

the quantity and origin of helium in gases of natural origin, and the helium content and age of meteorites. At Ahlen, in Westphalia, a source of natural gas has been found to provide about 40 m.<sup>3</sup> per day containing 0.19 per cent helium, but this does not compare with the source at Calgary in Canada, 330,000 m.<sup>3</sup> per day containing 0.33 per cent He, or with that at Petiola in Texas, 425,000 m.<sup>3</sup> per day of 0.9 per cent. The ages of the various iron meteorites investigated are found to range from that of the Savik meteorite (8000 years perhaps) to the hoariness of the Nelson Co. meteorite, comparable to the age of the earth ( $2.6 \times 10^9$  years). It is thought that passage near the sun might account for the removal of helium from the Savik meteorite, making it appear more youthful than it is really likely to be.

Another interesting direction of Prof. Paneth's work was in the attempt to prepare helides after the manner in which he has so successfully made hydrides of various elements. No trace of the formation of helides of arsenic, antimony, lead, germanium, selenium, iodine, and chlorine was obtained. In the experiment with chlorine, the merest trace of the formation of a helide would have been detectable. It is considered that such helides as can be formed can only have a very fugitive existence, of the order of  $10^{-8}$  second.

One might recall the words of Leonardo da Vinci in connexion with all this illuminating work: "Experience is never at fault; it is only our judgement that is in error in promising itself such results from experience as are not caused by our experiments".  
A. C. E.

### Obituary.

GEORGE BIRTWISTLE.

GEORGE BIRTWISTLE was born at Burnley in 1877. Educated at Burnley Grammar School and Owens College, he won an open scholarship in mathematics at Pembroke College, Cambridge, in 1895. He was bracketed Senior Wrangler in 1899 and was placed in Class I., Division I., of the post-graduate part of the Mathematical Tripos in the following year. He was immediately elected to a fellowship and was responsible for the mathematical teaching in Pembroke until the time of his death. He had also served as assistant tutor and prætor of the college. He died very suddenly and unexpectedly on May 19.

It was as a teacher rather than as an investigator that Birtwistle was known, and as a teacher that he played a conspicuous part in Cambridge mathematics, especially during the last ten years. In certain respects his position was unique, for he was a link between the older theoretical physics and the new. Since the War, while continuing to lecture on classical mechanics, electrodynamics, and hydrodynamics, his interest in more recent developments, always strong, rapidly increased. He began to lecture on the older quantum theory, on thermodynamics (then just introduced into the schedule of elementary teaching), and finally on modern quantum mechanics. Each of these lecture courses ultimately grew into a book.

As a lecturer, Birtwistle was admirably clear and easy to follow. He set, in fact, a standard of exposition which made it very difficult for anyone to attract students to any duplicate course. His books are like his lectures—admirable expositions of those sections of the subject with which he deals, written in lecture-room style. He seldom attempts to go deeply into difficult points or to present the subject as a single logical whole. His aim is the lecturer's aim—to interest the student in the subject, especially in its more outstanding or exciting parts, and lead him on to other more systematic or abstruse expositions.

In all his lectures and in all three books, Birtwistle was successful in this aim, though naturally in

varying degrees. Perhaps the least successful of his books was the last, on modern quantum mechanics. Here, owing to the novelty of the subject and the absence (when Birtwistle wrote) of other more systematic expositions (or indeed of any other exposition), the weakness of his deliberate method becomes more obvious. The book gives rather the impression of a collection of interesting isolated sketches. It stimulates the reader to ask for more, but to what other author is he to turn? With the coming of other books the weakness is already less felt and Birtwistle's book is gaining in value as a stimulating introduction. The staff of the Mathematical Faculty of Cambridge mourn the untimely loss of a valued friend and colleague.

DR. W. MARTIN.

DR. WILLIAM MARTIN, who died on May 24, was known to a very wide circle as an antiquary whose knowledge and insight enabled him to see almost everywhere in London vestiges of the life and activities of former times; but to many others he was known as an authoritative exponent of patent law, and he was an occasional contributor to our columns upon this subject.

Dr. Martin's antiquarian bent led him to treat patent law historically; but he was none the less alive to the conceptions which govern modern practice in this sphere. In his lectures and publications, notably his articles in the *Law Quarterly Review*, he worked out with great originality a systematic key to the immense body of decided cases with which he seemed to be familiar in every part. The law of treasure trove also attracted him; and in it he saw, contrary to the opinions of some antiquaries, means which could be utilised for the advantage of archaeology as a check on the surreptitious disappearance into private collections of finds of general interest.

As an antiquary Dr. Martin was insistent on a strict separation of ascertained fact from the accretions of sentiment and fancy which too often obscure instead of illuminating the past. Nowhere was he more impatient of any looseness than in his



treatment of Shaksperiana. He was an acknowledged authority on Shakspeare, and was proud of the part he took as president of the Shakspeare Reading Society in placing in Park Street, near Bankside, the handsome bronze memorial which now marks the site of the 'Globe'.

