

Educational Topics and Events

CAMBRIDGE.—The Adam Smith prize, of the value of £40, offered annually for an essay on some unsettled question in economic science, has been awarded to D. G. Champernowne (King's College).

G. W. Robinson (Gonville and Caius College), professor of agricultural chemistry, University College of North Wales, Bangor, and H. W. Harvey (Downing College) have been approved for the degree of Sc.D.

EDINBURGH.—The following appointments have recently been made: Dr. J. A. Kitching, lecturer in zoology at Birkbeck College, London, to be lecturer in experimental zoology; O. A. Trowell, fellow of St. John's College, Cambridge, to be lecturer in physiology; Alexander Brown, to be full-time assistant in physiology; Dr. Frederick Bath, lecturer in mathematics in University College, Dundee, to be lecturer in mathematics.

LONDON.—Dr. Edmund Giffen has been appointed University reader in mechanical engineering at King's College. Since 1931 he has been lecturer in the Engineering Department at the College.

The following have received the title of reader in the University: Dr. R. E. Gibbs (physics), in respect of the post held by him at University College; Dr. S. V. Keeling (philosophy), in respect of the post held by him at University College; Dr. D. M. Newitt (chemical technology), in respect of the post held by him at the Imperial College—Royal College of Science.

The title of emeritus professor in the University in the subjects indicated has been conferred on the following: Sir Grafton Elliot Smith, on his retirement from the University professorship of anatomy at University College; Prof. M. T. M. Ormsby, on his retirement from the Chadwick professorship of municipal engineering at University College; Prof. A. E. Jolliffe, on his retirement from the University professorship of mathematics at King's College; Prof. W. A. Bone, on his retirement from the University professorship of chemical technology at the Imperial College of Science and Technology; Prof. Alfred Fowler, on his retirement from the University professorship of astrophysics at the Imperial College of Science and Technology; Prof. E. W. MacBride, on his retirement from the University professorship of zoology at the Imperial College of Science and Technology; Prof. S. J. Truscott, on his retirement from the University professorship of mining at the Imperial College of Science and Technology; Prof. W. W. Watts, on his retirement from the University professorship of geology at the Imperial College of Science and Technology.

The following doctorates have been conferred: D.Sc. in mathematics on W. M. Shepherd (University College); D.Sc. in zoology on Maurice Burton (King's College).

OXFORD.—The names of the members of the four boards of electors to the new Nuffield professorships in medicine were announced on December 18. The Vice-Chancellor, Sir Farquhar Buzzard and Lord Nuffield's nominee, Dr. J. J. Conybeare, are members of all four boards. The professorships have been allotted to colleges as follows: clinical medicine to Magdalen, surgery to Balliol, obstetrics and gynaecology to Oriel and anaesthetics to Pembroke. It is intended to fill two of the new chairs—surgery and anaesthetics—on January 19, 1937.

THE annual meeting of the Mathematical Association will be held at the Institute of Education, Southampton Row, London, W.C.1, on January 4-5. The retiring president, Prof. A. R. Forsyth, will deliver an address entitled "Applied Mathematics in School Training: Some General Considerations". The president-elect is Prof. L. N. G. Filon. Further information can be obtained from the Honorary Secretary, Mr. G. L. Parsons, Peckwater, Eastcote Road, Pinner, Middlesex.

Science News a Century Ago

William Lassell on Casting Specula

ON December 24, 1836, William Lassell (1799-1880) sent to the editor of the *Mechanics' Magazine* the last of three communications on "Casting and Grinding Specula". Lassell began life in a merchant's office in 1814, and then became a brewer in Liverpool, erecting an observatory at his home, Starfield. The process he had employed in making specula, he said, had been brought to such a degree of perfection in casting as left little to be desired in that branch of the art. His efforts had been in the direction of improvements in figuring and polishing reflectors so that these might rival the best refractors. The composition of the metal he used was 32 parts copper, 15-16 tin, and 1½ parts arsenic, by weight. The alloy was hard, brittle, white and susceptible of a high polish. For the copper, old copper bolts from ships had proved suitable. The specula he had made retained their polish for a long time even under unfavourable atmospheric conditions. "It was," he said, "much to be regretted that the composition of the metals of the late Sir William Herschel, exquisite as they must have been, were very prone to tarnish, so much so as to render them sometimes, even at an early age, unfit for use."

Lyell and Darwin

ON December 26, 1836, Lyell, then president of the Geological Society, wrote to Darwin asking him to dine with him, so that they could have an opportunity of talking over a paper the latter had written. In the course of his letter, Lyell said: "I have spent the last week entirely in comparing recent shells with fossil Eocene species, identified by Deshayes. . . . Don't accept any official scientific place, if you can avoid it, and tell no one that I gave you this advice, as they would all cry out against me as the preacher of anti-patriotic principles. I fought against the calamity of being President as long as I could. All has gone smoothly, and it has not cost me more time than I anticipated; but my question is, whether the time annihilated by learned bodies ('par les affaires administratives') is balanced by any good they do. Fancy exchanging Herschel at the Cape, for Herschel as President of the Royal Society, which he so narrowly escaped being, and I voting for him too! I hope to be forgiven for that. At least, work as I did, exclusively for yourself and for science for many years, and do not prematurely incur the honour or penalty of official dignities. There are people who may be profitably employed in such duties, because they would not work if not so engaged".

