

must give notice of the subject selected to the registrar of the University not later than March 1. They may submit to the examiners any original work previously done by them.

The Committee for Anthropology reports that nine fresh students entered their names on the register during 1917, as against eight in 1916. Miss M. Czapliska has delivered a course of lectures on ethnology, with special reference to her Siberian researches. She has been assisted in the preparation of the scientific results of her expedition by a grant from the committee. Lady Tylor has offered the valuable scientific library of the late Prof. Sir E. B. Tylor to the Radcliffe Library on condition that such books as are not needed to supplement that collection shall be placed at the disposal of the Committee for Anthropology.

THE Department of Agriculture and Technical Instruction for Ireland has issued the time-table of technical-school examinations which it will hold on various dates during May next. The Department's scheme of technical-school examinations is designed to follow courses of instruction extending over four years in the following branches of technical knowledge:—Commerce, building trades, applied chemistry, electrical engineering, mechanical engineering, domestic economy, and art. There are, in general, two examinations in each course in each of the four years, and the examinations in each course must be taken in a prescribed order.

It was agreed in the House of Commons on February 1, in a discussion of the Lords' amendments to the Representation of the People Bill, that the University of Wales should be separately represented in Parliament. When the Bill was in the House of Lords, Lord Peel, the spokesman for the Government, accepted an amendment to give to the University of Wales, instead of being one of a group of universities returning two members, a member to itself, and he appealed to the Home Secretary to assent to this being done. The request made on behalf of the University has now been granted. The position of university representation is, therefore, that Oxford and Cambridge retain two members each; London has one; Wales one; a single constituency is formed by the group composed of Durham, Manchester, Liverpool, Leeds, Sheffield, Birmingham, and Bristol, and the Scottish universities form one constituency returning three members.

THE report on the work of the Department of Technology of the City and Guilds of London Institute for the session 1916-17 has now been published by Mr. John Murray at the price of 6d. net. The total number of candidates examined in technology in the United Kingdom in 1917 was exactly 1000 fewer than in 1916, viz. 7508 as against 8508. The candidates entering for examinations in England and Wales in 1917 numbered 85 per cent. of those in the preceding year, and in Scotland 91.5 per cent. In Ireland, on the contrary, there was an increase of 25 per cent. on the figures for 1916. In spite of this general decrease in Great Britain there was an appreciable increase in the number of students attending classes in certain chemical subjects, such as alkali manufacture, coal-tar distillation, painters' oils and colours, oils and fats, cotton dyeing, leather dyeing, and dressing of skins. After a consideration of the proposed new regulations issued by the Board of Education for continuation, technical, and art courses in England and Wales, the Technology Committee of the institute contemplates no change in its system of examinations, which is to be continued on the same lines as heretofore. The programme of the current session's work includes no new subjects of examination, but a special

*viva voce* and practical examination is announced in connection with the highest tests in cotton weaving.

IN *Mind* (New Series, No. 105) Mr. P. J. Hughesdon discusses the relation between art and science. He argues that, at a time when education reform is being called for but still debated on the basis of an inadequate, and in part false, antithesis of the classics *versus* science, a satisfactory scheme of education must, whatever adaptations to tradition, etc., may be advisable, start with a correct view of the relation between the various aspects of truth or spheres of knowledge. He discusses the causes which have obscured the true relation of art and science, causes which, by exaggerating the particular domain of each, have deepened the gulf between them, chief among which is the erroneous view that art is concerned primarily with feeling and science with thought. The writer maintains that art and science provide complementary and correspondent conceptions of reality; in both the freely conceiving mind is active, but the organon of art is intuition or imagination, through which the nexus in the context of reality is divined implicitly and under the aspect of fitness or harmony, while that of science is reasoning, through which the nexus is recognised explicitly and abstractly under the aspect of ground, or reason, the essence of art lying in individualised representation, that of science in generalised explanation. The article is interesting, and furnishes some valuable points of view to those interested in the more fundamental problems underlying art and science.

