

Forecasting Department of the Meteorological Office, and the note, apart from the intrinsic interest and importance of the subject, should be helpful to forecasters when interpreting the significance of the physical state of the atmosphere revealed by observations made in aeroplanes equipped with meteorological instruments.

A discussion of the energy equivalent of 1 cm. on this diagram leads up to a consideration of the amounts of radiation received in different months and the heights up to which the dry adiabatic lapse rate can be brought into being in each case, given isothermal conditions initially.

When passing on to consider what proportion of the total incoming radiation may actually be available for warming the atmosphere, allowance having been made for the increased radiation from the earth's surface, the incoming diffuse radiation of short wave-length, the reflected radiation, and for the heat absorbed in evaporating water from the surface, the author is on difficult ground. An estimation of the last item, for example, has apparently been based entirely on figures for the evaporation from water tanks; the relationship between such figures (practically the only data available) and those representing the average evaporation by day at the season in question from unit area of the earth's surface, is very much a matter of speculation. The table on p. 8 giving the various allowances suggests, however, that in summer this may be a very important item. A suitable warning in regard to the uncertainties of *all* these allowances would not have been out of place in order to prevent the uninitiated from thinking that the difficult problems under discussion have reached anything approaching an exact quantitative solution. E. V. N.

University and Educational Intelligence

BIRMINGHAM.—The University has decided to institute a Department of Industrial Hygiene and Medicine, and arrangements are being made with the view of opening it on October 1, 1934. It is believed that this is the first department of this nature to be established in a Medical School in Great Britain. The research work contemplated includes the investigation of the deleterious action on work-people of the materials they work with and methods of prevention; the training of medical men to advise employers as to methods by which the number of certain types of accidents may be reduced, the selection of employees for various kinds of work, and improving the hygiene of factories. It is probable that the University will grant a diploma to those who complete the course successfully.

CAMBRIDGE.—The Sheepshanks Exhibition for 1934 has been awarded to C. G. Pendse, of Downing College.

The Linaere Lecture will be delivered by Sir Henry Dale, director of the National Institute for Medical Research, on Saturday, May 5, at 5 p.m., in the New Museums. The title of the lecture will be "Chemical Transmission of the Effects of Nerve Impulses".

LONDON.—The degree of D.Sc. in chemistry has been conferred on H. E. Cox (private study) for ten independent publications and four conjoint subsidiary contributions relating to the chemical examination of furs in relation to dermatitis, and food analysis.

APPLICATIONS for the Bayliss-Starling Memorial Scholarship, tenable at University College, London, W.C.1, must be sent to the College Secretary not later than May 12. The annual value of the scholarship is £120 with exemption from tuition fees. The scholar will be required to follow a course of study approved by the Jodrell professor of physiology, involving a training in the principles and methods of research in physiology or biochemistry or both.

Science News a Century Ago

King's College, London

On April 30, 1834, the annual court of governors and proprietors of King's College was held for receiving the report of the council for the previous year. The Archbishop of Canterbury presided. The report stated that the council had previously expressed some doubts as to whether it would be possible to complete the river front, owing to the considerable sums promised by subscribers not being forthcoming. A meeting, however, had been held, at which it was agreed to make an appeal to the friends of the institution, and the consequence was, that, in advances of ten per cent on the shares and in subscriptions and donations a sum of £7,297 17s. had been received. During the year there had been 104 regular and 171 occasional students in the senior department, 66 regular and 175 occasional students in the medical class and 404 students in the junior department. A class of associates had been instituted. The College had never before been so prosperous. Two additional schools had been added, so that there were now seven schools in the metropolis acting in union with the College. The receipts for the year were £16,197 11s. 6d. and the expenditure £12,446 14s. 5d., leaving a balance of £3,750 17s. 1d. besides £4,000 in exchequer bills.

Friday Evening Meetings at the Royal Institution

At the annual meeting of the members of the Royal Institution on May 1, 1834, the Visitors commented on the increased membership and improved financial position shown by their Report. This satisfactory state of affairs they attributed largely to the interest excited by the Friday evening meetings, which had been begun about 1825, and had become a regular feature of the Institution's activities. The Visitors reminded members how deeply they were "indebted for these advantages, to the unwearied exertions, important discoveries, and happy illustrations of one, who has contributed the chief attractions to the meetings in question". The reference is to Faraday. Not only had he given a considerable number of the discourses himself, but from the beginning had acted as secretary of the small committee charged with the duty of arranging the Friday evening discourses. That their success depended almost entirely on his activities may be inferred from a letter written to Faraday in 1839, in which W. T. Brande, then the senior professor at the Institution, regretted that he could not help at a time of emergency. He wrote: "You know how sad a figure I cut on those occasions; and as to the tact requisite for their general management and arrangement, I candidly confess I have it not".

Belgrave Literary and Scientific Institution

On Saturday, May 3, 1834, as reported in the *Times*, a public meeting was held to give effect to the arrangements of the provisional committee of the Belgrave Literary and Scientific Institution, and for opening the Institution for the accommodation of members. Earl Fitzwilliam presided and the report of the committee said that the foundation of the Society had been laid by voluntary subscriptions of books, and that it was intended to open No. 30, Sloane Street for the purposes of the Institution. Dr. Lardner and others had offered to give lectures gratuitously, the Duke of Sussex had consented to accept the office of patron and Earl Fitzwilliam that of president.

