

get their deserts if openly discussed; but if they are suppressed they will permeate society through insidious channels and do irreparable injury. Freedom to think, freedom to voice one's thoughts within reason, are essential to human progress.

The Conference approved the recommendations of the "Report on Policy in Technical Education" recently published by the Associations of Technical Institutions, Teachers in Technical Institutions, and Principals of Technical Institutions and the National Society of Art Masters. Among other resolutions passed was included one urging the establishment of a system of compulsory part-time day education for all young persons from the age of ceasing compulsory attendance at schools giving full-time education to the date at which the pupil attains the age of eighteen years. The Association reiterated its opinion that the raising of the school leaving age is more than ever desirable. In view of Mr. Lloyd's address, special interest centred about a resolution urging that the conditions of apprenticeship should be restated for the several industries, and that special consideration should be given to the claims of young people who have satisfactorily completed a full-time course in approved technical institutions in respect of the age at which they may be recruited, and the period of time required of them for completion of apprenticeship.

University and Educational Intelligence

CAMBRIDGE.—Dr. Leslie Harris, director of the Nutritional Laboratory, has been awarded the degree of Sc.D. Dr. Harris is known for his work on vitamins and proteins, and for the latter was awarded the Meldola Medal by the Institute of Chemistry in 1924.

EDINBURGH.—Dr. Otto Samson has been appointed Tweedie fellow for 1935–36 and 1936–37. This fellowship is awarded to enable the holder to carry out exploration and research in the less-known regions of Asia and northern Africa. Dr. Otto Samson was born in Hamburg in 1900, and studied political science and then Oriental languages at the University there. In 1928 he entered the famous Ethnographical Museum (Museum für Völkerkunde) in Hamburg, and in 1930 became head of the East Asiatic Section, a post he held until the Nazi revolution in 1933. In 1931–32 he travelled in China to collect ethnographic specimens for the Museum. In the course of his travels he made an intimate study of the daily life of peasants and craftsmen and of the technical processes employed by them. An examination of the data then collected suggested connexions with India reflected in craft and agricultural processes and their products. It is the extent and direction of the influence of China upon India and vice versa that Dr. Samson now proposes to study.

LONDON.—The Governing Body of the Imperial College of Science and Technology has elected to an Imperial College fellowship Prof. Alfred Fowler, late Yarrow professor of the Royal Society, and emeritus professor of astrophysics in the College.

OXFORD.—The new solar tower telescope was opened at the University Observatory by the Vice-Chancellor on June 11 (see p. 1047).

Sir Peter Chalmers Mitchell (scholar 1884–88), and Prof. N. V. Sidgwick (scholar 1892–96) have been elected honorary students (that is, fellows) of Christ Church.

The course of lectures on the work of early Oxford men of science finished for the session with Dr. R. T. Gunther's lecture at Exeter College. Special reference was made to the work of Borlase on the antiquities and mineralogy, and of Walter Moyle on the ornithology of Cornwall. Of outstanding importance was the advance in the science of geology due to Sir Charles Lyell, while the history of mathematics and astronomy owes much to Prof. Steven Rigaud, whose library was dispersed by the Radcliffe Trustees less than two months ago. Dr. Gunther concluded with a tribute to the biologists, Prof. H. N. Moseley of *Challenger* fame, Sir Baldwin Spencer of Australia and Sir Ray Lankester—all of Exeter College.

THE University of Pittsburgh has conferred the honorary degree of doctor of science on Dr. William A. Hamor, assistant director of Mellon Institute of Industrial Research, Pittsburgh.

MR. H. G. ROBINSON has been appointed principal of the Midland Agricultural College, Loughborough, in succession to the late Dr. T. Milburn. Mr. Robinson, who is a graduate of the University of Durham, is a son of Mr. G. Goland Robinson, a well-known south Westmorland farmer. Since 1929, he has been farm director in the Midland Agricultural College.

Science News a Century Ago

Portrait of Count Rumford

In June 1835, the Managers of the Royal Institution received and accepted from Sarah, Countess Rumford, the portrait of her father, Count Rumford, the founder of the Institution, which hangs now in the Managers' room. The painting, which presents the Count in uniform, is of head and shoulders in profile. It is by an unknown artist, but is believed to be a good likeness. Count Rumford, who died in Paris in 1814, had kept the lease of his house at Brompton, although he had not lived in it for many years. His daughter occupied it again in 1815, and lived there at intervals until 1835. In that year she returned to America, presenting the portrait to the Royal Institution as a parting gift.

Roberts's Miners' Safety Lamp

According to *The Times*, on June 23, 1835, a lecture was given to the Eastern Literary and Scientific Institution by Mr. Taylor in the room usually used by the Institution in Hackney Road. "The subject of the lecture was the safety lamp, and the object of the lecture was to show, by actual experiment, that the lamp hitherto used in coal-mines, and invented by Sir H. Davy, is dangerous and insecure, and that a lamp invented by Mr. Roberts is perfectly safe and free from the defects which render the lamp of Sir H. Davy not to be depended on by the miners. Mr. Roberts, who has already received several medals from the Society for the Encouragement of Arts, Manufactures and Commerce, was in attendance and produced the lamp invented by Sir H. Davy and his own lamp, and assisted Mr. Taylor in the lecture and in the experiments."

Roberts's lamp was described as being "surrounded by a double tube of wire gauze, and also by a glass chimney, and is so constructed that a current of carbonic acid air or nitrogen passes continually between the external atmosphere and the flame of the lamp. . . . To comprehend the nature of this invention fully, it is necessary to see the lamp, and compare it with the lamp hitherto used, over which it has certainly a manifest advantage. It is very simple in its construction, and as a committee of the House of Commons are now examining matters of this nature, it will no doubt meet with the encouragement it deserves".

