

tion of the entire number of students in the two faculties named.

By the reorganisation of secondary studies (decree of May 31, 1902) a road is opened for primary schools to the scientific faculties through the assimilation of the modern course in the lycées to that of the higher primaries. This arrangement was made both in the interests of the teaching service of primary schools and also as a means of enabling ambitious youths among the industrial classes to prepare themselves for more effective service in the practical affairs of life.

In the reports of the financial status of the several universities the receipts are classified as the ordinary and the extraordinary income. The former comprises the revenues from property and the interest of invested funds, the fees for matriculation, lecture fees, library and laboratory fees, the receipts from university publications, the State appropriations for current expenditures, appropriations by the departments and cities, and all other sources of a permanent character. The extraordinary income includes gifts and legacies, loans, appropriations for building or other special purposes, and all other funds intended to meet temporary demands. Each faculty comprised within a university has its own separate budget. The salaries of all professors are paid from the State appropriations, estimates for the same being annually submitted to the Chamber of Deputies by the Minister of Public Instruction. The university may, however, make arrangements for additional service to be paid for out of its own resources.

In giving up to the universities the receipts from fees, which were formerly turned over to the State Treasury, it was decided that they must be applied wholly to objects of immediate advantage to the students, such as the equipment of laboratories, libraries, new buildings, &c. Apart from these specific limitations, the universities have free disposal of their resources.

It appears that the combined incomes of the fifteen universities in France, excluding Algiers, in 1906 aggregated 530,000*l.*, of which amount Paris received 273,000*l.*, or a little more than half the total. In 1909 the amount was 448,000*l.*, of which Paris received less than half, namely 189,000*l.* Partial statements for intervening years indicate that the decline in the incomes, total and particular, in 1909, as compared with 1906, is due to fluctuations in the amounts received from gifts, legacies, &c., or what are termed extraordinary sources, rather than to a falling off in the receipts from ordinary sources. The latter include fees and State and local appropriations, which, as a rule, increase from year to year. From official statements for the years intervening between 1906 and 1909, it appears that Paris reached its maximum income in 1908, namely 313,000*l.*

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

LONDON.—Mr. H. Maxwell Lefroy has been appointed professor of entomology at the Imperial College of Science and Technology.

THE following appointments have been made at Bedford College for Women:—Assistant lecturer in mathematics, Dr. H. B. Heywood; assistant in mathematics, Miss M. Long.

UNIVERSITY COLLEGE GUILD OF GRADUATES.—The following are among the officers appointed for 1912-13:—Master, Dr. T. Gregory Foster; Engineering Warden, Mr. E. S. Andrews; Medical Warden, Mr. R. Johnson; Science Warden, Miss E. N. Thomas.

PROF. A. V. DICEY has retired, after a tenure of office of thirteen years, from the principalship of the Working Men's College, London, and is succeeded by Sir C. P. Lucas.

EAST LONDON COLLEGE.—Dr. J. Robinson, of the University of Sheffield, has been appointed senior lecturer in the physics department, and Mr. J. Salisbury, Quain student at University College, lecturer in the botanical department.

UNIVERSITY COLLEGE.—Mr. E. Kilburn Scott has been reappointed lecturer in electrical design, and Mr. A. H. Barker has been reappointed lecturer in heating and ventilating engineering. Mr. Lloyd-Evans has been appointed demonstrator in the department of mechanical engineering. Mr. F. J. Bridgman has been appointed assistant in the department of zoology and comparative anatomy. Miss K. V. Ryley has been appointed to the Benington memorial studentship in anthropometry and craniology. A valuable collection of British Lepidoptera, made by the late Mr. J. A. Finzi, has been presented by Mrs. and Miss Finzi to the zoological museum.

THE foundation-stones of the new Gresham College were laid on July 24. The ceremony was followed by a luncheon in the Mercers' Hall, at which Sir Archibald Geikie, P.R.S., spoke. He stated that he saw no reason why the new college should not become a higher centre for literary and scientific cultivation for the City of London than heretofore, and all for the glory of God and to the memory of Sir Thomas Gresham.

