Science News a Century Ago

Researches on the Chemical Equivalents

ON February 14, 1839, Richard Phillips (1778–1851) who from 1839 until his death was chemist and curator of the Museum of Practical Geology, read a paper to the Royal Society entitled "Researches on the Chemical Equivalents of Certain Bodies". The paper was the result of a series of experiments made to test the truth of the theory of Dr. Prout and Dr. Thomson "that all atomic weights are simple multiples of hydrogen", a theory which the late Dr. Turner said was untenable. Turner having adopted the number 108 as the equivalent of silver, Phillips had selected this element as the basis for his inquiry into the equivalent numbers of chlorine and some other elementary gases. From his experiments, the author concluded that no material, and even scarcely any appreciable, error, could arise from considering the equivalent numbers of hydrogen, oxygen, nitrogen and chlorine as being 1, 8, 14 and 36 respectively.

Ehrenberg awarded the Wollaston Medal

AT the anniversary meeting of the Geological Society on February 15, 1839, the Wollaston Medal was handed to the Chevalier Bunsen for transmission to Prof. Christian Gottfried Ehrenberg, of Berlin, to whom it had been awarded for his discoveries respecting fossil Infusoria. "These discoveries," said Dr. Whewell, when handing the medal to Bunsen, "eminently striking and curious to all intelligent persons, are full of the most lively interests for geologists." They were, he added, a just reward of Prof. Ehrenberg's merits, "since he had prepared himself for this success by a profound study of natural history, by practical and scrutinizing researches, and by extensive and enterprising travels". In his reply, Bunsen said that the honour accorded "will be deeply felt by the whole literary public of Germany; it will, I trust, form a new link in that intellectual union between the two great and enlightened nations, which have so many objects of warm and deep sympathy; a union which must become every day more and more intimate, and prove productive of the most beneficial consequences, not only for the progress of science in the whole range of human intellect, but for the welfare of humanity at large".

Steel-making in India

DURING the discussion of a paper "On the Differences between the European and Indian Methods of Making Steel", at a meeting of the Asiatic Society on February 16, 1839, Mr. Heath, who had lately returned from the East, described the operations of the natives of India in manufacturing iron and steel. The ore used, he said, was the magnetic oxide of iron combined with quartz in the proportion of fifty-two of oxide to forty-eight of quartz, which occurred in the district of Salem. The ore was prepared by stamping and washing. The furnace was built of clay, charcoal was used as fuel, and the bellows were made of goat skins. The melting took about four hours and the product was hammered into bars. To convert the iron to steel, it was cut into small pieces and placed in crucibles with the dried wood of *Cassia auriculata* and a few green leaves of *Asclepias gigantia*.

Societies and Academies
Paris

Academy of Sciences (*C.R.*, 208, 133–236, Jan. 16, 1939).

E. BOREL : A continuous problem analogous to a card game.

M. MOLLIARD and R. ÉCHEVIN : Does the nature of the food affect the reserves [of plants] ? Radish and viper's grass grown aseptically produce the same reserves whether lævulose or glucose be applied to their roots.

A. GOSSET, R. JAHIEL and MME. S. DELAUNAY : Study of the evolutionary cycle of pneumonic illness in the rabbit, by local anaphylaxy, starting with endogenous proteins.

C. E. DIEULEFAIT : Moments of hypergeometric probabilities.

P. LÉVY : Division of a segment by a point chosen at random.

E. J. GUMBEL : Values of position of an aleatory variable.

P. VINCENSINI : A transformation of angle congruences of constant focal planes.

C. EHRESMANN : Paratactic congruences and parallelisms in projective spaces.

D. S. MITRINOVITCH : Theorem on Riccarti's equation.

J. MARCINKIEWICZ : Remark on M. Besikowitch's spaces.

C.-T. CHUANG : Holomorph functions in the *cercle unité*.

B. KWAL : Some relativistic generalizations of the fundamental equations of analytical mechanics.

R. GOUDEY : Measurements of the intensity of gravity in France during the year 1938.

G. PETIAU : Electromagnetic equations of the theory of the photon.

J. BASSET : Determination, under pressures of 1–11,000 kgm./cm², of an isotherm of naphthalene tetrahydride passing from the liquid to the solid state.

A. RASKIN : Construction of a high-tension generator with large output. An output of 800 microamp. can be obtained ; the voltage, which is limited by local conditions, is 400,000.

G. REBOUL and F. PERRIER : A peculiarity of air ionized by X-rays. An effect can be detected several hours after the exciting rays are cut off, due apparently to 'large' ions which in number are about a million times fewer than those produced by the same X-rays.

N. KÜRTI, P. LAÎNÉ and F. SIMON : Adiabatic demagnetization starting from temperatures obtained with solid hydrogen. Using the great magnet of the Academy of Sciences, with a field of 29 kilogauss, a temperature of 0·36° K. was obtained in one stage with iron alum. Thus it is possible to dispense with liquid helium for work below 1° K. and hence the equipment required is simplified.

R. FORRER : Relations between the Curie point, orbital moment and crystal lattice.

L. NÉEL : Specific heat and fluctuations of the molecular field.

E. RENCKER : Properties of vitreous phenol phthalein.

L. GROVEN : Contribution to the study of the X-rays emitted in the discharge between external electrodes with maintained waves [of potential].

MLLE. M.-L. DELWAULLE, F. FRANÇOIS and J. WIEMANN : Study of the constitution of solutions of cadmium iodide ; complete Raman spectrum of cadmium tetraiodide.