to Loch Assynt, under the leadership of Dr. Peach and Dr. Horne, and another to the country between Aberdeen and Arbroath, under the leadership of Mr. Barrow, Dr. Campbell, and Dr. Hickling. These were very enjoyable and instructive, and proved great attractions to the foreign geologists and a large number of their British *confrères*.

W. LOWER CARTER.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

CAMBRIDGE.—The John Winbolt prize has been awarded to R. V. Southwell, of Trinity College, for an essay on "The Failure of Thin Tubes by Instability or Secondary Flexure."

BIRMINGHAM.—During the winter and spring terms two courses of lectures on "Civic Design and Town Planning" are to be given, by Mr. Raymond Unwin, in the department of civil engineering.

The following appointments have been made:—Mr. C. Walker as lecturer in physiology; Mr. Laurence Ball as assistant lecturer in pathology and bacteriology; Mr. P. M. Chadwick, assistant lecturer and demonstrator in civil engineering; Mr. A. Clubb, demonstrator in mining (as successor to Mr. C. D. Mottram); Mr. H. I. Coe, assistant lecturer and demonstrator in metallurgy. Mr. Percy May has resigned his post as assistant lecturer and demonstrator in chemistry, and Mr. Frederick Challenger has been nominated to the vacancy.

A COURSE of free lectures to teachers on "The Past Around Us," a series of brief studies introductory to the folk-culture of Britain, is being given by Mr. Walter W. Skeat, at the Horniman Museum, Forest Hill, S.E., on Saturday mornings, from October 12 to December 14. Admission is by ticket only, to be obtained from the Clerk of the London County Council.

LECTURES on volcanic action, earth movements, the geological action of water, and the evolution of scenery and life on the globe are to be delivered by Dr. Werner Marchand on October 17, 24, and 31, in the meeting rooms of the British Esperanto Association, 133 High Holborn (Museum Station Buildings), W.C. They will commence at 7.30 p.m., and will be delivered in Esperanto.

THE winter meetings of the Child Study Society begin this evening at the Royal Sanitary Institute, when Dr. T. P. Nunn will lecture on the psychological development of the school subjects. The list of lectures and discussions to be held this year provides many subjects of interest to students and teachers concerned with the education of children. Particulars as to membership may be obtained from the honorary secretary of the society, Mr. W. J. Durrie Mulford, 90 Buckingham Palace Road, London, S.W.

THE University College (London) Committee will shortly proceed to fill the vacancy in the Quain studentship in biology which has been created by the resignation of Mr. E. J. Salisbury, on his appointment as lecturer in botany at the East London College. Any student of the college is eligible for the studentship who has for at least three terms attended one or more classes in the special study in respect of which the studentship is awarded. Applications should be received on or before Saturday, October 26.

FOR some time articles have been appearing at regular intervals in the Journal of the Department of Agriculture and Technical Instruction for Ireland describing recently established Irish technical schools. These articles have been published afterwards as separate pamphlets for distribution by the department. The twelfth and thirteenth contributions to the series have been received in booklet form. The former is called "Technical Instruction in Limerick," and has been written by Mr. J. Comerton, the principal of the Limerick Technical Institute; the other deals similarly with Cork, and is by Dr. John H. Grindley, principal of the Crawford Municipal Technical Institute, Cork. The accounts of the work done in technical education in these important Irish industrial centres provide excellent evidence of the success which is attending the department's efforts to meet the educational needs in different parts of Ireland.

THE distinguishing characteristic of the calendar for the present session of the City of Bradford Technical College is the excellent series of thirty plates, which chiefly illustrate the very complete arrangements made for the practical study of the branches of technology on which the industries of the district depend. This college awards certificates, diplomas, and an associateship. The diploma of the college is awarded to each day student who has been in attendance for three complete sessions, subsequent to passing an entrance examination, and has passed the college examinations in all subjects of the diploma course taken. The diploma is awarded to evening students under the same regulations as to day students, except that an evening student who has been at least three years in attendance, and has obtained the ordinary certificate, is exempt from the first-year diploma course. To become an associate a candidate must be twenty-one years of age and have had at least one year's practical experience with a firm engaged in his trade or profession, subsequent to obtaining the diploma. Some of the subjects in which diplomas may be obtained are: preparing, combing and spinning, weaving and cloth structure, chemistry and dyeing, and power production and transmission.