THE following appointments have been made at the London (Royal Free Hospital) School of Medicine for Women:—Dr. F. Wood-Jones, demonstrator in anatomy, St. Thomas's Hospital Medical School, to be lecturer and head of the department of anatomy; in succession to Mr. F. G. Parsons, who has resigned; Mr. J. A. Gardner to be lecturer in organic chemistry and head of the department of chemistry, in succession to Miss C. Evans; Miss Widdows to be lecturer in organic chemistry; Miss M. D. Waller to be demonstrator in physics.

SHEFFIELD.—Mr. H. Nield has been appointed demonstrator in anatomy, and Dr. E. F. Finch and Mr. P. A. Reckless honorary demonstrators in the same subject.

It is announced in *Science* that the sum of 50,000*l.* has been bequeathed to Yale University, without any restrictions, by Mr. C. D. Borden, of New York.

WE are informed that the establishment of the new university in Western Australia is progressing satisfactorily, and the Senate is open to receive applications for the filling of eight professorial chairs. Parliament has voted an annual minimum endowment of 13,500*l.* towards the administration and needs of the university, and the chair of agriculture has been fully endowed by the newly appointed Chancellor, Sir W. Hackett. Mr. H. Gunn, who carried out similar work in South Africa with success, has been appointed organiser of the university, and is now actively engaged in making preparations for the inauguration of the institution early next year.

THE London County Council has decided to increase its annual grant to the Imperial College of Science and Technology from 8000*l.* to 13,000*l.*, for the quinquennial period September 1, 1912, to August 31, 1917. The report of the Higher Education Sub-committee, in which the recommendation now adopted was made, points out that the Treasury has decided to allow to the governing body of the Imperial College additional grants of 5000*l.* in respect of each of the sessions

1910-11 and 1911-12, and of 10,000*l.* (making 30,000*l.* in all) in the session 1912-13. The Treasury has agreed further that the annual grant in aid of the college shall be fixed at 30,000*l.* for a period of five years from August 1, 1912, to July 31, 1917. The Board of Education has received an assurance on behalf of the governing body of the Imperial College that the additional grant of 10,000*l.* commencing from August 1 next will, with their other resources, enable them to carry on the educational work on which they are now engaged, and also the educational work which they are committed to undertake in the new buildings now in course of erection, until the close of the session ending July 31, 1917, and the Board further understands that the governing body are prepared to abide by the condition that they shall strictly regulate their expenditure by their assured income, and that they will not during the period named commit themselves to any fresh work which might involve a demand for further State assistance.

THE London County Council has issued a pamphlet setting out the arrangements made for the session 1912-13 in connection with the various lectures and classes established by the Council for the further education of teachers. These lectures, which are free, upon payment of a registration fee of 1*s.*, to all teachers actually engaged in teaching in the County of London irrespective of the institutions in which they are employed, offer a wide choice of subjects and are designed to appeal to the many and varied interests of the teaching profession. The lectures will be of great value to teachers who desire to specialise in some one branch of knowledge or to improve their general culture. Every conceivable subject likely to appeal to teachers seems to have been thought of by the organisers, and lecturers of high repute have been secured. Some of the arrangements made in the case of science may be mentioned. Three courses of three lectures each, under the direction of the Zoological Society, will be given in the Zoological Gardens at Regent's Park. Prof. Hewlett will lecture on bacteriology and microbiology; Prof. F. E. Fritsch on modern methods of teaching nature-study; Prof. Denny on nature-studies from animal life; and Prof. H. Kenwood on school hygiene for teachers. In mathematics, again, Prof. M. J. M. Hill will lecture on the theory of proportion, and Dr. T. P. Nunn on the teaching of the calculus and on the arithmetic of citizenship and finance. An interesting development in connection with the classes for next session is that whereby members of the staff of the L.C.C. training colleges are giving courses of lectures and demonstrations in various centres in London. This plan should assist to coordinate the theory of the lecture-room and the actual practice of the class-room.

SOCIETIES AND ACADEMIES.

