

## Science News a Century Ago

### Anniversary Meeting of the Royal Society

THE anniversary meeting of the Royal Society was held on November 30, 1835, J. W. Lubbock, vice-president and treasurer, being in the chair. The secretaries' report stated that the Copley Medal had been awarded to William Snow Harris for his "Experimental Investigations of the Forces of Electricity of high Intensity", while one of the Royal Medals had been awarded to Michael Faraday for his "Experimental Researches in Electricity" and the other to Sir William Rowan Hamilton for papers published by him in the *Transactions of the Royal Irish Academy*, vols. 16 and 17, entitled "Supplement to an Essay on the Theory of System of Rays". The report also announced the appointment of Mr. Robertson as assistant secretary "at a salary of £160 per annum with the use of a bed-room, sitting-room, coals and candles", and of Mr. Schuckard as librarian at a salary of £50 per annum. Mr. Schuckard was to attend from 12 to 4 o'clock on two days of the week. The Society consisted of 10 Royal personages, 48 foreign members and 735 home members, of whom 598 had compounded for life.

### Culture of Grapes by Lord Tyrconnel

At a meeting of the Horticultural Society on December 1, "a paper was read containing notes and observations on many kinds of grapes, cultivated at the seat of the Earl of Tyrconnel, near Catterick Bridge, in Yorkshire, the vineries at which place seem very rich in varieties of this fruit, placed under circumstances highly favourable for comparison; any remarks like these, have been the result of long experience by Mr. Whiting, Lord T's gardener, cannot fail to aid in clearing up the confusion which reigns over the nomenclature, etc. of nearly 200 supposed different sorts of grapes, and further the establishment of a standard of certainty among so much conflict of opinion". (*Athenæum*.)

### The London Mechanics' Institution

ON Friday, December 4, *The Times* recorded that this Institution held its usual quarterly meeting on Wednesday evening, in its theatre, Southampton Buildings, Dr. Clutterbuck, vice-president, being in the chair. A report of the committee of managers said that the present number of members was 1,211, an increase of 180 on the preceding quarter. The funds of the Institution appeared to be in a prosperous condition, between £200 and £300 having been paid to lecturers during the preceding twelve months. The chairman congratulated the meeting on the Institution having arrived at its twelfth anniversary, and said he believed a more favourable report on its condition had not been presented before. Votes of thanks were given to Dr. Birkbeck, the president, for his exertions on behalf of the Institution, to lecturers and teachers of classes who had given their services free of charge and to the donors of books, etc.

### Education in Italy

In its column of Weekly Gossip on Literature and Art, the *Athenæum* of December 5 said, "In Italy, Silkworms, Wine-making and Education seem to occupy public attention. Silkworms, it appears, are

subject to some sort of infection disease, the nature of which it is important to discover, that precautions may be taken to guard against it. . . . The attention to education we have before noticed; since then, we have seen announced in the periodicals, a 'Manual of Instruction for Infant Schools', a 'Course of Instruction for Girls', and more books for the use of young persons than we can recollect, besides sundry essays upon the subject of Education. We trust, therefore, that the rising generation of Italians will improve accordingly. . . . From Sicily we learn that not less than nine periodicals literary and scientific now flourish there. . . ."

### Electrostatics: Faraday Borrows a Copper

"HAVE borrowed a copper from Mr. Kipp. It is a new one, not quite finished, and having no cock fixed in it, so that its shape and condition is regular." Thus wrote Faraday on December 5, 1835, and with the borrowed copper proceeded to make the first of his electrostatic experiments. The vessel, a large one of 31 inches diameter, was set up on an insulating stool and charged by means of a frictional electrical machine. Then with a carrier ball—a small sphere covered with tinfoil and suspended by a silk thread—he examined the state of electrification at various points of the surface inside and outside the copper. The surface was touched and the charge taken by the ball transferred to a test electrometer. A series of trials soon showed him that projecting parts of the outside, for example, the edge or rim of the copper, were the most highly electrified. Very little electricity could be obtained from any point inside: the walls near the top were feebly charged, but the bottom showed no charge at all.

