

the fog was almost certainly sulphur dioxide and its oxidation product sulphuric acid (the latter being the more poisonous and the actual cause of the casualties), formed in the combustion of coal. It is of interest to note that one fifth of the sulphurous products had their origin in the domestic fireplace. Prof. Firket also said that, given the same exceptional atmospheric conditions, undoubtedly the accidents would occur again unless special plants were installed to absorb the sulphurous fumes from the flue gases of industrial furnaces.

The section of the discussion dealing with the industrial aspects of dispersed systems was opened by Dr. R. Lessing (London), who gave a comprehensive account of the dusts, smokes and fogs formed in various industrial processes, and then described how the flue gas problem had been successfully overcome in Britain. He showed that in the burning of coal, by means of efficiently designed furnaces, the black smoke of unburned carbonaceous matter, once so common, had practically disappeared, so that only a dust of siliceous ash was left in the flue gases. However efficient the furnace, the sulphur oxides are unchanged, and consequently in modern practice the flue gases must be washed by an alkaline solution in order to eradicate them. Mr. G. Nonhebel (Durham) described how the Howden-I.C.I. flue gas scrubber carried out this process. The essential point of the system appears to be the strict control of the pH of the alkaline scrubbing water in order to obviate the copious encrustation of calcium sulphate in the scrubbers.

Apart from the problem of cleansing flue gases in order to prevent air pollution, there is also the problem of precipitating dusts and smokes in such a way that they can be collected. The most widely used method is the Lodge-Cottrell process of electrical precipitation. In this connexion, Dr. R. W. Lunt

(London) discussed the electrical efficiency of the ionisation in such processes. He showed that the ordinary laws do not hold in the corona discharge and that by applying more refined theoretical methods it can be proved that the efficiency is far below the maximum.

A paper was presented by Dr. J. S. Owens (London) entitled "Twenty-five Years of Progress in Smoke Abatement". The study of the various observations taken by Dr. Owens in different parts of Britain shows that the choice of the word 'progress' is unfortunate, as the pollution in certain areas is worse than it was twenty-five years ago. Dr. R. Meldau then described the extreme difficulties of forecasting where dust should distribute itself in and around cities owing to the microvariations of the atmospheric conditions. Mr. Bosanquet dealt with the theoretical aspects of the same problem, in particular, the spread of pollution from chimneys, taking into account the various phenomena of eddy diffusion. He showed that at points close to the chimney the concentration at ground-level is small and that it reaches a maximum at a distance of the order of ten times the chimney height.

Prof. D. Brunt then described in a general way the dissipation of fogs in open spaces such as aerodromes. He took the view that this is now mainly a problem for the engineers. Indeed, one of the results of the discussion was to show that the abatement of atmospheric pollution is now a technical and economic rather than a scientific problem.

In conclusion, the Faraday Society is to be congratulated upon organising an extremely interesting and useful discussion, which should have important consequences in this field of scientific study—a field moreover which has a direct bearing upon the improvement of the living and working conditions of people in industrial cities.

## International Conference on Timber Utilisation

CHANGES in industry and in housing which have taken place on the Continent since the Great War have altered the incidence of demand for wood, more especially in the small material which formerly was used for firewood or turned into charcoal. Faced with a big unsaleable surplus of such material, forest owners have tried to find new outlets for it, and progress in this direction may be summarised as the use of scientific control in methods of turning wood into a homogeneous product suited to *mechanised mass-production conditions of manufacture*.

Of the papers read at the Second International Conference on Timber Utilisation recently held in London, the bulk referred more to the disposal of the wood in the round from the forest than to the actual processes of manufacture, and those which referred to uses of wood other than that of a construction material dealt only with very general aspects of the case which have been known for many years.

Dr. von Monroy classified these other uses into wood as a source of energy (other than that of direct combustion, of course), as a textile, a food-stuff and a raw material in chemistry. He himself demonstrated part of the source of energy use by coming

to the Conference in a motor-car driven by producer gas, and spoke of the recent hydrogenation processes evolved for converting wood gas into light and heavy fuel oils.

Dr. Friedrich Bergius in his paper on "Wood, a New Raw Material" dealt with the subject of the preparation of 'wood sugar' and its derivatives, alcohol, glycerol, etc., where improved technique has, he claims, attained the conversion of the whole of the wood substance except the lignin, or roughly two thirds of the original wood. This, he said, results in the possibilities of obtaining from one acre of woodland as much food-stuff as from one acre of arable land and with less labour in cultivation.

Prof. E. Hagglund, following Dr. Bergius, referred to the textile aspect, as concerned with artificial silk and wood pulp. Here, again, progress has lain in improvements in manufacturing methods leading to a reduction in the price of producing viscose and to the use of sulphate pulp in the cuprammonium process, which until then had been restricted to cotton linters. He foreshadowed the use of broad-leaved species in the manufacture of high grade pulp, from which they have hitherto been excluded on account of the shortness of their fibre.