THE *Journal of the Board of Agriculture* for December last contains an account by Mr. A. W. Ashby of some interesting features of agricultural educational work in connection with the State College of Agriculture, University of Wisconsin. It is an essential condition of graduation in agriculture at the University that the student must have previously secured at least two years' experience in farming. In order to ensure facilities for such experience to be obtained under good conditions a system of examining farms and awarding certificates of good management was established some years ago, and has proved very successful. In addition, university honours have been awarded to farmers who have rendered distinctive service to their profession or to their localities. During the past six years twenty-one farmers have been honoured in this way, of whom only three could claim academic training. A further feature which is described is the annual farm management contest, in which, despite the small financial inducement offered, competition is always keen. The awards are based upon a definite scale of "points," and it is specially interesting to note that no less than 20 per cent. of the total is allotted to "home life," a decidedly novel item in such score-cards. The importance of this factor is apparent to the student of rural conditions, even in this country, but in a country of widely scattered homesteads, where each must of necessity function as a largely self-contained social centre, the amenities of existence must bulk largely in ensuring the permanence of labour supplies, upon which a steadily prosperous agriculture must depend.

#### SOCIETIES AND ACADEMIES.

LONDON.

**Royal Society**, January 24.—Sir J. J. Thomson, president, in the chair.—Prof. A. N. Whitehead: Graphical solution for high-angle fire.—Spencer Pickering: Flocculation. The subsidence of suspended matter on the addition of a flocculant to a mixture of kaolin and water is accompanied by an increase of 100 to 200 per cent. in the specific volume of the sediment deposited.



This increase, as well as the disappearance of Brownian motion, proves that flocculation is due to an increase in the size of the particles. With acids as flocculants, definite combination between them and the kaolin occurs, the acid being almost completely removed from the solution up to the point when flocculation is complete, beyond which no more is removed. The acids being in a highly hydrated condition accounts for the increase in volume of the kaolin particles on uniting with them. With alkalis the phenomena are the same, but combination is complete only in the presence of excess of alkali; hence the concentration at which flocculation occurs is much higher. In very weak alkaline solutions where there is but little actual combination, the subsidence of the particles is retarded by the attraction of the alkali present.—**Dr. J. Aitken**: Revolving fluid in the atmosphere. The paper deals with the objections to the cyclonic theory of circulation recently advanced by Sir Napier Shaw. These objections are founded on the fact that the charts of isobars and winds of the weather maps nowhere show a circulation such as would be given by a combination of the motions of rotation and translation. It is pointed out that these objections are based on suppositions which do not find support in Nature. If the cyclone were a closed system, the winds would be such as Sir Napier says they ought to be, but as the cyclone is an open one and draws in air at its lower end, and as this incoming air is only on its way to become part of the system, it cannot be treated as having the revolution and translation of the cyclone. If the combination of these two motions is to be found anywhere, it will probably be in the higher winds, and even there they will be affected by the general circulation in the system.

—**Hon. R. J. Strutt**: Ultra-violet transparency of the lower atmosphere and its relative poverty in ozone. (1) The lower atmosphere is found to be comparatively transparent to ultra-violet light. The  $\lambda 2536$  can be detected on the spectrum of a mercury lamp four miles distant. (2) The solar spectrum, even when observed from high altitudes when the equivalent thickness of air overhead (reduced to N.T.P.) is less than four miles, is limited by atmospheric absorption to  $\lambda 2922$ . Air near the ground-level is therefore much more transparent to ultra-violet light than the upper air. (3) Since the limitation of the solar spectrum is almost certainly due to ozone, it follows that there must be much more ozone in the upper air than in the lower. (4) Scattering by small particles acts in the same way as ozone to absorb ultra-violet radiation from a distant source, and this action makes quantitative estimation difficult. Even if the observed enfeeblement of  $\lambda 2536$  were entirely due to ozone, 0.27 mm. of pure ozone in four miles of air would suffice to produce it. Taking scattering into account, the quantity is probably much less, and there is no evidence from this investigation that any ozone is present in the lower air.—**Prof. A. Fowler**: The presence in the solar spectrum of the water-vapour band  $\lambda 3064$ . The band at  $\lambda 3064$ , which is usually attributed to water-vapour, is quite strongly represented in the solar spectrum, and accounts for at least 150 lines which were previously unidentified.—**Prof. A. Fowler and C. C. L. Gregory**: The ultra-violet band of ammonia and its occurrence in the solar spectrum. The ammonia band having its greatest intensity at  $\lambda 3360$  has been photographed with high resolving power, and the positions of 260 component lines have been determined. In the principal maximum, and in a secondary maximum at  $\lambda 3371$ , the band lines are very closely crowded and form series of the usual type. On the less refrangible side the principal lines form three series which coalesce and fade out at  $\lambda 3450$ , and there is a similar set of three series on the more

refrangible side which coalesce and disappear at  $\lambda 3287$ . These two groups, however, are not symmetrical, and they differ considerably from the more usual type of series. It is shown that the ammonia band lines are consistently represented in the solar spectrum and account for about 140 faint lines which were previously unidentified. The remaining band lines are either too weak to appear in the sun or are obscured by lines of metallic origin. The brightest part of the ammonia band accounts for the greater part of Group P of the solar spectrum.

