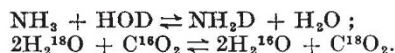


have been reduced to 0.5 c.c., when the ^3H content rose from 7×10^{-10} to 7×10^{-6} .

Separation of isotopes has also been achieved by chemical means. These generally make use of the so-called exchange reactions, of which the following are typical:



The photochemical method is probably capable of extension. Phosgene, COCl_2 , containing the chlorine isotopes 35 and 37, is exposed to light, when the molecules containing only ^{35}Cl are preferentially decomposed (in presence of a trace of iodine). The free chlorine is absorbed by mercury and has an atomic weight lower than normal. Preferential photochemical oxidation of the mercury isotopes has also been achieved.

University Events

BIRMINGHAM.—The degree of D.Sc. has been conferred on the following: Donald Parkinson (geology) for papers on "The Faunal Succession in the Carboniferous Limestone and Bowland Shales at Clitheroe and Pendle Hill", "The Carboniferous Succession in the Slaidburn District of Yorkshire", and other papers published in the *Quarterly Journal of the Geological Society* and elsewhere; Robert Anthony Robinson (chemistry) for "Investigations on the Thermodynamic Properties of Aqueous Solutions of Electrolytes" published in the *Transactions of the Faraday Society* and for other papers; Horace Augustus Thomas (electrical engineering) for papers on the "Frequency Stabilisation of Valve Oscillators" and "Developments in Rotating Radio Beacon Transmitters and Receivers", published in the *Journal of the Institution of Electrical Engineers*.

CAMBRIDGE.—The Clerk Maxwell scholarship has been awarded to E. Bretscher of Fitzwilliam House.

DR. SIMON FLEXNER, emeritus director of the Rockefeller Institute of Medical Research, has been appointed Eastman visiting professor in the University of Oxford for the academic year 1937–38. The professorship was founded by the late George Eastman of Rochester, U.S.A., to provide for scholars in American universities to go to Oxford as visiting professors for terms of one to five years.

The Rhodes Trust has issued a statement for 1935–36 showing the distribution of the Rhodes scholars (95 from the British Empire, 90 from the United States and 5 from Germany) among the various subjects (either in the final honour schools or for research degrees) chosen by them. It shows a large majority under the headings natural science and medicine (62), philosophy, politics and economics (41), and jurisprudence and B.C.L. (32). Next come modern history (14), English (13), mathematics (8), Litt. Hum. (7), economics (6), geography (3), modern languages (2), theology (1) and education (1). Of the 16 who obtained honours in philosophy, politics, and economics, 12 were from the United States, 2 from Canada and 2 from Africa.

Science News a Century Ago

J. D. Forbes's Work on Terrestrial Magnetism

ON January 3, 1837, in a letter to Arago, J. D. Forbes said: "I write to mention some results respecting terrestrial magnetism at which I have lately arrived. In 1832 I made an extensive series of experiments with Hansteen's Intensity Apparatus in the Alps, and in 1835 in the Pyrenees. One principal object was to ascertain the influence of heights. I doubt extremely whether any decided result can be drawn from preceding observations. . . . Those of M. Kupffer seem to be of little value. They were not made at the summit of the Caucasus. . . . I have referred the positions of my stations in the Alps and Pyrenees to the three co-ordinates of latitude, longitude, and height, and deduced the influence of each. . . . I have in the first instance confined my calculation to horizontal intensities. From three different series of observations, made with two needles, I find always a negative co-efficient of the height, indicating, at a mean, a diminution of .001 of horizontal intensity for 3,000 feet of vertical ascent. If, as Humboldt states, the dip diminishes in ascending, the diminution of total intensity will be somewhat greater. You will judge of the extent of the inductions upon which this is founded when I mention that the sum of the heights to which I have carried Hansteen's apparatus exceeds 160,000 feet, or thirty vertical miles, twelve *lieues*".

Airy at Greenwich Observatory

IN his review of the events of 1837, Airy in his autobiography said: "My connection with Cambridge Observatory was not yet finished. I had determined that I would not leave a figure to be computed by my successor. In October [1836] I had (at my private expense) set Mr. Glaisher to work on reducing the observations of Sun, Moon, and Planets made in 1833, 1834 and 1835; and subsequently had the calculations examined by M. Hartnup. This employed me at times through 1837. I state here, once for all, that every calculation or other work in reference to the Cambridge Observatory, in this and subsequent years, was done at my private expense".

"On Jan. 3rd," Airy wrote, "I gave notice to the Admiralty that I had finished the computations of Groombridge's Catalogue, and was ready to print. The printing was authorized and proceeded (the introduction was finished on Nov. 22nd) but the book was not quite ready till the beginning of 1838". For furthering the magnetical work at Greenwich more ground was necessary. When the Visitors met in 1836, a suitable site was chosen and in 1837 "on Jan. 3 I was informed unofficially by Mr. Wood (Admiralty Secretary) that the addition of the Magnetic Ground was sanctioned".

Among other entries relating to 1837 is that in which Airy says "In the month of July the Admiralty wished for my political assistance in a Greenwich election, but I refused to give any".

Botany of Battersea Fields

AT a meeting of the Botanical Society held on January 5, 1837, a communication was read by the curator, Mr. Daniel Cooper, author of "Botanical Rambles within Thirty Miles of London", on the distribution of the localities of wild plants in Battersea Fields. It was accompanied by a map of the

district to a scale of 2 feet to the mile, with the locality of the plants shown. Mr. Cooper said that the Battersea Fields had been for years past famous for the profuse supply of specimens of interest to the naturalist, particularly to the botanist. Of the 104 natural orders of British flowering plants mentioned in Dr. Lindley's first edition of his synopsis of the "British Flora", "61 are found in this locality; of the 503 genera, 214 are here distributed; lastly, out of the 1500 estimated species of British flowering plants 406 are here dispersed".