A New Orchid

Probably the most important account in *Curtis' Botanical Magazine* for 1834 is that of the first flowering of the new orchid *Epidendrum bicornutum* from Trinidad, which occurred in April 1834 at Wentworth Gardens, the seat of Earl Fitzwilliam, under the care of Mr. James Cooper, the celebrated orchid grower. The specimen is described (p. 3332) as having produced large and highly fragrant blossoms, which smell like the Persian Iris. This plant was introduced into England by Mr. John Sheppard, curator of the Liverpool Botanic Gardens, marked as "*Cattleya* n.sp." It had many points in common with that genus, especially in its general habit and the large flower, but differed remarkably in the labellum and the shortness of the column. The specimen was sent to Prof. Lindley who replied to the editor: "Your Trinidad orchideous plant is certainly a new species but I think it can not be separated from *Epidendrum*. The only distinction between it and that Genus consists in the labellum being distinct from the column: but you will find various degrees of separation between those parts in *E. asperum*, *venosum*, *vitellum* and *bidentatum* which nobody can doubt are genuine *Epidendra*. Should you, however, be of opinion that it nevertheless must form a new Genus, its character will have to depend upon the large size of the petals and the slight adhesion of the sepals to their base. The latter is however a falacious character and the former occurs in what I consider true *Epidendra*."

Other Flower Records

Further interesting records of the flowering of rare orchids and other plants introduced into Great Britain occurred in April 1834, mostly at Kew Gardens. In *Curtis' Botanical Magazine* (p. 3401; 1835) is described the first flowering at Kew of *Pteostylis acuminata*, the acuminated pteostylis (Orchidæ), of a singular Australian genus introduced by Mr. Cunningham from Port Jackson in 1827. *Acacia elongata* (Leguminosæ) a slender and beautiful species from the Blue Mountains of New South Wales and the interior to the west of Port Jackson, originally discovered during the first expedition of Mr. Oxley to the Lachlan River in 1817 and introduced into England in 1823, when the plants were received at Kew, was in full flower at the latter gardens in April 1834. Another flowering record of the month, in the gardens of Mr. William Christy at Clapham Road, was *Schinus molle*, the Peruvian mastick tree (Terebinthaceæ), which grew wild in Chile, Peru and Mexico. The occurrence is recorded, with a plate of the bloom, in the 1834 volume.

Societies and Academies

LONDON

Society of Public Analysts, April 4. GUY BARR and A. L. THOROGOOD: Determination of small quantities of fluorides in water. The reagent consists of an aqueous solution of zirconium oxychloride and sodium alizarin monosulphate. The test is sensitive for 0.1 part of fluorine for concentrations up to 5 parts per million. A. W. MIDDLETON: A test for ethylene glycol and its application in the presence of glycerol. The test is based upon the oxidation of glycol to oxalic acid by means of nitric acid, whilst under the same conditions glycerol yields aldehydic substances. Glycerol does not interfere unless present to the extent of more than 75 per cent of the mixed alcohols, and the test is sensitive to 0.1 gm. of glycol in 10 ml. of aqueous solution. W. MATHER and W. J. SHANKS. Detection of diamines in leather. Tests are described whereby extremely small quantities of para- and meta-diamines can be detected in dyed and finished leathers. These diamines can be extracted from leather in the cold by means of *N/10* hydrochloric acid or 1 per cent acetic acid, and that precipitation of the extracted tannins with lead acetate does not interfere with the subsequent tests for diamines. The reagents used include 0.1 per cent solutions of dimethyl-*p*-phenylene diamine, dimethylaniline, *o*-toluidine, *p*-phenylene diamine, and *m*-toluidine diamine.

Royal Meteorological Society, April 18. D. BRUNT: The possibility of condensation by descent of air. From a consideration of the variation with height of the humidity-mixing-ratio, it is shown that in the stratosphere condensation can occur in descending air-masses which take up the temperature of their environment. The fact that saturated water vapour produces condensation when expanded adiabatically while other saturated vapours produce condensation when compressed adiabatically, is discussed briefly. D. DEWAR: An investigation of the statistical probability of rain in London. The paper gives an account of an investigation of the frequency of rain at Kew, based on hourly tabulations of rainfall from 1872 to 1921. Amounts of rain were classified as 'heavy', 'moderate', 'slight', or 'no rain', according as the quantity which fell in a 6-hour interval of the day was 1 mm. or more, between 0.5 and 1 mm., between 0.2 and 0.5 mm., or less than 0.2 mm. The intervals were taken as early morning, forenoon, afternoon and night, each division of the day being taken to cover an interval of 6 hours. Each month was divided into three periods of approximately 10 days. The probability of rain of a given amount in a given interval of the day during these periods was obtained by dividing the number of occasions on which rain of that amount had fallen by the number of possible occasions. A comparison between actual values and figures computed from the average probability shows that the frequency of 'heavy' rain in 6-hour intervals for individual days is distributed approximately according to a chance distribution. The average probability of rain in a 6-hour interval is: approximately 1 in 9 for heavy rain; approximately 1 in 20 for moderate rain; approximately 1 in 33 for slight rain. CALEB MILLS SAVILLE: Some rainfall variations, England and New England (U.S.A.). The maximum and minimum rainfall experienced during periods of from one to twelve consecutive months is