ON Wednesday, October 9, at Bradfield College, Berks, a new block of science rooms was opened by Sir William Osler, F.R.S. A large proportion of the boys at the college have studied science during the last twenty years, and some fifty to seventy pupils work in the mechanical shops added in 1898. The new science schools have this year been added to deal more effectively with the growing demand, and mainly through the efforts of the present headmaster, the Rev. H. Costley White. Among the assembly present at the ceremony were the warden (Mr. Edward Armstrong), the Right Hon. G. W. Palmer, Mr. R. Dyke Acland, K.C., Sir Arthur Rücker, F.R.S., and Mr. J. H. Benyon. Sir William Osler, in a speech after the ceremony, dwelt on what he considered to be an ideal education for those suited to and seeking scientific pursuits in after life. He would have a thorough knowledge of Latin and Greek; he believed in the optimistic Greek outlook on life for boys; during his last two years the boy should specialise in science, which should occupy most of his school hours. The speaker objected very strongly to the use of the term "stinks" as applied to science study. He said that that one word had done more harm in implying discredit to, and in keeping back pupils from the study of, the subject than any other factor. The new science block is detached from the rest of the school buildings, and has an attractive exterior. The entrance lobby leads into two chemical laboratories on the right and two physics rooms on the left, each easily accommodating twenty boys. In the chemical laboratories each room is adequately fitted with fume cupboards, balance slabs and store cupboards, and has a raised demonstration bench at one end of the room. The two physics rooms are each sup-

plied with three central tables and side benches round the walls, balance slabs, and large sinks. Behind the entrance lobby is a lecture-room with raised tiers to accommodate fifty boys, with a demonstration bench, fume cupboard, and lantern screen. The architects are Messrs. Steward Smith and Hutt, of Reading, the builders Messrs. Hughes, of Wokingham, and the furniture has been supplied by Messrs. Baird and Tatlock.

SOCIETIES AND ACADEMIES.

PARIS.

Academy of Sciences, October 7.—M. Lippmann in the chair.—Maurice **Hamy**: An arrangement of the arc with iron electrodes working with alternating currents. The spark spectrum of iron, used as a comparison spectrum, presents difficulties owing to the variations caused by slight changes in the experimental conditions. The arrangement of the arc between iron electrodes described in the present paper was designed to replace the spark as a source of the iron spectrum.—Gustave **Sannia**: The simple characteristics of partial differential equations with two variables.—N. **Saltykow**: The theory of partial equations.—U. **Cisotti**: The movement of a solid in viscous liquid.—E. **Mérigeault**: The influence of the velocity of combustion on the efficiency of a gas motor.—V. **Auger**: A new volumetric method for the estimation of uranium. The solution is reduced with metallic zinc and titrated with a standard solution of a ferric salt, using ammonium thiocyanate as indicator.—Paul **Gaubert**: The polychroism of crystals of potassium sulphate artificially coloured.—Marcel **Mirande**: The presence of hydrocyanic acid in *Trifolium repens*. The presence of hydrocyanic acid, or of a substance giving rise to it under the action of an enzyme, was proved in the stems and leaves of this plant. None was found in the roots.—C. **Dhéré** and W. de **Rogowski**: The absorption of the ultra-violet rays by α- and β-chlorophyll and by crystallised chlorophyll. Pure chlorophylls are remarkably transparent for the ultra-violet rays.—Léopold Le **Moult**: The destruction of certain Hemiptera by vegetable parasites.—M. and Mme. Pierre **Delanoë**: The relations between the cysts of Carini of the lung of the rat and *Trypanosoma lewisi*. The authors conclude that the pneumocysts of Carini represent a new parasite of the rat; they are not connected with *Trypanosoma lewisi*.—E. **Foëx**: The "Fibrinkörper" of Zopf, and their relations with the metachromatic corpuscles.

NEW SOUTH WALES.

