Science News a Century Ago

Auroral Display seen at Oxford

SOON after 8 p.m. on November 18, 1835, a vivid auroral display was witnessed near Oxford by the Rev. J. Guillemard, of St. John's College. A rapid succession of rays of light began to shoot up first in the east, and after vanishing there, appeared in nearly the same form in the west. When the display was over, a part of the sky filled with a faint silvery light diffused over a bank of clouds. (*Proceedings of the Ashmolean Society*, **9**.)

The Duke of Sussex and the Royal Society

IN 1830, the Duke of Sussex accepted the presidency of the Royal Society in succession to Davies Gilbert; he held the office for eight years. On November 20, 1835, after the first autumn meeting of the Society, a correspondent, "F. R. S.", wrote to the editor of *The Times*: "On the recommencement of the annual session of the Royal Society, last night, it appeared that Mr. Lubbock had resigned his office of treasurer, for no other reason than the total want of co-operation in the objects and business of the society on the part of the Royal President, who on the alleged grounds of ill-health had not attended a single meeting of council. . . .

"Now, however, on the eve of the annual election, on St. Andrew's day, and according to the approved precedent of the last three or four years, a pathetic letter will be read to the general meeting, apologizing for past neglect, tendering a reluctant resignation, and in the hoped event of its non-acceptance, making large professions of improved conduct in the future.

"The shortness of the notice, and the utter unpreparedness of the society on the present occasion, preclude any other alternative than a sullen and indignant re-election and thus another blank session will accelerate the downward course of the society in scientific usefulness and consequent public estimation.

"It may not be too late in the course of the present session to avert so deplorable a result by some influential members taking measures for vindicating the paramount ascendency of science over rank, by making such a choice on a future election as shall atone for the original sin of not having placed a Herschell in the chair once occupied by a Newton and a Davy."

Trial of a Cornish Pumping Engine

A CENTURY ago, the pumping engines employed in the mines of Cornwall were among the finest of their kind. Quoting from the *Falmouth Packet*, the *Mechanics' Magazine* for November 21, 1835, said: "A steam-engine, lately erected on a copper mine in this neighbourhood [St. Austell], has been reported to have raised at an average rate of performance, upwards of ninety millions of pounds weight one foot high, with a bushel of coal. The correctness of this statement was questioned by rival engineers and others, and so seriously, that a challenge for a public trial was given and accepted. It took place last week, in presence of a number of most experienced mine agents from different parts of the country, and the result of twenty-four hours' trial was the unprecedented performance of lifting 125½ millions of pounds weight one foot high, with every bushel of coal consumed! The engine is of large size, the cylinder being 80 inches diameter. The principle is that of Boulton and Watt but improved in economising the heat when generated, so as in the greatest possible degree to apply it to the end of producing steam, and maintaining it until its work is performed. The engineer's name is West."

'Luminous' Appearance of *Oenothera*

DR. BUCKLAND discoursed in the Old Ashmolean Museum at Oxford on November 22, 1835, on the 'luminous' appearance of the flowers of *Oenothera*. It continued uninterruptedly for a considerable length of time; it did not appear to resemble any electric effect; and the opinion which seemed most probable was, that the plant has a power of absorbing light, and giving it out in peculiar circumstances. (*Proceedings of the Ashmolean Society*, **9**.)

Societies and Academies

LONDON

Royal Society, November 7. F. W. G. WHITE and L. W. BROWN: Some measurements of the reflection coefficient of the ionosphere for wireless waves. The Breit and Tuve technique for ionospheric investigation is employed, the sender-receiver system being calibrated so that the reflection coefficient may be determined for a wave of any frequency within the range 2·80–6·50 Mc/s, from the relative amplitudes of the direct and the singly reflected atmospheric waves. Examples of measurements, made at noon during the period November 1934–May 1935, show that the total absorption suffered by the waves is very much dependent upon the critical phenomena at the transition of reflection from one region to another. The influence of the absorbing regions is estimated from the results. Estimates, based upon Appleton's theoretical formula, of the collisional frequency of the electrons with gas molecules in the F_2 ionised region of the upper atmosphere, are made. The collisional frequency is of the order 5×10^3 per second at a height of approximately 250 km. above the surface of the earth. J. P. GOTT: The electric charge collected by water-drops falling through a cloud of electrically charged particles in a vertical electric field. Measurements were made of the charge collected by a large water drop falling through a jet of the cloud containing equal numbers of positively and negatively charged cloud particles in a vertical electric field maintained between two horizontal field plates. When the upper plate was positive, the drop collected a negative charge, and when the upper plate was negative the drop collected a positive charge. This is in agreement with a theory proposed by Wilson in connexion with the mechanism of thunder-clouds. The quantitative agreement is as close as could be expected from the experimental arrangement. The experiments also afforded a test of the mechanism suggested by Elster and Geitel. If any charge was collected by the operation of this mechanism, it was too small to be observed.

PARIS

Academy of Sciences, October 14 (*C.R.*, **201**, 629–692). CHARLES ACHARD, AUGUSTIN BOUTARIC and JEAN BOUCHARD: The comparative action of ordinary alkaloids and genalkaloids on the fluorescence