**Geological Society**, January 23.—**Dr. Alfred Harker**, president, in the chair.—**Prof. W. J. Sollas**: A flaked flint from the Red Crag. The remarkable specimen forming the subject of the paper was obtained by Mr. Reid Moir from the base of the Red Crag exposed in the brick-pit worked by Messrs. Bolton and Co. near Ipswich. It is a fragment of a nodule of chalk-flint, irregularly rhombic in outline, with a nearly flat base and a rounded upper surface which retains the whitish weathered crust of the original nodule. The base was formed by a natural fracture which exposes the fresh flint bordered by its weathered crust. Both upper and under surfaces of the specimen are scored with scratches which are mainly straight, but in some cases curvilinear. Two adjacent sides have been flaked by a force acting from below upwards, in a manner that recalls Aurignacian or Neolithic workmanship. The two edges in which the flaked faces meet the base are marked by irregular minute and secondary chipping, such as might be produced by use. On the hypothesis that the flint has been flaked by design, these edges should correspond with the "surface d'utilisation" of M. Rutôt, and one would expect to find on the opposite edges of the flint the "surface d'accommodation," as, in fact, is the case. The origin of the flaking is discussed, and the author, while admitting that the fashioning of the flint is not inconsistent with intelligent design, concludes that the evidence is not sufficient to establish this beyond dispute.

#### MANCHESTER.

**Literary and Philosophical Society**, January 22.—**Prof. S. J. Hickson**, vice-president, in the chair.—**J. W. Jackson**: The association of faceted pebbles with Glacial deposits. The object of the paper was to place on record several recent discoveries of faceted and wind-etched pebbles in localities near Manchester and in the Wirral peninsula, and to discuss the association of such pebbles with Glacial deposits. The pebbles are of Glacial origin, and all show the characteristic features of wind-erosion. The most noteworthy feature, however, is the large number of split and fractured pebbles, all of which exhibit the action of sand-blast on the fractured surfaces, in addition to other parts of the pebble. All stages towards the formation of typical "Dreikanter" are exhibited. The splitting appears to have been independent of rock composition, as both igneous and sedimentary rocks are represented in the series; in the latter they are mainly split along joint-planes. The mode of occurrence shows that the pebbles were acted on by sand-blast after the deposition of the Glacial beds on which they lay, and in this respect they agree with similar pebbles found in North Germany and in North America. It is suggested that the splitting is due to frost action, and that it is somewhat earlier than the wind-erosion.—The late **E. Halkyard** (paper edited and revised by E. Heron-Allen and A. Earland): The fossil Foraminifera of the Blue Marl, Côte des Basques, Biarritz. The Blue Marl of Biarritz forms a cliff stretching for nearly three-quarters of a mile N.N.E.



to S.S.W., and attains a height of about 135 ft. The height is maintained for about two-thirds of its length and dies away at the valley of Chabi. The paper contains an account of the genera and species of Foraminifera found by Mr. Halkyard in this blue marl, and is illustrated by eight plates of figures.

## DUBLIN.

**Royal Dublin Society**, January 22.—Dr. G. H. Pethybridge in the chair.—Dr. A. G. G. Leonard and P. Whelan: The quantitative spectra of lithium, rubidium, caesium, and gold. The utility of spectrum analysis has been greatly enhanced by a knowledge of the persistency of the spectrum lines in the spark spectra of dilute solutions of the metals. The present paper is a continuation of the quantitative study of these spectra, and includes the results obtained for the metals lithium, rubidium, caesium, and gold.—Capt. E. G. Fenton: Studies in the physiography and glacial geology of southern Patagonia. This paper, which is the result of several years of personal observation on the pampas from the coast region at the mouth of the Gallegos River to the Andes, describes the way in which the generally level country has been cut into by the streams, and the formation of successive terraces by repeated flooding and erosion. The distribution of large ice-borne boulders enables the limits of a large ice-sheet of Glacial times to be determined, and the author shows that there were at least two epochs of ice-extension from the Andes. An epoch of dry south-westerly winds gave rise to a remarkable series of sand-cut grooves in the lava-blocks and lava-surfaces of the plateaus. The bajos, which are spoon-shaped excavations in the pampas, with a steep cliff at their heads, are attributed to waterfall action during the melting of the margin of the ice-sheet. The succession of events is pointed out, and the corresponding climatic changes are discussed.

