

thanks to Lawes, have solved one vital problem: the production of sufficient quantity of produce. The next great task is the question of quality, for if animals and human beings were properly fed there would be little or no disease.

During the day the visitors were conducted around the farm and the laboratories. The classical experiments on grassland, wheat, and barley were inspected, and special attention was also given to recent experimental developments.

There is on the farm a number of half-bred ewes with four well-developed teats. These are being mated to a young half-bred  $F_2$  ram, bred on the farm, also with four teats, to ascertain whether ewes with this characteristic are better mothers than those with two teats.

An important investigation on the technique of animal feeding experiments was also demonstrated. Its purpose is to reduce the variations hitherto associated with this type of experiment, by applying the modern statistical methods of design already worked out at Rothamsted for experiments on crops. An interesting feature of this experiment, which is devoted to pig-feeding, is that each animal is fed individually in its own trough enclosure opening off the main pen. In this way all types of rations can be distributed equally over all groups of pens, in contrast to the usual practice in which all pigs in a group are on the same ration.

The investigations on the use of electricity in farm buildings attracted much attention. Numerous farm and barn operations can conveniently be performed by electrical power, and measurements are taken of the number of electrical units required, as compared with the amounts of fuel consumed by internal combustion engines doing the same work. This information is not, at present, available for the farmer who contemplates employing electrical power, and it is the purpose of the experiments at Rothamsted to supply it.

In the afternoon the work of the laboratories was inspected, and demonstrations were given of certain investigations which have reached the stage of practical development. Among these were the inoculation of lucerne; the purification of effluents from sugar beet and milk factories; methods of measuring the properties of flour-doughs; and a number of problems associated with bee-keeping and the grading of honey.

### University and Educational Intelligence

GLASGOW.—The honorary degree of LL.D. has been conferred on the following, among others: W. R. Cunningham, University librarian and keeper of the Hunterian books and manuscripts; Prof. H. M. Macdonald, professor of mathematics, University of Aberdeen; Sir Harry McGowan, chairman of Imperial Chemical Industries, London; Prof. Frederick Soddy, professor of inorganic and physical chemistry, University of Oxford.

LIVERPOOL.—Dr. G. C. McVittie has been appointed to a lectureship in applied mathematics rendered vacant by the election of Mr. R. O. Street to the chair of mathematics in the Royal Technical College, Glasgow. Dr. Mary W. Parke has been appointed algologist at the Marine Biological Station, Port Erin, for the coming year, and Mr. R. G. Bruce naturalist-in-charge of the Station.

LONDON.—Prof. L. N. G. Filon has been re-elected vice-chancellor for the year 1934–35, and Dr. George Senter, principal of Birkbeck College, deputy vice-chancellor for the same period.

On the occasion of the celebration of Foundation Day 1934, the honorary degree of D.Sc. will be conferred on Prof. Karl Pearson and the honorary degree of D.Litt. on Dr. A. F. Pollard.

A university postgraduate travelling studentship of the value of £275 has been awarded for one year to Arthur Herbert Cook (Impérial College—Royal College of Science). Mr. Cook proposes to carry out chemical research in the Universities of Zurich and Heidelberg.

OXFORD.—In presenting Prof. A. V. Hill for the honorary degree of D.Sc. at the Encaenia held on June 20, the Public Orator, Mr. Cyril Bailey, spoke of his singular devotion to the study of physiology, and especially of his most accurate investigations of the conditions of muscular activity. As a Balliol man he regretted that Prof. Hill, his fellow-scholar at Blundell's, had preferred to go to Cambridge; "but sometimes gifts were to be given to the Danaï". In conferring the degree, the Chancellor, Lord Halifax, addressed Prof. Hill as "most exact of men, who have dealt so acutely with physiology, that we account scarcely any of the secrets of the human frame as foreign to you".

Among the other honorary degrees conferred was that of D.C.L. on Sir Henry Miers.

A SCOTTISH National Conference on the "Place of Biology in Education" has been arranged by the British Social Hygiene Council to be held in City Chambers, Edinburgh, on October 19. The president will be the Right Hon. Sir Godfrey Collins, Secretary of State for Scotland, and among the speakers will be some of the leading Scottish biologists, who will deal with biology in the school and university and in its relation to man. Further information can be obtained from the Secretary-General, British Social Hygiene Council, Carteret House, Carteret Street, Westminster, S.W.1.

### Science News a Century Ago

#### Colonisation of South Australia

The colonisation of Australia owed much to the writings of Edward Gibbon Wakefield (1796–1862) who, it has been said, "brought to the subject for the first time the mind of a philosopher and statesman, equally fitted for framing a comprehensive theory and for directing its working in practical detail". Wakefield's book, "Letters from Sydney", published in 1829, was followed by the formation in 1830 of the National Colonisation Society, while his book, "England and America", 1833, which contained a chapter on the art of colonisation, was followed by the inauguration of a company with the title of the South Australian Association. On July 1, 1834, this company held a public meeting in Exeter Hall, at which its aims were set forth, and soon afterwards the matter engaged the attention of Parliament. Later in 1834, the Colonisation Commissioners for South Australia were appointed and under their auspices the first settlers left England in 1836, arriving in Australia on December 26, Capt. (afterwards Rear-Admiral Sir John) Hindmarsh being the first Governor of the Colony.

