theory now so widely developed by Noyes himself amongst other workers.

THE BUCHANAN MEDAL, AWARDED TO DR. MAJOR GREENWOOD.

Dr. Greenwood is specially distinguished for the statistical study of medical subjects, having applied the statistical method to the elucidation of many problems of physiology, pathology, hygiene and epidemiology. He has been pre-eminent in encouraging and developing the use of modern statistical methods by medical laboratory investigators and in securing the adequate planning and execution of field investigations. He is almost unique in the possession of both the medical knowledge and mathematical ability which are essential in these researches.

THE HUGHES MEDAL, AWARDED TO DR. WILLIAM DAVID COOLIDGE.

Science is under a great debt to Dr. Coolidge for the invention and production of a new type of X-ray tube, called by his name, of great flexibility and power, which has proved of great service not only to medical radiology but also in numerous scientific researches. In the last few years he has applied his unrivalled technical knowledge to the generation of high-velocity cathode rays, which can be passed into the air through a thin window as in Lenard's pioneer experiments thirty years ago. Such researches are of great importance to science, as they promise to provide us with new methods of obtaining a copious supply of swift electrons and high-speed atoms of matter for experimental investigations.

University and Educational Intelligence.

CAMBRIDGE.—Mr. J. E. Wherry has been elected to an honorary fellowship at Downing College. Mr. H. A. Roberts, Secretary of the Appointments Board, has been elected to a fellowship at Gonville and Caius College. Mr. F. C. Phillips has been elected to a fellowship at Corpus Christi College.

Prof. Nuttall, Magdalene College, has been re-elected Quick professor of biology. Mr. F. C. Bartlett, St. John's College, has been reappointed reader in experimental psychology. Miss M. S. Willis, Girton College, has been appointed demonstrator in geography.

It is proposed to add the Astronomer Royal, the Hydrographer of the Navy, the Director-General of the Ordnance Survey, and the Chief of the Geographical Section of the General Staff at the War Office to the committee for geodesy and geodynamics.

LONDON.—Prof. E. C. Williams, who has held the Ramsay Memorial chair of Chemical Engineering at University College since 1923, has resigned in order to occupy an important post in the Shell Oil group. His business will be the active development of the group's research organisation in California. Prof. Williams, who was a distinguished graduate and scholar of the University of Manchester, was employed for five years by the British Dyestuffs Corporation, and for one year as research chemist to the Joint Committee of the University of Leeds and the National Benzole Association. At University College, in temporary buildings, he has conducted courses of instruction on lines which he described in an inaugural address at the College in 1924. His work has been remarkably successful, and abundant evidence is forthcoming of the advantages gained by students who have added to their ordinary university curriculum in chemical science a period of study in the Ramsay Department of Chemical Engineering. The measure of success achieved has encouraged the College to an immediate and considerable development of the Department. A very strong and influential committee has been formed for the purpose of collecting a building and endowment fund, with Sir Alfred Mond as chairman, Sir R. Waley Cohen as vice-chairman, Sir David Milne Watson as honorary treasurer, and Sir Frank Heath as honorary secretary.

The title of professor of chemistry in the University has been conferred on Dr. J. F. Spencer, in respect of the post he holds at Bedford College. Prof. Spencer studied at University College, Liverpool, and at the University of Breslau. Since 1905 he has worked in the Department of Chemistry at Bedford College; in 1915 the title of reader in physical chemistry was conferred on him, and since 1919 he has been head of the department. His published work includes "The Metals of the Rare Earths" (1919), "An Experimental Course of Physical Chemistry," "The Magnetic Susceptibility of some Binary Alloys (with M. E. John, *Proc. Roy. Soc.*, A, 1927), and numerous papers in chemical journals.

A course of five free public lectures on "The Technique of Bacteriological Research" will be given by Mr. F. W. Twort, at the Royal College of Surgeons of England, on Dec. 5, 7, 9, 12, and 14, at 4 o'clock.

OXFORD.—Sir Edward Farquhar Buzzard, of St. Thomas's Hospital, Physician Extraordinary to the King, the newly appointed Regius professor of medicine, is well known as the author of numerous treatises upon diseases of the nervous system. He was one of the first of a highly talented succession of medical men at Magdalen College, including Drs. Jex-Blake and Golla of St. George's, Dr. Hurst of Guy's, Dr. Singer and Sir Bernard Spilsbury. He has also filled the office of secretary of the Royal Society of Medicine.

The wing of the Engineering Laboratory, recently completed, was open to the inspection of a large party of guests invited by the Vice-Chancellor and Prof. Jenkin on Nov. 24. By this addition, much-needed space will be found for the electrical equipment of the laboratory. Demonstrations were given of the methods of using the various testing machines.

An examination for the Radcliffe Travelling Fellowship, for which women are now also eligible, will commence on Feb. 14, and candidates are requested to send in their names to the Regius professor of medicine on or before Feb. 1, 1928.

THE King has consented to open the new buildings of University College, Nottingham, which have been given by Sir Jesse Boot, probably some time in July next.

SIR JAMES CURRIE, formerly Principal of the Gordon College at Khartum and Director of Education in the Sudan, has been appointed chairman of the governing body of Imperial College of Tropical Agriculture, in succession to Sir Arthur Shipley, who died on Sept. 22 last.

THE Committee of Award of the Commonwealth Fund Fellowships announces that it is now prepared to receive applications for the fellowships to be awarded in 1928. Last year there were 115 candidates, and 22 appointments were made. The fellowships are normally tenable at an approved American university for two years, and are open to persons of British birth domiciled in England, Scotland, Wales, and Ireland, who are graduates of recognised universities and are unmarried, and not more than thirty years of age. Women as well as men may apply. Provision amount-

ing approximately to £600 per annum will be made for the total expenditure involved during the tenure of a fellowship. Applications must be forwarded through the authorities of the university or college of which the candidate is, or was, a member. The form of application can be obtained from the Secretary to the Committee, Mr. R. H. Simpson, 50 Russell Square, London, W.C.1. Applications must reach the Secretary by Feb. 18 next.