Linnean Society, August 28.—Mr. W. W. Froggatt, president, in the chair.—G. I. **Playfair**: The plankton of the Sydney water-supply. The Sydney water-supply is the water of the Nepean and Cataract Rivers, which is impounded in the Cataract Reservoir, and thence brought down, by many miles of canal, through the Prospect Reservoir to Guildford and Pott's Hill, where it is filtered by being passed through a double series of wire screens. These screens being periodically raised and washed with a hose, the effluent from this operation has been the principal source of the material studied.—Allan R. **McCulloch**: Descriptions and figures of three young specimens of sunfish (Molacanthus) from the Central Pacific Ocean. The specimens described were received by the trustees of the Australian Museum from Dr. Thomas D. Liddle, R.N. They are only 9·5-13 mm. long, and were taken from the stomach of a kingfish caught swimming near the surface during the passage of H.M.S. *Torch* between the Ellice and Union Islands, Central Pacific, in 1911.—H. J. **Carter**: Notes on Stigmodera, with descriptions of new species and of other Buprestidæ. Eleven species of Stigmodera are proposed as new, comprising five from West Australia, four from Queensland, one from New South Wales, and one from Victoria. Two species of Neocuris and one of Curis, all from Queensland, are also described.

CALCUTTA.

Asiatic Society of Bengal, September 4.—L. L. **Fermor**: Preliminary note on the origin of meteorites. As the result of investigations into the conditions of formation of garnets, especially with respect to pressure, the author has been led to postulate the existence, below the plutonic rocks of the earth's crust, of a zone of rocks characterised by the abundant presence of *garnets*, the garnets being the result of the high pressures (and temperatures) existing in this zone. For this zone the author proposes the term *infraplutonic*. Armed with the conclusions thus obtained with reference to terrestrial rocks, the author proceeds to the consideration of meteorites, in particular of the stony forms known as aerolites; he is able to offer an explanation of the round bodies known as *chondrules*, so characteristic of many stony meteorites; he shows that each chondrule was once a garnet, and that the rock now represented by the chondritic meteorite must have been a garnetiferous eclogite situated at a considerable depth below the surface of some primeval stellar body. The disruption of this body was accompanied by a sudden reduction in pressure, which caused the garnets to liquefy with increase of volume. The rapidly decreasing temperature after this disruption caused the rapid crystallisation of these liquid drops with formation of the radiate and other crystalline aggregates of enstatite and olivine (sometimes with glass) so characteristic of chondrules. Starting from this interpretation of the chondritic meteorites the author is able to refer each of the great groups of meteorites to their respective positions in the primitive stellar body before disruption.—Anukul Chandra **Sircar**: A possible chemical method of distinguishing between seasoned and unseasoned teak wood. The work of R. Romanis on "Certain Products from Teak" has been extended with a view to determine whether the composition of the resinous extracts might be used as a criterion for the extent of seasoning of teak wood. The results obtained by this method were not encouraging, but another is indicated wherein the percentage of a white, crystalline body obtained from the wood by steam distillation is used as an index of the amount of seasoning.

GÖTTINGEN.

Royal Society of Sciences.—The *Nachrichten* (physico-mathematical section), parts 5 and 6 for 1912, contain the following memoirs communicated to the society:—

October 28, 1911.—F. **Klein** and M. **Brendel**: Materials for a scientific biography of Gauss. ii., Fragments on the theory of the arithmetico-geometric mean from the years 1797-99, explained by L. Schlesinger.

December 23, 1911.—Th. von **Kármán**: The mechanism of the resistance experienced by a body moving in a fluid.

January 13, 1912.—L. E. J. **Brouwer**: The topological difficulties in proving the continuity of the existence-theorem for one-valued reversible polymorphous functions on Riemann's surfaces.

February 18.—L. **Geiger** and B. **Gutenberg**: Seismic waves. vi., Constitution of the interior of the earth, derived from the intensity of longitudinal and transversal seismic waves, with some observations on prodromals.

March 2.—G. **Tammann**: The dependence of crystalline form upon temperature, and on re-crystallisation in conglomerates.—L. **Bieberbach**: $\Delta u = e^u$ and the automorphous functions.