Exploration of the Mississippi

The Times of December 30, 1836, quoting the *St. Louis Enquirer* of November 14, said: "The distinguished French astronomer and mathematician, Mr. J. N. Nicollet, now engaged in a tour of scientific observation through the different states and territories of the Union, has recently visited the northern regions of the United States, and succeeded in penetrating further into the interior, with a view of making the discovery of the true source of the great 'Father of Waters' than has even been before accomplished. Mr. Nicollet left Port Snelling, mouth of the St. Peter's, about three months since, and at great expense and trouble transported his splendid set of astronomical and other instruments through a country offering obstacles at every step, taking advantage of every opportunity to ascertain latitudes, longitudes, the magnetical variation and dip, the intensity of the force of gravity, geological and mineralogical examination, and indeed every other observation connected with the science, which might be considered useful, not only to himself and the various scientific and literary societies in Europe and the United States, to which he belongs, but to the whole scientific world. . . ."

"It is laid down and established by Mr. Nicollet that the true source of the 'Father of Waters' is to be found in five different rivers, an extension of the waters of which forms La Beasch Lake. Thus has the honour of this discovery so long contended for by many travellers and writers, been reserved for Mr. Nicollet, and we sincerely hope he may succeed (as no doubt he will) in the establishment of his superior claims to the distinction."

Dutrochet's Experiments in Vegetable Physiology

In the *Athenæum* of December 31, 1836, under the heading "The Breathing of Vegetables" was a reference to the latest researches of the French physiologist and naturalist Rene-Joachim-Henri-Dutrochet (1776-1847). M. Dutrochet, said the *Athenæum*, has recently laid before the Paris Academy of Sciences some further information on his experiments on vegetable physiology. Having observed that the pneumatic organs in different parts of *Nymphaea lutea* contained an air in which there was less oxygen in proportion as these parts were distant from the leaves, it struck him, that the leaves were the sources whence these organs derived their oxygen, and that this oxygen was disposed of by the breathing of the plant, as in animals. After stating his observations at length, M. Dutrochet said: "The results of these experiments are, that the oxygen produced by the leaves under the influence of light is first poured into the pneumatic cavities: into these it is pressed by continued accumulation, and escapes to the outer surface by means of the tracheæ, the orifices of which are situated in the air, and on the leaves. Most of the aquatic plants have these orifices so contrived as not to be entirely closed when in contact with the water, but a few are without these mouths, and then the oxygen is crowded into the pneumatic canals of the footstalks, and from thence is pressed into the stem, which accounts for the enormous quantity of water contained in some of the aquatic plants". Dutrochet re-published the most important of his researches in his "Memoires pour Servir à l'histoire anatomique et physiologique des vegetaux et des animaux" in 1837.

Societies and Academies

Dublin

Royal Dublin Society, November 24, 1936.

H. H. DIXON: The convection of heat and materials in the stem of a tree. When heat is applied locally to the stem of a tree, it is conducted and conveyed both upwards and downwards. The convection is brought about by the movement of material. By means of suitably devised and controlled arrangements, the velocities and the times of these movements may be ascertained and recorded. Movements quite distinct from the movement of water upwards from the roots to the leaves have in this way been observed. They take place in winter, spring and autumn, as well as in summer. They may be found when the tree is bare of leaves and in the darkness of night. While the water from the soil moves upward in the wood, the bark is indicated as the channel for these movements.

J. H. J. POOLE: A new method of measuring the radioactivity of rocks. The powdered rock is heated in a carbon boat carrying a current of about 400-500 amperes in a water-cooled vacuum furnace. The gases evolved, including the radon from the radium present, are then pumped into a previously exhausted ionization chamber, where the number of alpha particles due to the radon and active deposit is counted by means of an amplifier of the Wynn Williams type and an oscillograph. The results so far obtained agree reasonably well with previous measurements made by other methods. An account was also given of some measurements of the radium content of specimens of basalt from the bottom of the Indian Ocean, made by the usual furnace method. The results are appreciably lower than those for surface specimens of basalt.

G. T. PYNE and J. J. RYAN: Investigations on a molecular constant for soured milks. An application to soured milk of the method previously described for the determination of the cryoscopic constant of fresh milk from measurements of its refractive index, chloride content, and soluble phosphate content.

Paris

Academy of Sciences, November 30 (*C.R.*, 203, 1105-1192).

EMILE BOREL: The problem of chances.

HENRI DOUVILLÉ: The shell of the *Ostreoides*, of the group of *Ostrea cochlear*, genus *Pycnodonta*, and the shell of the Rudists.

RAZIYUDDIN SIDDIQI: The theory of non-linear partial differential equations.

J. FAVARD: The approximation of periodic functions by trigonometrical polynomials.

V. A. KOSTITZIN: The asymptotic solutions of biological differential equations.

EDMOND BRUN: Study of the friction of a solid moving in water. When an ebonite disk is rotated at a high velocity in water, there is a measurable temperature difference between the solid and the water; this difference is a function of the distance from the axis of rotation, and is proportional to the square of the velocity of rotation.

JEAN CHAZY: Certain laws of gravitation corrective of Newton's law.