## PARIS.

**Academy of Sciences**, January 14.—M. Paul Painlevé in the chair.—E. Ariès: The co-volumes considered as functions of the temperature in the Clausius equation of state.—G. Julia: The repetition of rational fractions.—M. d'Ocagne: Skew surfaces circumscribed to a given surface along a given curve.—R. Soreau: The origin and the meaning of the word "abaque."—MM. Lubrano and Maitre: The determination of the latitude of the Observatory of Marseilles by observations made with the prism astrolabe. The mean of the determinations, reduced to the latitude of the meridian circle, is  $43^{\circ} 18' 16.35''$ , a value identical within  $0.01''$  with the mean figure obtained with the meridian circle.—A. Colson: The cause of the anomalies presented by the dissociation of amylene bromohydrate, and its consequences. The reaction between amylene and hydrobromic acid at  $184^{\circ}$  C. was found by Lemoine not to obey the law of mass action, and this has been confirmed by the author. It is shown that this anomaly is due to the partial change of the bromopentane originally formed into an isomer.—P. Chevenard: An anomaly in the elasticity of carbon steel correlative to the reversible transformation of cementite. The elastic anomaly of steel, due to transformation of the cementite, is proportional to the percentage of carbon.—E. Léger: The action of hydrobromic acid upon cinchonine and its isomers: cinchoniline, cinchonine, and apocinchonine. Hydrobromic acid produces phenomena of isomerisation with these alkaloids.—C. R. Lopez-Neyra: A new *Cyrnea* of the partridge. The name *Cyrnea seuratii* is proposed for the new species, and a detailed comparison is made of it and *Cyrnea eurycerca*.—C. Vaney and A. Allemand-Martin: Contribution to the study of the larva of *Hippospongia equira*

from the coasts of Tunis.—F. Diénert, A. Guillard, and Mme. A. Leguen: The search for the Eberth bacillus and the B-paratyphoid bacillus in waters. A detailed account of the modified method now in use, the first medium being a broth containing malachite-green. The two bacilli above-named can be detected by this method in 50 c.c. of Seine water taken at Paris.—P. Masson: Abnormal epidermisation after bathing with hypochlorites. A warning as to possible dangers attending the prolonged use of hypochlorites for disinfecting wounds. Epidermal lesions sometimes appear which are characteristic of pre-cancerous states, and which it is necessary to excise.

## SYDNEY.

**Royal Society of New South Wales**, December 5, 1917.—R. T. Baker: The occurrence of crystals in some Australian woods. Crystals of calcium oxalate were found to be of rather frequent occurrence amongst some microscopical sections of Australian timbers when being examined for anatomical data. Timbers of twenty-two natural orders were examined, and of these crystals were found in fourteen, being the first record of such in Australian timbers. The crystals were simple, being found in both the wood and ray parenchyma, a single one in each cell, with one exception.—J. H. Maiden: Notes on *Eucalyptus* (with a description of a new species). No. 5. The paper consists of supplementary notes on a number of species, many of them Western Australian. Most of the species are somewhat rare, and their life-history and morphology but little known. The proposed new species is a remarkable form which throws light on the affinities of *Eucalyptus erythronema*.—Prof. J. Read and Miss M. M. Williams: A novel application of bromine water in synthetic organic chemistry. The method bears directly upon several processes of technical importance, including the manufacture of novocaine (a well-known synthetic substitute for the natural drug cocaine) and other substances of physiological interest; it may also be applied in preparing phenyl acetaldehyde, a hyacinth perfume; and it is of interest in connection with the chemistry of the Australian natural essential oils.