## Societies and Academies

### LONDON

Royal Society, November 21. A. R. UBBELOHDE, J. W. DRINKWATER and A. EGERTON: 'Pro-knocks' and hydrocarbon combustion. Former arrangements for sampling the gases from the engine cylinder have been so modified that the samples can be taken when ignition is made to occur every alternate cycle either in the firing or non-firing strokes. Aldehydes are formed at the end of the compression stroke in the non-fired cycle, but the concentration is much smaller than in the firing stroke. The quantities of formaldehyde and of total aldehydes have been measured when running on various fuels; the amounts produced are insufficient to account for 'knock'; for this, another source of peroxides is therefore needed. Experiments are described which suggest that most hydrocarbon fuels can be made to 'knock', provided molecules which can disrupt and give rise to a branched chain reaction are produced or made available. The main source of the nitrogen peroxide found in the previous experiments is probably the hot active surface of the exhaust valve, and is proved not to be the flame. D. T. A. TOWNEND and E. A. C. CHAMBERLAIN: The influence of pressure on the spontaneous ignition of inflammable gas-air mixtures. (4) Methane, ethane and propane-air mixtures. Whereas with the higher paraffins previously reported on, the ignition points were found to lie in two well-defined temperature ranges, location in the higher range occurring at low pressures, and in the lower



range at higher pressures, with methane or the intermediate products to which it gives rise, they were confined to an upper range even at pressures up to 30 atmospheres. The view previously put forward that ignition in the lower system occurs when temperature and pressure conditions favour the survival and further oxidation of aldehydes (mainly acet-aldehydes) has found further support.

## PARIS

Academy of Sciences, October 28 (*C.R.*, 201, 749-800). FÉLIX MESNIL: The jubilee of the prevention of hydrophobia produced by a bite. Pasteur's first communication to the Academy was on October 26, 1885. Between July 6, 1885 and January 1, 1935, no less than 51,057 persons have been treated in Paris by the Pasteur method, and of these 151, or less than three per thousand, have died of hydrophobia. CHARLES ACHARD and MAURICE PIETTRE: Researches on the proteins of the cancer cell. The albumin isolated from cancerous tissue has the same composition as serum albumin, but has smaller molecules than the latter. PIERRE LEJAY: A new gravimetric linking of European stations of reference. The establishment of a base at the Pic du Midi Observatory. Details of measurements of the acceleration of gravity ( $g$ ) at eleven European stations, with the same pair of pendulums. PIERRE LEJAY was elected *Correspondant* for the Section of Geography and Navigation. FRÉDÉRIC MARTY: The structure of the rational fractions and autoprojections of topological coverings. JEAN LE ROUX: The idea of distance. M. PAUL VINCENSINI: Convex bodies admitting a given vectorial domain. PAUL MENTRÉ: Developable inflectional surfaces of complexes of right lines. D. TOIŹZÁ: Integral functions. LUCIEN CHADENSON: The representation of a group of operators in Hilbert space. JEAN THOUVENIN: The application of photoelasticity to the study of shocks. An application of the Séguin-Labarthe ultra-cinematograph taking 4,000 photographs a second. Four of the films obtained are reproduced. E. BARRILLON and CH. CHARTIER: The flow in the mass of a fluid round an obstacle in the form of a house resting on the ground. An experimental study, the results of which are shown in three diagrams. F. ROCHFORD and JEAN VILLEY: A new type of aviation motor. A method of pulverising fuels such as gas oil, giving homogeneous mixtures. The method has been applied successfully to a 200 horse-power six cylinder aviation motor. BERNARD KWAL: The difficulty concerning the existence of the infinite energy of radiation at the absolute zero in quantic electrodynamics. PIERRE JACQUINOT and TSAI BELLING: Measurements of the Paschen-Back effect with the Bellevue electromagnet fitted with supplementary coils. With the additional coils the magnetic field was raised to 65,800 gauss. The line 5789-90 showed a considerable Paschen-Back effect: the displacement of the central component was nearly 0.2 Å. and the separation of the violet component reached 0.29 Å. E. VELLINGER and J. D. HERRENSCHMIDT: The critical temperature of solution of mineral oils. An application of the method of Chavannes and Simon to the study of the changes brought about in mineral oils by refining. ANDRÉ KLING and MAURICE ROUILLY: Some derivatives given by the action of phosgene, methyl chloroformate, mono-, di- and trichloromethyl chloroformates on cholesterol. ANDRÉ DEMAY: The Carboniferous age of the Guéret granite and on the

