

### UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

LONDON.—A large number of university courses of advanced lectures in science subjects are in progress or announced. In botany, a course of ten lectures on the history of British botany will begin on January 20 at University College. The first lecture of the course will be by Mr. Francis Darwin, on "Stephen Hales," and the work of other famous botanists will be described in later lectures, the lecturers being Profs. Vines, Bower, Farmer, Lang, Oliver, Scott, Dr. Arber, Mr. Praeger, and Mr. Henslow. Dr. W. N. Shaw, reader in meteorology, will begin a course of eight lectures on climatology, with special reference to British possessions, on the same day at the London School of Economics. Several courses of advanced lectures in physiology are announced. Prof. E. A. Minchin will begin a course of twenty-one lectures on the protozoa at the University on January 16 at 5 p.m. A course of three lectures on the comparative anatomy of the vertebrate ear, by Mr. R. H. Burne, will begin on January 19 at the Royal College of Surgeons. The times of the lectures in each case will be 5 p.m., and admission will be free, without tickets.

DURING the temporary absence of Prof. Starling, F.R.S., owing to ill-health, Dr. W. M. Bayliss, F.R.S., has been appointed acting professor of physiology in University College, London.

It is announced in *Science* that Harvard University is to receive 12,000*l.* from the will of the late Mrs. William O. Moseley, and that a gift of 100,000*l.* has been made to Dartmouth College by Mr. Edward Tuck.

The degree of D.Sc. as an external student has been granted to Arthur Slator, of University College, Nottingham, and Birmingham and Leipzig Universities, for a thesis on "Studies in Fermentation," and other papers.

We learn from *Science* that, as a memorial to her husband, Mrs. Edward H. Harriman, of New York City, has endowed with 20,000*l.* the chair in forest management in the Yale Forest School. Mr. Andrew Carnegie has agreed to give to the Maria Mitchell Memorial Association a sum of 2000*l.* toward the establishment of a research fellowship in astronomy, on condition that the sum of 1000*l.* required to complete the fund of 5000*l.* be subscribed. The progress made in ascertaining the approximate value of the Wyman bequest for the Graduate College of Princeton University confirms the original estimate of between 400,000*l.* and 600,000*l.*

A COURSE of six free public lectures is to be given at University College, Gower Street, W.C., by Lieut.-Colonel Ernest Roberts, introductory to the study of Indian sociology, on Tuesdays at 4.30 p.m., beginning on February 21 next. A course of eight lectures, free to all internal students of the University of London, is to be given by Dr. H. H. Dale in the Physiological Institute, University College, on Fridays at 4.30 p.m., commencing on January 20. The London County Council has arranged two courses of ten lectures for teachers, which are free to London teachers, to be given on Wednesdays at 6 p.m., beginning on January 18, at University College. One course is on scientific reasoning and its cultivation, the lectures being given by Dr. A. Wolf, and the other on models to illustrate the geometry of space, the lectures being given by Dr. L. N. G. Filon, F.R.S.

THE Philosophic Faculty of the University of Marburg has conferred the degree of Doctor Honoris Causa upon Mr. Ernst Leitz, of Wetzlar, the principal of the well-known firm of manufacturers of microscopes, microtomes, and other optical and scientific instruments.

### SOCIETIES AND ACADEMIES.

LONDON.

**Faraday Society**, December 13, 1910.—Mr. F. W. Harbord in the chair.—J. **Swinburne**: Separation of oxygen by cold. The problem of separating oxygen from the air is not the same as making liquid air. To separate oxygen from nitrogen involves doing mechanical work, which is

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converted into heat. A rectifying plant may be considered as an apparatus, which takes in heat substantially at the boiling point of the liquid with highest boiling point, and gives it out at a lower temperature near the boiling point of the most volatile liquid. An air separator thus takes in heat at 90° A, gives out heat at about 82° A, and at the temperature of the works, say, 273° A. The Linde process may be regarded as a rectifying plant of this sort, and a thermodynamic engine, in which a gas is compressed so as to liquefy at 90° A under pressure, and to evaporate at 82°, thus supplying the heat at the boiling point of oxygen and absorbing it at the boiling point of the air. Such a process is generally considered irreversible, but is, in fact, nearly reversible, and therefore economical. Assuming an efficiency of 40 per cent., the cost of oxygen comes out approximately 1*s.* a ton on a large scale. This ought to lead to its use in blast furnaces and other cases where an extra high temperature may be important.—Dr. H. J. S. **Sand** and W. M. **Smailey**: A new apparatus for the rapid electro-analytical determination of metals. A glass-frame anode for use with silver and nickel kathodes. In order to reduce the amount of platinum employed, a pair of electrodes has been designed which, while retaining as much as possible the essential features of those previously described, contains as little platinum as possible. The anode has been made largely of glass, so that the total weight of platinum has been reduced to about 5 grams. Special care has been taken in the design to render it as little fragile as possible. For copper determinations a kathode of silver is employed, which has been designed so that it can be made without much difficulty with the facilities usually available in a chemical laboratory. For zinc determinations a kathode of nickel was employed. The results of copper and zinc depositions are substantially as good as those obtained with platinum electrodes. The time required for determining 0.3 gram of copper is about seven minutes. A stand for holding the auxiliary apparatus required in electro-analysis is also described.

**Geological Society**, December 21, 1910.—Prof. W. W. Watts, F.R.S., president, in the chair.—T. O. **Bosworth**: The Keuper marls around Charnwood Forest. The area under consideration includes the towns of Leicester, Loughborough, Coalville, and Hinckley. The Charnian rocks project through a mantle of Triassic deposits, which once completely covered them. The quarries have been opened in the summits of the buried hills. A quarry is so worked that its outline follows the contour of the buried hill; consequently, the section presents but a dwarfed impression of the irregularity of the rock-surface. On the buried slopes and in the gullies are scree and breccias, and bands of stones and grit are present in the adjacent beds of marl. All these stones are derived only from the rock immediately at hand. Where exposed, the Charnian igneous rocks are deeply weathered and disintegrated, but the same rocks beneath the Keuper are fresh right up to the top. The Keuper marls lie in a catenary manner across the gullies. There has been almost no post-Triassic movement in Charnwood. All the points of contact of any one bed with the Charnian rocks lie on one horizontal plane. The inclination of the strata must, therefore, be due to subsequent sagging. The Upper Keuper deposits accumulated in a desert basin, of which parts were dry and parts were occupied by ever-shifting salt-lakes and pools. In these waters the red marls were laid down. The abundant heavy minerals are garnet, zircon, tourmaline, staurolite, rutile, magnetite. The grains are intensely worn. The quartz-grains are sometimes wind-worn. The false bedding is mainly from the south-west. The ripples indicate prevalent south-westerly winds.—R. L. **Sherlock**: The relationship of the Permian to the Trias in Nottinghamshire. The conformability or unconformability of the Bunter to the Permian has been much discussed, but it is generally considered that there is a small unconformity between them. In this paper, a section on the Great Central Railway near Annesley is described. It shows a gradual passage from the Middle Marl into the Lower Mottled Sandstone. Detailed mapping has confirmed this conclusion. From Nottingham to Mansfield the Middle Marl retains a