**Linnean Society of New South Wales**, September 26, 1917.—Dr. H. G. Chapman, president, in the chair.—R. J. Tillyard: Some dragonflies from Australia and Tasmania.—A. A. Hamilton: Notes on the genus *Lepidium*.—W. F. Blakeley: A new species of *Acacia*.—R. Etheridge and J. Mitchell: The Silurian trilobites of New South Wales, with references to those of other parts of Australia. Part vi.: The Calymeneidæ, Cheiruridæ, Harpeidæ, Bronteidæ, with an appendix.

October 31, 1917.—Dr. H. G. Chapman in the chair.—F. H. Taylor: Australian Tabanidæ, part iii.—R. J. Tillyard: Odonata, Planipennia, and Trichoptera from Lord Howe and Norfolk Islands.—E. Cheel: Notes on the common nightshade (*Solanum nigrum*, Linn.) and some closely related forms or species which have been confused with it.—A. M. Lea: Descriptions of new species of Australian Coleoptera, part xiii.

November 28, 1917.—Dr. H. G. Chapman in the chair.—R. J. Tillyard: The morphology of the caudal gills of the larvæ of Zygopterid dragonflies. Parts iii.-iv. (Ontogeny and Phylogeny).—G. I. Playfair: Rhizopods of Sydney and Lismore.—R. J. Tillyard: Mesozoic insects of Queensland. No. 2: The fossil dragonfly *Aeschmidopsis* (*Aeschna*) *flindersiensis*, Woodward, from the Rolling Downs (Cretaceous) series.—R. J. Tillyard: Permian and Triassic insects from New South Wales in the collection of Mr. J. Mitchell.—Miss V. A. Irwin-Smith: The Chætosomatidæ, with descrip-



tions of a new genus and four new species from the coast of New South Wales.—H. J. Carter: Some new Heteromera and a new Stigmodera (Coleoptera) from Tropical Australia.—Prof. W. N. Benson: The geology and petrology of the Great Serpentine Belt of New South Wales. Appendix to part vi.—Dr. H. S. H. Wardlaw: The variability of cows' milk. Samples of afternoon milk from 109 healthy cows kept under similar conditions, but of various ages, breeds, and stages of lactation, were examined. Certain physical properties, the composition, and quantities secreted in eight hours were determined. The variabilities of the results fall into four distinct groups. The percentages of results lying within five of the mean, and the percentage-deviation from the mean within which practically all the results lay, were:—(1) Freezing point and density, 100, 5; (2) electrical conductivity and concentration of soluble matter (chiefly lactose), 50, 25; (3) concentration of matter not in solution (chiefly fat and protein), 20, 50; (4) quantities secreted in eight hours, 10, 100. Only three samples contained less than 3.2 per cent. of fat, while more than 40 per cent. of the samples contained less than 8.5 per cent. of solids not fat.—Miss E. C. Pinkerton: The composition of expired alveolar air. Estimations of the percentage of oxygen and carbon dioxide in the successive portions of air rapidly expelled from the lungs show that the concentration of carbon dioxide diminishes by not more than 0.22 per cent. in the final 600 c.c. respired, and that the concentration of oxygen increases by not more than 0.36 per cent. in the same portion of the breath. The change in concentration is independent of the depth of respiration, but depends on the speed with which the air is expired; the more slowly the air is breathed out the greater the change in concentration of the gases of the final portion. The results obtained lead to the inference that the alveolar air in the pulmonary atria, at the end of an expiration, contains a lower concentration of oxygen and a higher concentration of carbon dioxide than the air last expelled from the mouth in the rapid expiration.

BOOKS RECEIVED.

The Principles and Practice of Pruning. By M. G. Kains. Pp. xxv+420. (New York: Orange Judd Co.) 2 dollars net.  
 Comment Economiser le Chauffage Domestique et Culinaire. By R. Legendre and A. Thevenin. Pp. 123. (Paris: Masson et Cie.) 1.25 francs.  
 The Rural Teacher and his Work in Community Leadership, in School Administration, and in Mastery of the School Subjects. By H. W. Foght. Pp. xii+359. (New York: The Macmillan Co.; London: Macmillan and Co., Ltd.) 7s. 6d. net.  
 Manual of Milk Products. By Prof. W. A. Stocking. Pp. xxvii+578. (New York: The Macmillan Co.; London: Macmillan and Co., Ltd.) 10s. 6d. net.  
 La Statique des Fluides, la Liquéfaction des Gaz et l'Industrie du Froid. By E. H. Armagat and L. Décombe. Première et Deuxième Partie. Pp. vi+265. (Paris and Liège: Ch. Béranger.) 18 francs.