LONDON.

Geological Society, June 19.—Dr. Aubrey Strahan, F.R.S., president, in the chair.—R. D. Vernon: The geology and palæontology of the Warwickshire coalfield. The main objects are to determine the true age of the so-called "Permian" rocks of Warwickshire, and their stratigraphical relationship to the underlying Carboniferous rocks and to the overlying deposits of Triassic age. The Carboniferous rocks are subdivided into groups, and the age of the subdivisions is determined from a study of the fossil flora. On stratigraphical and palæontological evidence it is shown that a large area of rocks previously mapped as Permian is really Carboniferous. The Carboniferous rocks are subdivided into groups which, on palæobotanical evidence, are proved to belong to the follow-

ing three horizons of the Westphalian Series: the Upper Coal Measures, the Transition Measures, and the Middle Coal Measures; the Lower Coal Measures are found to be absent. The fossil flora is described in detail, and a brief account is given of the freshwater and marine faunas of the Middle Coal Measures. The Carboniferous rocks of Warwickshire are correlated with those of the other coalfields of the Midland province, and it can thus be demonstrated that there is a marked southerly attenuation and overlap of each of the subdivisions of the Carboniferous system.—W. H. Hardaker: The discovery of a fossil-bearing horizon in the Permian rocks of Hamstead, near Birmingham. Some quarries in the Permian rocks in the neighbourhood of Hamstead, near Birmingham, have afforded an interesting series of fossils. These consist chiefly of the impressions of plants, and of the footprints of amphibia assignable to several species. The quarries occur in the broad band of strata which is coloured upon the Geological Survey map as Permian, and fringes the eastern side of the South Staffordshire coalfield. The group (and subgroups) in which the fossils occur are described and illustrated in detail, and show that the group as a whole belongs in its lower part to the Midland Middle Permian (or Calcareous Conglomerate and Sandstone) division of Mr. Wickham King, and in its upper part to his Upper Permian (or Breccia and Sandstone) division. Most of the plants and animal footprints discovered belong apparently to recognisable forms which have been long known to occur in the Rothliegende (or typical Lower Permian) of Germany, and they have little or no resemblance to those of the undisputed Upper Carboniferous of any known area; and the conclusion is drawn that these fossil-bearing Hamstead strata must in future be regarded as of Rothliegende or true Lower Permian age.

PARIS.

Academy of Sciences, July 16. M. A. Gautier in the chair.—Ch. Moureu and A. Lepape: Some natural gases rich in helium. Three springs at Santenay evolve gases richer in helium than those previously investigated. Of these, the "Lithium" spring produces a gas containing 10.16 per cent., by volume, corresponding to a total annual yield of 5182 litres of helium, and the "Carnot" spring a gas containing 9.97 per cent., with an annual yield of 17,845 litres. A spring at Nérès (Allier), though its gases are poorer in helium, yields annually nearly 34,000 litres of this element. If the helium from the "Carnot" spring has been evolved entirely from radio-active bodies, and if it has been evolved at the rate at which it was formed, this would necessitate the presence of 91 tons of radium, or of 500,000,000 tons of pitchblende, &c. If, however, it is, so to speak, fossil helium, its presence would mean the disintegration of about 2 tons of thorinite, or of 167 tons of pitchblende.—Émile Borel: The indeterminate nature of analytical functions in the region of a singular essential point.—Jules Andrade: The measurement of friction.—A. Guillet and M. Aubert: A spark electrometer.—A. Leduc: The densities of some gases and vapours.—Daniel Berthelot and Henry Gaudechon: Radiations producing the photosynthesis of complex compounds, the polymerisation of certain gases, and the decomposition of acetone. Radiations from a quartz-mercury vapour lamp produce formamide from a mixture of carbon monoxide and ammonia, but sunlight does not act similarly; decomposition of the formamide can also be brought about by the radiations from the mercury lamp, and more slowly by sunlight. Cyanogen is polymerised by sunlight, and more rapidly by the lamp radiations; acetylene is polymerised by the lamp, not by sunlight. Acetone is not