

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 and 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, archaeology, 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 This ban on patented inventions was withdrawn in 1844.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 Discoveries 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 Deuts, 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 ever-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.