entrance scholarships is likely to secure the greater proportion of these. On the other hand, there are about 20 per cent who, being much below the average of ability, only just manage to get degrees, and it is these who constitute the 'unemployment problem'.

The claims of the Library are again urged: "If our ideal as a University is education and not merely the maintenance of intellectual disciplines, double the sum that we now spend on it would be sound and rewarding expenditure".

Dr. H. P. Gilding, formerly reader in experimental physiology in University College, London, has been appointed professor of physiology in succession to Prof. I. de Burgh Daly, who has been appointed to the chair of physiology at Edinburgh.

LONDON.—The title of reader in the University has been conferred on the following in respect of posts held at the Colleges indicated: analytical chemistry, Dr. H. F. Harwood (Imperial College—Royal College of Science); pathology, Dr. Joan M. Ross (London (R.F.H.) School of Medicine for Women); statistics, Dr. E. S. Pearson (University College).

OXFORD.—On February 13, Congregation passed the Statute, the preamble of which was approved on January 23, for extending and improving the provisions for the study of forestry in the University. The Statute passed without a division, but considerable opposition was offered to a decree providing a site for the proposed new forestry building in the area of the Parks allotted for the extension of scientific departments, in case a suitable site should not be found elsewhere. In proposing the decree, the Master of Balliol pointed out that the moment had arrived when a definite decision must be taken; the whole future of forestry at Oxford was at stake. If the decree were thrown out, co-operation with the Government would be imperilled. The decree was opposed by Prof. R. A. Peters, who denied that the honour of the University was at stake. The Colonial Office must have known that no commitment could be entered into without the consent of Congregation. Further exploration should be undertaken of other possible sites. The Warden of New College urged that this was not a purely domestic matter; the India Office, the Colonial Office, all the Dominions and Crown Colonies were involved. Those who opposed the decree would run the risk of destroying the centre of higher forestry instruction for the whole Empire. Prof. F. A. Lindemann said that the proposed site was unsuitable and undesirable. The decree should not have been brought in until other sites had been explored. The general opinion of the heads of scientific departments, though they wished forestry well, was unfavourable to the proposed site. The danger of exceeding the alleged time limit had been exaggerated. On a division, the decree was carried by 122 to 91.

A SHORT Unity History School will be held at Bath on April 20–23, at which discussions in connexion with present risks to peace in the world, the effects of dictatorships on world peace, and the effect of science on world peace will be introduced by Prof. H. Dingle, Imperial College of Science and Technology, Prof. R. B. Mowat, University of Bristol, and Mr. F. S. Marvin. A more extended School will be held at Rome in 1935, when the subject will be "Science in the Modern World". Further information can be obtained from Mrs. K. E. Innes, 29 High Oaks Road, Welwyn Garden City, Herts.

FOUR Lady Tata research scholarships, of the value of £400 a year each, will be open for award in June 1934, to men or women of any nationality, for research work in the subject of blood diseases, with special reference to leucæmias. Each will be tenable for a year, from October 1, 1934, and renewable up to a normal maximum tenure of three years. Candidates for these scholarships must send their applications in time to be received in London on April 15, addressed to the Secretary, Dr. H. S. Patel, Lady Tata Memorial Trust, Capel House, New Broad Street, London, E.C.2, or Prof. A. Vacha, Calvinstrasse 27, Berlin, N.W.40, or The Lady Tata Memorial Trustees, Bombay House, 24, Bruce Street, Fort, Bombay, from whom forms of application may be obtained.

Science News a Century Ago

Death of Alois Senefelder

On February 26, 1834, Alois Senefelder, the inventor of the art of lithography, died at Munich at the age of sixty-two years. The son of an actor, he was born at Prague on November 6, 1771, and after leaving school studied law at the University of Ingolstadt. His father died early, leaving him to support the family, so he turned to the stage, but with little success. Something of a poet, a painter and a musician, he then began to write comedies, and it was through his efforts to produce copies of these that he was led to his invention. Etched copper plates proved too expensive, so he tried writing on a fine white limestone and removing the untouched surface with acid. By about 1797 he had adopted the method of drawing upon the stone with a greasy substance which had an affinity for printing ink. He was granted an exclusive privilege for the process in Bavaria in 1799, and he took out an English patent on June 20, 1801. The next few years were devoted to the development of the new art and in 1809 he was given the post of director of the royal lithographic office in Munich; this position he held with a good salary for the rest of his life. In 1818 he published his "Lehrbuch der Lithographie", in which he gave an account of his discovery, and this was translated in the following year into English by his fellow countryman, Rudolph Ackermann (1764–1834), who had a print-shop in the Strand, London. Some of Senefelder's original apparatus is preserved in the Deutsches Museum, Munich.

Aurora Borealis

On February 26, 1834, the *Times*, under the above title, published the following extract from the *Westmoreland Gazette*: "This beautiful phenomenon is not often seen in this part of the world during the day, but at mid-day on Thursday we had something very like it. About 1 o'clock three stripes of pale light emanated from a cluster of fleecy clouds resting a few degrees above the horizon, and about a point to the eastward of north, shooting up beyond the zenith till it came in contact with other clouds, when they melted away; one stream was about mid-heaven, the other more eastward. About half-past one there shot from the same clouds the most

beautiful stream of pale light one ever beheld—broad at the base, but extending in width as it shot upwards, not unlike a noble plume of feathers; its progress to the zenith was rapid, but as it passed this point it melted away in ether."