London's Water Supply

Commenting on a proposal to supply London with water pumped from wells by steam engines, the *Athenæum* of June 27, 1835, after reviewing the project, said: "The annually decreasing quantity of water in the London bason is also to be remarked. The fall in the level of the wells is, according to credible evidence, about one foot per annum; and there has been a decrease of full twenty feet within the last twenty years. Though this gradual fall is certainly not an object of immediate apprehension, as to the total failure of the supply, yet the infinitely more rapid ratio of decrease which would ensue, if the whole metropolitan supply were taken from the same source, must be obvious.

"For these reasons we have come to the conclusion that though London is supplied with a considerable abundance of the most salubrious well-water for general purposes of domestic use—yet, that to draw upon the bason for the whole of the supplies by means of steam power is, if not objectionable for other reasons, impracticable by reason of the expense of the many divided establishments which must necessarily be required for the production of 20,000,000 galls. per day, which is the generally estimated quantity used in the metropolis".

The Hot Blast at the Butterley Iron Works

For some years after the introduction by Neilson of the hot-blast, there was considerable controversy over its merits. One of its advocates was Joseph Glynn, F.R.S. (1799–1863), who was engineer to the Butterley Iron Works, near Derby. In a letter of his published in the *Mechanics' Magazine* of June 27, 1835, he said: "The Butterley Company employ in their mines, coal-fields, blast furnaces, rolling mills, forges, boring mills and steam engine factory, 35 steam engines of all sizes, from 80 inches of diameter of cylinder, and have six blast furnaces, of which four are now at work. The whole of these furnaces are blown with heated air, and the coal, which is admirably adapted for the purpose, needs no cokery, being very carbonaceous. The mountain limestone which lies but three miles from the furnace, is used as flux for the ore, which is clay iron-stone. These materials produce a very fine grained cast-iron, remarkably soft and fluid, and at the same time they are equally well adapted to make 'forge pigs' from which are manufactured bars, hoops and boiler plates, of best quality and steam engines. . . . M. Dufresnoy, M. Perdonnet, and several other Frenchmen of scientific reputation, have visited the Butterley Company's works, with which they have been highly pleased, and have been willing to communicate the valuable information they possess, in return for such as was afforded them here".

Societies and Academies

DUBLIN

Royal Irish Academy, May 27. WINIFRED E. FROST: Larval stages of the Euphausiids *Nematoscelis megalops* and *Stylocheiron longicorne* taken off the south-west coast of Ireland. The euphausiids form an important part of the fauna of the inshore and deep waters off the south and west coast of Ireland. The present paper deals with the life-histories of two of these animals, the development of which has not previously been described. Sufficient larval stages have been found to give a good idea of the life-history of the organisms and the descriptions make it possible to identify the larvæ in the plankton. Some notes are given on the reproductive cycles of the two euphausiids.

PARIS

Academy of Sciences, May 6 (*C.R.*, 200, 1553–1640). LUCIEN CAYEUX: The constitution of the Senonian phosphates of Sytia. ALEXANDRE GUILLIERMOND: A new fungus, a parasite of the capsules of the cotton plant. *Eremothecium Ashbyii* and its possible relations with *Spermophthora Gossypii* and the Ascomycetes. ARMAND DE GRAMONT and DANIEL BERETZKI: The stabilisation of a frequency of beat (quartz oscillators) by compensation of the temperature coefficients. The method is based on the use of two piezoelectric quartz crystals and different frequencies and determined temperature coefficients. The arrangement is more stable than that utilising a single quartz with low temperature coefficient, and its constancy over a range of 50° C. is equal to a single quartz kept within 0.1° C. HENRI DEVAUX: The adsorption of ovalbumen at the free surface of its solutions when the concentration of these varies from 10⁻² to 10⁻⁸. GEORGES TZITZÉICA: Some affine properties. IVAN BRAITZEFF: The singularities of special types of a function given by its development in a Dirichlet series. MICHEL KRAWTCHOUK: Some inequalities in the problem of moments. NATAN ARONSAJN: The singularities of the Riemann surfaces of inverse functions of integral functions. HENRI MINEUR: Mechanical systems admitting *n* uniform first integrals and the extension to these systems of Sommerfeld's method of quantification. MIROSLAV NÉNADOVITCH: Contribution to the study in a plane current of rigid biplane cells. RAOUL GOUDEY: Measurements of the intensity of gravity, made in 1933, with the Holweck-Lejay gravimeter No. 2. GEORGES DÉCHÈNE: The discharge rays emitted by a brush discharge. Contrary to the views of Dauvillier, the author's experiments confirm the existence of discharge rays. Mlle. M. QUINTIN: Study of the electromotive force of cadmium chloride batteries. FRANÇOIS CROZE: The general formulæ of the refraction of a light bundle. JEAN PAUL MATHIEU and JACQUES PERRICHET: The rotatory dispersion of the α -halogen derivatives of camphor. ANDRÉ CLAUDE: Incandescent lamps containing krypton and xenon. A summary of results obtained with more than 10,000 bulbs. On account of the lower heat conductivity of krypton and xenon compared with that of argon the bulbs can be made smaller, a litre of gas filling 20–30 bulbs. The temperature of the filament can be raised, owing to the slower diffusion of the tungsten vapour. JEAN PERREU: The tonometry of saline solutions. PAUL ABADIE and GEORGES CHAMPETIER: The determination of some dielectric