facies of contact metamorphism of the Dinantian grits and tufas of the Puy-de-Dôme and of Creuse. DANIEL BARBIER, DANIEL CHALONGE and ETIENNE VASSY: Measurement of the reduced thickness of atmospheric ozone during the polar winter. The authors have developed a spectroscopic method making use of stellar spectra for determining the ozone, and give the results obtained at Abisko (lat. 68° 20' N.). PIERRE MARTENS: Direct fertilisation and cross-fertilisation in *Parnassia palustris*. PIERRE LESAGE: Acquired and inherited precocity at Rennes and Algiers in 1935. TONY BALLU: The determination of the resistance of a soil to the passage of agricultural tools. DAVID BROUN and H. SCHEINER: The physico-chemical state of the adrenaline hormone in the blood. MILE. LAJA OLSZYCKA: The quantitative study of the phenomena of synergy. The potentialisation of the hypnotic action in the mouse. ANATOLE ROGOZINSKI and BARUCH SAMUEL LEVIN: The action and hæmolytic dose of the X-rays.

## LENINGRAD

Academy of Sciences (*C.R.*, 3, No. 3, 1935). I. VINOGRADOV: Fractional terms of polynomials and of other functions. N. SLOZKIN: Streamlining a gas-filled envelope by a flat stream of ideal fluid. M. MARKOV: Permutations in a vector model of an atom. J. MENDELEJEV: The abnormal density of water in the depths of Lake Baikal. A. RABINOVITSCH, P. VASILJEV and T. GATOVSKAJA: The Donnan effect in ultra-filtration of colloidal solutions. A. PARSCHIN: Influence of paraphenyldiamine on the chemical processes in striped muscles. V. SILBERMINTZ: Occurrence of vanadium in fossil coals. E. KORIDALIN and S. MASARSKIJ: Seismographic prospecting by the method of reflected waves. I. KOROKOV: The presence in southern Daghestan of strata analogous to the Priabona strata. A. KOLMOGOROV: Deviations from Hardy's formula in partial isolation. P. NIKITIN: The Miocene seed flora near the town of Tomsk, Siberia. A. SEVERCOV: Recapitulation: morphological and histological. A. BOIKO: Septicæmia of bees and its causative agent.

## MELBOURNE

Royal Society of Victoria, October 10. B. J. GRIEVE: (1) The brown rot disease of potatoes in Victoria—the bacterial organism responsible for 'brown rot' or 'sore eye' of potatoes in Victoria is described and identified as a strain of *Bacterium solanacearum*, Smith. The reasons for regarding the organism isolated as a strain are as follows: (a) there is little or no production of a brown water-soluble pigment in colonies on agar plates; (b) there is a slight production of acid in glucose; (c) no infection can be obtained when the organism is cross inoculated to tobacco. Earlier reports on the occurrence of the disease and on the organism concerned in Australia are critically discussed. (2) Occurrence of *Bacillus carotovorus*, Jones, causing a soft rot of *Iris germanica* in Victoria. An organism was isolated and its pathogenicity established. Cultural and physiological characters of the organism were found to agree essentially with those of *Bacillus carotovorus*, Jones. The three differences recorded in physiological reactions, namely, non-liquefaction of gelatine, failure to produce indol and absence of definite diastatic reaction, are within the accepted variation of *Bacillus carotovorus*.