COURSES in anthropology of the University of Paris for the coming session announced to open in December or early in January offer the usual wide field to the student. At the Institut d'Ethnologie, among the lecturers in courses for the diploma and certificate are M. Mauss (ethnology), M. Rivet (anthropology), and the Abbé Breuil (*archéologie exotique*). There are also courses of instruction in linguistics, biological and zoological anthropology, quaternary geology and palæontology and the physiology of man and the anthropoids. Under the Faculty of Higher Education a great variety of subjects is offered in preparation for the examination of the Institut d'Ethnologie, the lectures being distributed among various of the constituent institutions of the University. They cover ethnology, archæology, sociology, human geography, linguistics and phonetics, physical anthropology, and human palæontology and geology. As usual, special attention is given to the culture and languages of the natives of the French possessions both in Africa and the Farther East.

AN address on "The Royal Society of Arts: its Services to Trade and Training" was delivered on Nov. 2 by Sir Philip Magnus, who has succeeded Sir Thomas Holland as chairman of the Society's council. The address has just been published in the Society's journal. Sir Philip shows clearly that the "Society for the Encouragement of Arts, Manufactures, and Commerce," as it was called when it was founded in 1754, has kept its original purpose steadily in view. Until the middle of the nineteenth century the method chiefly used was the award of prizes of money and medals for discoveries and inventions. Whilst encouraging applications of science to commerce, it strove to discourage commercialism among men of science, restricting the grant of its prizes to those who published their discoveries for the public good. This ban on patented inventions was withdrawn in 1844. About this time the Society, impressed by the value of the evening technical classes provided by the Mechanics Institutions, took a leading part in the formation of a union of these bodies, and in this connexion initiated exhibitions of educational appliances. It was as an adjunct to these activities that the Society's examinations, now an important factor in the organisation of commercial education in Great Britain, were started in 1854. Originally designed on a comprehensive plan, including many non-technical subjects, the scheme was remodelled in 1876 so as to exclude all except subjects closely connected with trades and crafts, and was further restricted in 1879 to commercial subjects. To-day, with candidates numbering between sixty and seventy thousand, its examination system is the biggest in the world. Its value as an educational factor is now to be investigated by a departmental committee appointed by the Board of Education to inquire as to it and other systems of examination of part-time students "with particular reference to the place and value of examinations as an element in training for industrial, commercial, and professional activity."

Calendar of Discovery and Invention.

December 4, 1827.—Though the Admiralty had possessed steamboats from 1822, the first commissions for the command of steam vessels ever granted to naval officers were those signed by the Duke of Clarence, then Lord High Admiral, on Dec. 4, 1827, when H.M.S.S. *Lightning*, *Meteor*, and *Echo* were commissioned by Lieuts. Evans, Bullock, and Hay, respectively. This official recognition of steam vessels as auxiliary warships may be said to mark the birth of the steam Navy of Great Britain.

December 5, 1879.—Among those who extended the use of the camera in astronomy was Sir William Abney. Beginning his experiments on the chemical action of red and infra-red rays in 1874, he obtained a substance sensitive to these rays and with it explored a vast unknown and over-invisible region of the solar spectrum, his map of which was presented to the Royal Society on Dec. 5, 1879.

December 7, 1820.—Davy was first elected president of the Royal Society in 1820, and his presidential address was read on Dec. 7. His address was entitled "Discourse on the Present State of the Royal Society and on the Progress and Prospects of Science," and it contained much respecting Davy's own views on science.

December 8, 1610.—One of the earliest users of the telescope was the English algebraist, Thomas Harriot, who in 1609 made sketches of the moon and later observed the newly found satellites of Jupiter. Harriot is also remembered for his observations of sunspots, which began on Dec. 8, 1610; from them he determined the sun's axial rotation.

December 8, 1864.—Maxwell, after taking his degree in 1854, read through Faraday's "Experimental Researches," and from that time adopted Faraday's conception of a medium as a guide throughout his electrical investigations. One of his earliest papers was "On Faraday's Lines of Force," read in 1855, but his great paper, "On a Dynamical Theory of the Electromagnetic Field," was read to the Royal Society on Dec. 8, 1864. In this, electromagnetic action was shown to travel through space at a definite rate in waves, and these waves to consist of disturbances which are transverse to the direction in which the waves were propagated. Nine years later, Maxwell expanded his work into his well-known "Treatise on Electricity and Magnetism."

December 8, 1874.—Few astronomical phenomena have been looked for so eagerly or prepared for so assiduously as the transit of Venus of Dec. 8, 1874. Many methods for its examination were studied, some four score posts of observation were provided, and the expeditions cost nearly a quarter of a million sterling. The chief aim of the astronomers was to improve the determination of the sun's distance, but it was afterwards said, "As regards the end for which it had been undertaken, the grand campaign had come to nothing."

December 9, 1813.—The honour of making the manufacture and sale of gas a commercial success belongs to Samuel Clegg, the first chief engineer of the London and Westminster Chartered Gas Light and Coke Company. On Dec. 9, 1813, he took out a patent for a gas meter, and he also made the first large gasometer and invented the first pressure regulating device.

December 10, 1845.—The original inventor of the pneumatic tyre was the Scotch engineer, Robert William Thomson, who on Dec. 10, 1845, patented a leather tyre with an internal rubber tube filled with air. He afterwards fitted such tyres on road carriages.

E. C. S.