DIARY OF SOCIETIES.

THURSDAY, FEBRUARY 7.  
 ROYAL SOCIETY, at 4.30.—The Photo-Electric Action of X-rays: Prof. O. W. Richardson.—The Parent of Actinium: Prof. F. Soddy and J. A. Cranston.—Some Problems in the Theory of Radiation: Prof. A. Schuster.—The Absorption of the Radiation Emitted by a Palladium Anticathode in Rhodium, Palladium, and Silver: E. A. Owen.  
 ROYAL INSTITUTION, at 3.—Illusions of the Atmosphere: The Travelling Vortex and the Cyclonic Depression: Sir Napier Shaw.  
 INSTITUTION OF ELECTRICAL ENGINEERS, at 6.—Ninth Kelvin Lecture: Kelvin as a Teacher: Prof. M. Maclean.  
 LINNEAN SOCIETY, at 5.—Two Bibliographical Rarities of the Society's Library: (a) Cupani, F., "Panphyton siculum," 1713; (b) Du Gort, J. and P., "L'Histoire et Pourrait des Plantes," Lyon, 1561: The General Secretary.—Plant Distribution from the Standpoint of an Idealist: H. P. Guppy.

CHEMICAL SOCIETY, at 8.—Atomic and Molecular Numbers: H. S. Allen—Studies of the Carbonates. IV. The Hydrolysis of Sodium Bicarbonate and the Ionisation Constants of Phenolphthalein: C. A. Seyler and E. H. Tripp.—Some Inorganic Stannichlorides: J. G. F. Druce.—A Re-investigation of the Cellulose-dextrose Relationship: Miss M. Cunningham.—Esparto-cellulose and the Problem of Constitution: C. F. Cross and E. J. Bevan.

FRIDAY, FEBRUARY 8.  
 ROYAL INSTITUTION, at 5.30.—Science and Ethics: Principal E. H. Griffiths.  
 ROYAL ASTRONOMICAL SOCIETY, at 5.—Anniversary Meeting.  
 SATURDAY, FEBRUARY 9.  
 ROYAL INSTITUTION, at 3.—The Ethics of the War: P. H. Loyson.  
 MONDAY, FEBRUARY 11.  
 ROYAL GEOGRAPHICAL SOCIETY, at 8.30.—The London Society's Map with its Proposals for the Improvement of London: Sir Aston Webb.  
 SOCIETY OF ENGINEERS, at 5.30.—Presidential Address: W. B. Esson.  
 TUESDAY, FEBRUARY 12.  
 ROYAL INSTITUTION, at 3.—The Problems of British Anthropology: Prof. A. Keith.  
 WEDNESDAY, FEBRUARY 13.  
 BRITISH ASSOCIATION GEOPHYSICAL DISCUSSIONS (Royal Astronomical Society), at 5.—The Influence of Barometric Pressure on Mean Sea-level: Sir C. F. Close.—Precise Levelling: Major Henrici.  
 ROYAL SOCIETY OF ARTS, at 4.30.—The Relations between Capital and Labour—Reasonable Hours, Co-partnership, and Efficiency: Lord Leverhulme.  
 THURSDAY, FEBRUARY 14.  
 ROYAL SOCIETY, at 4.30.—Probable Papers: The Artificial Production of Echinoderm Larvæ with Two Water-vascular Systems, and also of Larvæ Devoid of a Water-vascular System: Prof. E. W. MacBride.—The Quantitative Differences in the Water-conductivity of the Wood in Trees and Shrubs: Prof. J. B. Farmer.—The Efficiency of Muscular Work: Capt. M. Greenwood.  
 ROYAL SOCIETY OF ARTS, at 4.30.—The Hide Trade and Tanning Industry of India: Sir Henry Leggard.  
 FRIDAY, FEBRUARY 15.  
 ROYAL INSTITUTION, at 5.30.—The Mechanism of the Heart: Prof. E. H. Starling.  
 INSTITUTION OF MECHANICAL ENGINEERS, at 6.—Annual General Meeting.—Traction on Bad Roads or Land: L. A. Legros.—Utility of Motor Tractors for Tillage Purposes: A. Amos.  
 SATURDAY, FEBRUARY 16.  
 ROYAL INSTITUTION, at 3.—Problems in Atomic Structure: Sir J. J. Thomson.

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