Cooper, who was trained in medicine and became an assistant in the zoological department of the British Museum, died at Leeds on November 24, 1842, at the early age of twenty-five years.

A Stephenson Locomotive in Russia

QUOTING from a letter from St. Petersburg dated December 14, 1836, *The Times* of January 6, 1837, said: "The locomotive engine made by Mr. Stephenson of Newcastle-upon-Tyne was tried on the 11th on the iron railroad from Paulowsk to Kouzmino. Notwithstanding the extreme severity of the weather a crowd assembled to witness the experiment, the interest of which was increased by the fact that an apparatus of four brushes had been affixed to the engine, for the purpose of clearing the snow from the rails; the apparatus succeeded completely. The engine drew eight waggons or carriages, containing 256 persons, from Paulowsk to Kouzmino, a distance of 7 wersts, or a full German league in 17 minutes, and returned in the same time. . . . On this occasion birchwood was used as fuel, in order to prove that coal is not indispensable, although there is no doubt that with coal the velocity would be considerably increased".

Societies and Academies

Edinburgh

Royal Society, December 7.

A. M. HAIN: Microphthalmia and other eye-defects throughout fourteen generations of albino rats. The affected rats were healthy, vigorous animals, but the female parent of such rats rarely littered again after giving birth to young with defective eyes. Analyses of selected matings showed that, out of a total of 154 defectives, only 8 were born to defective parents, whereas 132 were born to normal parents with defective antecedents. The mode of inheritance was not straightforward; the data are consistent with the existence of a dominant factor with a poor expression which is conditioned by genetic and physiological modifiers.

H. P. DONALD and MISS ROWENA LAMY: Ovarian rhythm in *Drosophila*. In *Drosophila pseudo-obscura* an ovarian rhythm is present which is characterized by the ripening and laying of eggs in batches with long periods of rest between bursts of oviposition. The form of the rhythm varies according to age and to absolute fecundity as measured over a period of days. In *D. funebris* and *D. melanogaster* no rhythm has been observed, but in the former there is a distinct tendency to lay during the daytime. Examination of the ovaries provided consistent results.

R. A. SAMPSON: Studies in clocks and time-keeping. (6) The arc equation. In 1930, the clock "Shortt No. 4" showed evidence of the mutual effect

of variations of pressure, arc and rate. Observation revealed that the effect of pressure upon arc increased as pressure diminished; ultimately a balance obtained, and further reduction of pressure made the clock go slower in place of faster. The experimental question of the effect of arc upon rate is indeterminate at any one mean pressure. At full exhaustion, the whole circular error should presumably appear. Investigation is made whether it appears full at other pressures, with comparison with the experiments of other authorities.

J. SMALL and I. K. JOHNSTON: Quantitative evolution in Compositæ. The frequency distribution of generic sizes in Compositæ agrees reasonably well with the calculated frequency distribution, using Yule's formulæ. The ages in doubling-periods for the subtribes within tribes show a clear seriation with previously suggested order of origin. The *Dp*-ages of both tribes and subtribes show a complete seriation with suggested times of origin when averages are taken for each of the geological periods concerned, and this seriation extends to the subdivisions of both Pliocene and Miocene.

Moscow

Academy of Sciences (*C.R.*, 3, No. 7; 1936).

S. SOBOLEV: Limited fundamental problem for polyharmonic equations in a domain of indefinite contour.

M. POLJAKOV and K. GRJANENKO: Role of the solid phase in the ignition of combustible mixtures.

A. POLESICKIJ and P. TOLMAČEV: Solubility and activity of the halogenates of some bivalent metals. (3) The solubility and activity of $Ra(IO_3)_2$ in water and in solutions of electrolytes.

M. T. LINDTROP and J. M. TOLMAČEV: Spectral analysis of mineral waters.

M. F. NEIBURG: Stratigraphy of the Trias in the Kuznetsk basin.

V. A. ZILBERMINZ and E. M. BONSTEDT: The diamond from the new deposit in the Syuren River basin (Bashkiria).

G. M. PCHAKADZE: New data on chromosome number in domestic sheep.

R. L. DOZORCEVA: (1) Sex-linked heredity in *Pteromalus puparum*. (2) The morphology of chromosomes in the ichneumon, *Pteromalus puparum*.

V. M. KATUNSKIJ: (1) The causes of pre-floral and post-floral movements of peduncles and scapes (in the genera *Papaver*, *Crepis* and *Tussilago*). The movements are due to a growth-promoting hormone developed in the growing ovules of flower buds. (2) The development of the female gametophyte and the production of the growth-promoting hormone by flower buds.

G. G. KOLUMYCEV: Winter hardiness and earliness of wheats.

(*C.R.*, 3, No. 8; 1936).

W. K. TURKIN: Quasi-normalizers of the elements in finite groups.

D. IWANENKO and A. SOKOLOV: The law of force between heavy particles.

G. S. LANDSBERG and V. J. MALYŠEV: The rays of second order in the Raman spectra.

V. VEKSLER and B. ISAYEV: Measurements of intensity of X-ray radiation with a proportional amplifier.

F. M. ŠEMIĀKIN and A. I. LAZAREVA: Undulating cracks and periodic crystallization in gelatine gel in the formation of mercury carbonate.