### Scott Russell's Steam Carriage

John Scott Russell (1808–82), the famous naval architect and shipbuilder, who with Brunel constructed the *Great Eastern*, was a student at the Universities of Glasgow, St. Andrews and Edinburgh, and when Sir John Leslie, professor of natural philosophy at Edinburgh, died in 1832, he was selected to fill his place temporarily. About this time he turned his attention to steam vehicles and on July 2, 1834, took out a patent. That year no fewer than six of his carriages were at work in Scotland. The subject, however, was not pursued and he then turned his attention to the study of waves and the resistance and construction of ships, for which he is remembered to-day.

### Prof. Hausmann of Göttingen

On July 5, 1834, Prof. Johann Friedrich Hausmann, the German mineralogist and geologist who occupied a chair at Göttingen, sent a letter to the editor of the *Philosophical Magazine* disclaiming a statement that he had been a pupil of Mohs, whom indeed he did not know, though he esteemed him highly. Hausmann, who was born in Hanover in 1782, studied at Brunswick under Knoch and then at Göttingen under Blumenbach. From 1803 until 1806 he was engaged in the mines of Brunswick, in 1809 was inspector-general of mines in Westphalia, and was appointed to the chair at Göttingen in 1811. He made many excursions into Sweden, Norway, France, Holland and England and wrote many works. "Already in 1803, and therefore earlier than Mohs," he said in his letter, "I became a mineralogical writer, building my system on peculiar views belonging to no other school. I was the first who appeared as opponent to Werner; assisted in the spreading of Haly's theory; and published my first system in 1809, founded on chemical composition and external character. I gave in 1813 a complete *Handbuch on Mineralogy*. . . ."

### Newton's House

The *Mechanics' Magazine* of July 5, 1834, contained the following note: "We are glad to observe from the newspapers that Mr. Thomas Steele has revived his laudable project for preserving the house and observatory of the illustrious Newton [in St. Martin's Street, Leicester Square] by enclosing it in a monumental building with a lofty dome—in the same manner as the primitive chapel founded by St. Francis, at Assisi in Italy, is enclosed by the great Franciscan church of more modern times." Steele's project never came to anything; the house stood until 1913, and its site is now occupied by a fine building, the Westminster Public Library, on which is a tablet referring to Newton.

### Sir Gilbert Blanc, F.R.S.

A correspondent has pointed out, in connexion with the paragraph under this title in *NATURE* of June 23, p. 957, that Sir Gilbert Blanc established in 1830, with the sanction of the Admiralty, a fund for the "encouragement of Naval Medical Science". This fund, which is vested in the Royal College of Surgeons, is employed for providing an annual Gold Medal for the medical officer who obtains the highest place in the examination for promotion to Surgeon Commander.

## Societies and Academies

### LONDON

Royal Society, June 21. P. D. F. MURRAY: Unco-ordinated contractions caused by egg-white and by alterations in the cation ratio of the medium, in the heart of the chick embryo *in vitro*. If suitable fragments of chick embryos in primitive streak stages be explanted into the egg-white of four- or five-day eggs there occurs a differentiation of contracting cardiac tissue. The contractions differ from those seen in similar explants in plasma in lacking co-ordination, each cell contracting independently of the others. When entire hearts of 2½-day embryos are similarly explanted into egg-white, the co-ordinate beat always stops, and is usually replaced by unco-ordinated contractions. This anarchic activity is given the provisional name of 'twitter'. It is caused by the high potassium content, aided by the lower, but still rather high calcium content, and by the low content of sodium. K. MELLANBY: The site of loss of water from insects. An apparatus is described which will measure the amount of water evaporated from an insect, and is accurate to a hundredth of a milligram. The rate of loss of water from three species of insects was determined: (1) in dry air, (2) in air to which 5 per cent of carbon dioxide had been added, and (3) in a mixture containing less than 1 per cent of oxygen. In insects with a spiracle-closing mechanism the rate of loss of water under (1) and (2) (which caused them to keep their spiracles open permanently) was 2–7 times that in dry air. In insects which could not close their spiracles, the rate of loss of water was practically the same under all conditions. 2 per cent carbon dioxide is sufficient to cause insects to keep their spiracles permanently open; oxygen has to be reduced below 1 per cent to have the same effect. From these experiments it appears that practically all the water evaporated is lost by way of the tracheal system, and that a thin integument may be just as watertight as one which is highly 'sclerotised'. P. A. BUXTON and D. J. LEWIS: Climate and tsetse flies: laboratory studies upon *Glossina submorsitans* and *tachinoides*. It is already known that the number of tsetse flies which can be captured under standard conditions rises and falls with the season, and that many of the species are sharply limited to particular types of vegetation. It is thought that the limits are climatic. Observations made under controlled conditions in the laboratory support those made in the field; taken together, the results should tend to give precision to the control of *Glossina*, which will probably be achieved by altering the vegetation and with it the micro-climate.

### PARIS

Academy of Sciences, May 7 (*C.R.*, 198, 1645–1728). A. COTTON and TSAI BELLING: The use, with the large Bellevue electromagnet, of a supplementary coil for experiments in magneto-optics where the pencil is normal to the lines of force. Details of construction and measurements of the fields obtained. C. MATIGNON and M. SÉON: The preparation of ethylene and its homologues by cracking heptane in the presence of steam. Heptane and steam, heated to about 900° C., give gas mixtures rich in ethylene and its higher homologues: practically no carbon monoxide is formed. E. L. BOUVIER: New considerations on the African saturnites. JEAN BAPTISTE