All these aspects of wood utilisation deserve close study by forest owners and wood-consuming industries in Great Britain, in view of the relatively high proportion of low-grade material which newly-formed British forests will produce in the next few decades until they approach maturity; but it would be a grave mistake to think that the problem is already solved. Scientifically it may be; economically it definitely is not. As a stand-by in times of emergency, such derivatives of wood can be of the greatest value, but in emergency economy counts for little. In other times the question of cost of production is all-deciding, and in Great Britain other raw materials are cheaper to produce.

The three papers summarised above were given by men working under conditions of limited trade competition or of large supplies of cheaply transported timber, neither of which conditions obtains ordinarily in Great Britain. Therefore, before any large industries can be built up in this country by the application of chemical methods, the problem of insuring continued supplies cheaply to the factory must first be solved.

This is not to say that the study of wood chemistry in Great Britain is not worth doing; but study must be directed to objects which will fit in with the economic conditions of the country, and it will not necessarily follow lines developed in totally different surroundings.

### Educational Topics and Events

CAMBRIDGE.—The Iron and Steel Industrial Research Council has decided to make a grant of £500 a year to the University for the purpose of supporting scientific research on corrosion, and has indicated its intention of continuing this grant for a short period of years subject to the satisfactory progress of the work. The grant will enable Dr. U. R. Evans to continue the investigations which he is at present carrying out while holding the Royal Society Armourers and Brasiers Company research fellowship, his tenure of which terminates shortly. Dr. Evans will retain complete freedom in planning and carrying out this work, and, while reporting the results to the Corrosion Committee of the Iron and Steel Industrial Research Council, will publish them in scientific journals or in the reports of the Corrosion Committee as may appear to him most appropriate.

The seventh course of Scott lectures will be given by Prof. E. V. Appleton, of St. John's College, Jacksonian professor elect, in the Cavendish Laboratory at 4.30 p.m. on May 11, 13, 15 and 18. The subject of the course will be "The State of the Upper Atmosphere".

ST. ANDREWS.—Mr. D. C. Innes has been appointed to the new chair of geology established by a recent Ordinance of the Court, approved by His Majesty in Council, the appointment to take effect as from August 1. Mr. Innes was appointed lecturer in geology in the University in 1920 and raised to the status of reader in 1927.

Prof. D'Arcy Thompson has been invited to deliver the Lowell Lectures in Harvard University, and the Senatus Academicus of the University has therefore agreed to grant him the necessary leave of absence to enable him to accept this invitation.

Major A. H. R. Goldie, superintendent of the Meteorological Office (Air Ministry), Edinburgh, has

been awarded the degree of D.Sc. for a thesis entitled "The Mechanism of the Depressions of Temperate Latitudes".

On April 23 the Irish Free State Dail passed a motion by 58 to 40 votes putting into force the Bill to abolish university representation. At the next general election, therefore, the three seats for Dublin and the three seats for the National University of Ireland will cease to exist (*The Times*).

### Science News a Century Ago

Prof. D. Don at King's College, London

ON May 2, 1836, Prof. David Don (1800–41), who had succeeded Burnett in the chair of botany in King's College, London, gave his inaugural address. "The Professor," said *The Times* of May 3, "commenced by requesting the indulgence of his auditory, as he was unused to addressing public audiences, and as the lecture he was about to deliver was the first he had ever attempted. He then proceeded to give a detailed account of the history of botanical science and stated its progress from the times of Aristotle and Hippocrates to the days of Linnæus and Jussieu". After directing attention to the various publications relating to botany, he "impressed upon his audience the great importance of the study of botany, its immediate connexion with medical knowledge, and the necessity of its consideration by medical students, its importance to a proper knowledge of agriculture, and its great utility to the illustration of various other branches of learning. . . . Mr. Don was at all times rather inaudible and apparently labouring under the influence of those feelings which generally render persons unused to address a public meeting rather nervous. The general excellence of the lecture was, however, quite sufficient to redeem any drawback which this might have occasioned".

Don was the son of George Don (1770–1814) and brother of George Don (1798–1856), both well-known botanists. Educated in Edinburgh, he went to London in 1819, and in 1822 succeeded Robert Brown as librarian of the Linnean Society.

Annular Eclipse of the Sun, May 15, 1836

JUST as the reappearance of Halley's comet in 1835 had attracted much attention in Great Britain, so the annular eclipse of the sun on May 15, 1836, also created very widespread interest. Ten days before the eclipse, *The Times* on May 5 informed its readers that "On Sunday, May 15, in the afternoon, there will be a large and visible annular eclipse of the sun, which will be central in the north of England, Ireland and in the south of Scotland. It will begin at 50 minutes 59 seconds past 1 o'clock, and will end at 39 minutes 8 seconds past 4. Over England and the adjacent parts the light and the heat of the annular obscuration will be a little more than one tenth of the full sun; and should the atmosphere prove to be clear at the time of the greatest magnitude it may be expected that several of the largest stars will be visible. The breadth of the annulus for England will be about 142 miles. The whole body of the moon will appear on the disc of the sun, leaving a small ring or circle of light on the external edge of the sun, whence its name annular, from *annulus*, a ring".