

methane normally evolved during the anaerobic digestion of sludge; but this drawback is being overcome by the development of methane-producing strains resistant to the inhibitory effect of sulphide. Bacteria concerned in the decay of pyretic fossils, a cause of some perturbation in museums, were also on view.

OBITUARIES

Prof. James B. Sumner

JAMES B. SUMNER, professor of biochemistry at Cornell University, Ithaca, New York, best known as the first to achieve the crystallization of an enzyme, died on August 12 at the age of sixty-seven at Roswell Park, Buffalo, New York. He had been in excellent health up to a few months before his death. He is survived by his wife, three sons, two daughters and seven grandchildren.

The crystallization of urease in 1926 was Prof. Sumner's most important scientific achievement. The history of this work can be read in his own words in "The Story of Urease" (*J. Chem. Education*, 14, 255; 1937) by anyone who wishes a first-hand, true-to-life account of his prolonged efforts to purify the enzyme and then to defend his idea of its chemical nature against severe and intolerant criticism. His skilful refutation of this criticism required experiments of a highly ingenious and exacting nature.

Prof. Sumner was also well known for his work on the enzyme catalase. Another of his major accomplishments that is, however, not so widely known was the first crystallization of a haemagglutinin (concanavalin A) from jack-bean meal, and the discovery that this protein required the presence of a divalent metal for its action.

Prof. Sumner was an excellent teacher as well as research worker, as the writer can testify from personal experience. He constantly brought his lectures to life by means of a variety of personal anecdotes. He was probably at his best, however, in the less formal teaching of his assistants and graduate students, to whom he communicated his wide knowledge of practical laboratory technique.

In carrying out his own research, Prof. Sumner impressed one as being something of a magician. He would often work furiously without revealing exactly what he expected to discover, and then the rabbit would appear. It should be added, however, that in the case of urease, nine years of persistent work were required before his final objective of isolating the enzyme was attained. His thinking was concrete rather than abstract, and his mind operated by brilliant flashes of intuition rather than by the more laborious process of logical deduction from a given set of premises.

Prof. Sumner was somewhat abrupt in manner, and this was apt to lead people to an attitude of reserve towards him until they found by closer association that his true nature was one of kindness and humanity. He was a very loyal friend. He was free from the intolerable conceit often shown by persons of considerable attainment, although he was justifiably proud of his accomplishments. It is unfortunate that, despite being made a joint recipient of the Nobel Prize in 1946 and being elected to the U.S. National Academy of Sciences, he appeared to retain a certain amount of embitterment from the unjustified criticism to which he had at one time been subjected.

Prof. Sumner lost one arm above the elbow in a hunting accident when he was in preparatory school. This may have been an important factor that spurred him on to success in biochemistry, in the face of discouraging advice. In spite of this handicap, he also became an excellent tennis player, and was fond of outdoor sports such as skiing, sailing and hiking.

Prof. Sumner introduced a new era into biochemistry. He lived to see the fruition of his discoveries and on his deathbed he must have felt the satisfaction, in spite of his great suffering, of knowing that he and his work had already become a recognized and important chapter in the history of biochemistry.

ALEXANDER L. DOUNCE

Mr. Harold Burrows, C.B.E.

HAROLD BURROWS, whose death occurred on September 29, will be greatly missed in the world of medical science. His career was both brilliant and unique. After leaving Marlborough College, he qualified in medicine at St. Bartholomew's Hospital, London, in 1899. He soon distinguished himself as a surgeon and, serving in that capacity in the First World War, was twice mentioned in dispatches. At the conclusion of hostilities he retained his link with the Services by accepting the appointment of consultant surgeon to H.M. Forces with the rank of colonel. In 1919 he was made C.B.E. On resuming his profession after the War he gradually built up one of the largest practices in the west of England, becoming consulting surgeon to both the Welsh Orthopaedic and the Gosport War Memorial Hospitals. Harold Burrows received the Jacksonian Prize of the Royal College of Surgeons in 1922 and in the same year was appointed a Hunterian professor. The latter distinction was again conferred upon him in 1933 and 1935.

Shortly after publishing "Pitfalls in Surgery" in 1926, which was an important contribution based largely on his own experiences as a doctor, he became conscious of the strain his large practice had upon his health, and was finally persuaded to abandon clinical work. In 1927 he became a voluntary worker in the research department of the Royal Cancer Hospital, which later became known as the Chester Beatty Research Institute. Burrows was a keen and observant naturalist with a profound biological background, so the transition from medical practice to the life of a laboratory worker was not unduly difficult. In 1930 he was appointed experimental pathologist to the research staff of the Hospital.

Even while engaged in medical practice, Burrows had managed to keep abreast with scientific literature, and his special interest lay in endocrinology and the relationship of hormones to certain forms of cancer. Very naturally this became his special field; but his interests in cancer research covered a very wide range. He published, apart from his several textbooks, more than seventy papers since he gave up practice in 1927. Some of these articles, mainly on experimental carcinogenesis, were published in collaboration with Sir Ernest Kennaway, Sir Charles Dodds and Profs. J. W. Cook, W. V. Mayneord and E. Boyland. Apart from these numerous scientific contributions, his book "Biological Action of the Sex Hormones", published in 1945, was in many ways a classic. With his combined clinical and biological knowledge, few were better qualified than Burrows to write a book on this complex subject.