Dr. Martin was a graceful writer, clear and entertaining as a lecturer, and an ideal guide; with a very practical gift for organising which enabled him to carry through his arrangements strictly to time. Perhaps he found his greatest happiness in conducting parties through almost forgotten alleys and by-ways of London which he loved, and filling them from his stores of knowledge with pictures of the life of other days. Many are those who have enjoyed afternoons spent with him on these rambles who will still find pleasure in the remembrance of his easy discourse and the charm of his personality. He was keenly interested in many aspects of natural history, as well as being an authority upon archæological subjects; and he served as president of the South-Eastern Union of Scientific Societies. It was particularly appropriate that Dr. Martin should be elected the first president of the Gilbert White Fellowship, the object of which is "To continue the work of Gilbert White in the study of natural history and antiquities". He took an

active part in the meetings and excursions of this Fellowship within a few days of the illness which resulted in his regretted death.

WE regret to announce the following deaths:

Prof. Thomas W. Cave, vice-principal of the South-Eastern Agricultural College, Wye, and for twenty-seven years head of the Veterinary Department of the College, on April 25, aged seventy years.

Mr. A. H. Cheate, C.B.E., the distinguished aural surgeon, who presented to the Royal College of Surgeons his valuable collection of preparations illustrating the anatomy of the mastoid region, on May 11, aged sixty-two years.

Prof. Peter Gillespie, professor of civil engineering, University of Toronto, at fifty-six years of age.

Commendatore Rodolfo Lanciani, K.C.V.O., Senator of the Kingdom of Italy and formerly professor of Roman topography in the University of Rome, on May 21, aged eighty-three years.

Dr. James Moir, a past president of the Chemical, Metallurgical and Mining Society of South Africa and of the Chemical Section of the South African Association for the Advancement of Science, on Mar. 31.

Mr. O. A. Reade, pharmaceutical chemist, president of the Lowestoft and District Literary and Scientific Association, and author of a flora of the Bermudas, on April 14.

### News and Views.

THE King's Birthday honours list includes the names of the following scientific workers and others associated with scientific activities. *Baron*: Sir Edward Allen Brotherton, chemical manufacturer. *Privy Councillor*: Lord Dawson of Penn, Physician-in-Ordinary to the King. *Baronets*: Sir E. F. Buzzard, Physician Extraordinary to the King; Sir Hugh Mallinson Rigby, Sergeant Surgeon to the King. *Knights*: Prof. H. C. H. Carpenter, professor of metallurgy in the Royal School of Mines, Imperial College of Science and Technology; Mr. J. J. Ralph Jackson, Chief Veterinary Officer, Ministry of Agriculture and Fisheries; Mr. W. S. Jarratt, Comptroller-General of the Patent Office; Prof. W. C. MacKenzie, Director, and professor of comparative anatomy, National Museum of Australian Zoology; Dr. Peter Chalmers Mitchell, Secretary of the Zoological Society of London; Prof. C. V. Raman, Palit professor of physics in the University of Calcutta; Brigadier E. A. Tandy, Surveyor-General of India (retired); Dr. R. S. Woods, Honorary Physician and Honorary Surgeon, London Hospital. *K.C.B.*: Sir F. S. Hewett, Surgeon Apothecary to the King. *C.B.*: Major-General H. P. W. Barrow, Director of Hygiene, War Office. *C.S.I.*: Mr. James Herman Field, late Director-General of Observatories, India. *G.C.M.G.*: Sir John Cadman, emeritus professor of mining, University of Birmingham. *C.M.G.*: Dr. L. Cockayne, in respect of honorary scientific services to the Government of the Dominion of New Zealand; Mr. O. F. H. Atkey, Director of the Sudan Medical Service. *G.C.V.O.*: Sir Humphry Rolleston, Physician-in-Ordinary to the King. *C.V.O.*: Dr. L. E. H.

Whitby, bacteriologist. *M.V.O.*: Prof. E. C. Dodds, professor of bio-chemistry at Middlesex Hospital. *C.I.S.O.*: Mr. W. A. Baker, lately Surveyor-General, Jamaica; Mr. J. F. Halpin, Superintending Chemist, Government Chemist's Department. *G.B.E.*: Prof. Dame Helen Gwynne-Vaughan, professor of botany in the University of London; Sir Arthur McDougall Duckham, Director-General of Aircraft Production. *K.B.E.*: Major-General T. H. Symons, Honorary Surgeon to the King, Director-General, Indian Medical Service. *C.B.E.*: Mr. P. N. H. Jones, Director of Public Works, Bermuda; Lieut.-Col. F. J. McCall, Director of Veterinary Services, Tanganyika Territory; Capt. R. S. Rattray, for services as Government Anthropologist in the Gold Coast and to aviation in West Africa; Col. A. H. Safford, Assistant Director of Medical Services, Baluchistan District, India; Mr. Nicholas White, Chief Engineer, and Secretary to the Government of the Punjab, Irrigation Branch. *O.B.E.*: Mr. H. Brown, Principal Officer, Plant and Animal Products Department, Imperial Institute; Major D. G. Cheyne, Deputy Assistant Director of Hygiene, China Command; Dr. F. Dixey, Director of the Geological Survey, Nyasaland Protectorate; Major J. N. Duggan, professor of ophthalmic medicine and surgery, Grant Medical College, Bombay; Mr. J. C. F. Fryer, Director, Ministry of Agriculture and Fisheries Pathological Laboratory, Harpenden; Lieut.-Col. F. J. M. Stratton, professor of astrophysics in the University of Cambridge; Mr. G. Stuart, Assistant Director, Laboratories, Department of Health, Palestine. *M.B.E.*: Mr. E. W. Davy, Assistant Director of Agriculture, Nyasaland Protectorate.