistry.

PROFESSOR WILLEM EINTHOVEN

Born at Semarang, Java, on May 21, 1860, and educated at Utrecht, Professor Einthoven has been, since 1886, professor of physiology in the University of Leyden. Early in his career he was an assistant of Donders. He is LL.D., Aberdeen, and in 1924 was the recipient of the Nobel Prize for Medicine. Professor Einthoven has devised instruments specially adapted to the study of physiology, as well as those suitable in high degree for physical researches. Important papers have illustrated and illuminated his procedure. One memoir of his may be cited, namely, "On the Theory of Lippmann's Capillary Electrometer" (1900).

PROFESSOR KARL E. RITTER VON GOEBEL

Born at Billigheim, Baden, in 1855, von Goebel was educated at the universities of Tübingen, Würzburg and Strasbourg. He is a foreign member of the Linnean Society. Elected to the chair of botany at Strasbourg in 1881, he later occupied posts at Rostock and Marburg, down to the time when he became professor of botany at the university and director of the Royal Botanic Gardens, Munich. An authority on the mosses and liverworts (Bryophyta), some of his work has appeared in English under the title "The Organography of Plants" (Oxford, 1905). He is an honorary LL.D. of the University of St. Andrews.

PROFESSOR HENRY FAIRFIELD OSBORN

Born at Fairfield, Connecticut, in 1857, Professor Osborn graduated at Princeton University, U. S. A., holding there (1880–91) the assistant professorship of comparative anatomy. Afterwards (1891–1910) he occupied the chair of zoology in Columbia University, New York, and is now research professor of zoology there. Professor Osborn is among the most distinguished paleontologists of our time. His first publication (1883) dealt with the structure of the brain in amphibia; later memoirs dealt mostly with fossil vertebrates. One of the results of his work is the more precise determination of the relative ages of the extinct mammals of North America. As director of the American Museum of Natural History, Professor Osborn has made the institution world-famous. He has had distinctive influence in establishing a school of younger paleontologists. In 1918 he was Darwin medallist of the Royal Society. In our recent special issue relating to the centenary of Huxley (May 9, 1925), Professor Osborn contributed an interesting article entitled "Enduring Recollections."

PROFESSOR MAX PLANCK

Professor Max Planck was born at Kiel in 1858. Formerly a professor in the University of Kiel, he is now professor of mathematical physics and director of the Institute of Theoretical Physics in the University of Berlin. His outstanding achievement has been the foundation of the quantum theory—Planck's constant is now considered to be one of the fundamental constants in nature. Planck first discovered the true law of black body radiation; then showed how this could be satisfactorily explained in terms of a system of dynamics. From this the modern quantum theory has grown, with all its far-reaching developments.

PROFESSOR ARNOLD SOMMERFELD

Professor Sommerfeld was born at Königsberg in 1868, and was educated there and at Göttingen. Formerly holding professorships at Claustal and Aachen, he is now professor of theoretical physics in the University of Munich. His book "Atomic Structure and Spectral Lines" (English edition) contains an account of mathematical work on the structure of the atom, his own contributions being of very high value.

THE WORLD FORESTRY CONGRESS

THE World Forestry Congress meeting in Rome, from April 29 to May 5, formulated recommendations for the establishment of a Bureau of Forestry Statistics in the International Institute of Agriculture. It is proposed that the bureau shall be headed by a forest economist of recognized experience and ability, and that it shall cooperate with the statistical organizations in the different countries, with the object of getting fairly uniform, world-wide statistics on forest resources, production and trade.

Other resolutions urged public action to bring about increased production in privately owned forests; more attention to increasing production, in forest management plans; large increases in the area of public forests; official international action to insure regular supplies of reliable forest tree seed at reasonable prices; research in forestry genetics in all countries; more research in tropical forestry. It was recommended that all grazing lands be handled under systematic working plans, preferably by foresters, and that forest research stations study problems of range management and forage production. Regulation of grazing and of shifting cultivation and the control of burning in all tropical and sub-tropical countries were favored.

The next congress is to be called by the International Institute of Agriculture, probably in 1929 or 1930, and is expected to be held in some tropical country.