Faraday and Northmore

Faraday's care to give credit to others who had made scientific investigations is recalled by a letter written on February 27, 1834, by Octavian Blewitt (1810–1884), the author of a "Panorama of Torquay" to the editor of the *Philosophical Magazine*. The letter corrected a statement made to Blewitt by Thomas Northmore (1766–1851), the Devonshire man of science who had complained that Davy, Faraday and other philosophers had failed to acknowledge his work on the condensation of gases, an account of which was published in *Nicholson's Journal* of 1805–6. When Blewitt brought this to the notice of Faraday, the latter referred to the *Quarterly Journal of Science* of 1823, in which he had said: "The most remarkable and direct experiments I have yet met with in the course of my search after such as were connected with the condensation of gases into liquids are a series made by Mr. Northmore in the years 1805–6." This answer apparently satisfied Northmore, who expressed regret that he had been ignorant of this reference.

Royal Society, February 27, 1834

Capt. de Roos's paper on the operations for raising stores lost in the wreck of H.M.S. *Thetis* off Cape Frio, on the South American coast, was concluded. A paper was read by George Dollond, giving an account of the application of a concave achromatic lens to the micrometer, proposed to be called the *macro-micro* lens. The author stated that by introducing one of the fluid concave lenses recently invented by Prof. Barlow, between the object-glass and the eye-piece of a 5-ft. telescope, it became as powerful as a 10-ft. instrument. The invention had been regarded as one of the greatest improvements made in optical instruments for many years. This application of a concave achromatic lens arose out of the series of trials that were made for the purpose of correcting the aberrations of the eye-glasses applied to the telescope constructed by the author for the Royal Society.

Palestine Association

A general meeting of the Palestine Association, convened by advertisements in the public journals, was held on January 28, 1834, in the rooms of the Royal Geographical Society, Lower Regent Street, and Mr. (afterwards Sir) Bartle Frere occupied the chair. It was reported that no meeting of the Association had been held since April 24, 1805; and that no steps had been taken to continue the researches in Palestine since the year 1809. It appeared that there remained in the hands of Messrs. Coutts a sum of £135 9*s*. 8*d*. belonging to the Association.

Following discussions in February, it was resolved that steps should be taken to transfer this sum to the Royal Geographical Society to form part of its general fund and to be employed as the council of that Society might think fit for the promotion of geographical discovery. Also, that all papers, books, etc., belonging to the Palestine Association be transferred similarly (Minutes, Palestine Association).

Societies and Academies

LONDON

Royal Society, February 15. J. C. STIMSON: The electrical condition of hot surfaces (5). The rates at which the steady equilibrium potentials are built up on gold, nickel, platinum, carbon, and copper surfaces after earthing have been studied under varying experimental conditions. The rate of charging up of a surface is a linear function of its instantaneous potential, and its logarithm is directly proportional to the reciprocal of its absolute temperature. It is extremely probable that the hot surfaces emit positive electricity over the temperature range investigated (up to 850° C.). When heated in a vacuum, the emission probably consists of positively charged metal ions; while in contact with gases, the ions are positively charged atoms or molecules of the gas. With oxygen at low temperatures, however, the ions appear to be negatively charged. G. I. FINCH and B. W. BRADFORD: The electrical condition of hot surfaces (6): A series of experiments with a gold gauze surface was carried out in such a manner that the catalytic and electrical activities of the metal could be simultaneously observed and followed. The reaction selected was the heterogeneous combination of carbon monoxide and oxygen in both moist and dry systems. The electrical condition of the metallic surface was expressed in terms of the magnitude and sign of the equilibrium potential which it acquired in given conditions, and its electrical activity was measured by the specific rate at which that potential was approached on insulation at zero or other standard potential. In general, throughout the experiments, changes in the rate of electrical charging of the metal followed closely the corresponding changes in the catalytic activity, increasing with rising temperature or with the introduction of water, and undergoing similar variations to the rate of reaction when the surface was maintained at constant temperature. G. I. FINCH and A. W. IKIN: The catalytic properties and structure of metal films (2). The surface potentials and rates of charging-up of cathodically sputtered platinum films in contact with electrolytic gas at room temperature have been determined, and the film structure examined by the method of electron diffraction. It is concluded that (1) catalytic action is determined by a prior interaction between the surface and one or both constituents of the combining mixture, whereby the catalyst becomes electrically charged, (2) activity is not determined by either crystal size or orientation, (3) catalytic activity appears to be centred round isolated atoms or molecules of platinum not forming part of any ordered array or structure. S. F. BOYS: Optical rotatory power. (1) A theoretical calculation for a molecule containing only isotropic refractive centres. (2) The calculation of the rotatory power of a molecule containing four refractive radicals at the corners of an irregular tetrahedron. A theoretical formula connecting rotatory power and chemical constitution has been obtained on the basis of the electronic theory of dispersion. The rotatory power of any molecule is expressed in terms of the ordinary refractive properties and the linear dimensions by means of certain determinants. The expression for the rotatory power is applied to the special case of the molecule containing four radicals attached to one atom, when it becomes quite simple, and theoretical predictions of rotations are compared with experi-