

medical problems which will come before him. Let him beware of sticking too closely to his desk. He must visit clinics and hospitals to refresh his knowledge, be in sympathetic and friendly touch with his medical colleagues, play the man and not the bureaucrat.

These are revolutionary and epoch-making times. Great discoveries are being made in laboratories and hospitals which call for practical application in the prevention of human and social ills. It says much for the promise of the future that, in the midst of a world war, men of vision are able to find time to reflect, as Prof. Mackintosh has done, on the high ideals and humanitarian aims of teaching and practice in preventive medicine, and to plan for the years to come.

OBITUARIES

Sir Prafulla Chandra Rây, C.I.E.

By the death on June 16 of Sir Prafulla Chandra Rây at the ripe age of eighty-three, Indian chemistry has suffered a severe loss. By his own contributions to science, but especially by his personal influence, Sir Prafulla was, more than anyone else, responsible for the great development of scientific research in India during the past fifty years.

P. C. Rây, the son of a small land proprietor, was born on April 20, 1861, and after receiving his early education in a village school he entered the Presidency College, Calcutta, where, although an arts student, he came under the influence of Sir Alexander Pedler, then professor of chemistry in the College, and he thus acquired an interest in chemistry. After graduation he gained a Gilchrist scholarship and in 1882 he proceeded to Edinburgh, where he studied chemistry, physics, botany and zoology. Here, after taking his B.Sc. degree, he worked in Crum Brown's laboratory, for whom he expressed his great admiration and affection. Remaining in Edinburgh for six years, he obtained the degree of D.Sc.; and, on his return to Calcutta in 1888, he was appointed an assistant in the Department of Chemistry at the Presidency College, later succeeding Sir Alexander Pedler in the chair. This appointment he held with great distinction until 1916, when he retired at the age limit and was appointed the first Palit professor of chemistry in the University College of Science. Here he continued to work until 1937, when increasing age and a partial failure of his eyesight compelled him to retire.

Both at the Presidency College and at the University College of Science, Rây built up outstanding schools of research, and nearly all the present professors of chemistry in the Indian universities have worked in his laboratory. Sir Prafulla's great activity over so long a period is all the more remarkable since his health was always poor. He was unmarried and led a very simple life, at one time living in a small room adjacent to the laboratory at the University College of Science. He devoted most of his income to providing stipends for his research students.

Rây's own researches were concerned mainly with the chemistry of the nitrites, and his first notable contribution was his discovery in 1896 of mercurous nitrite. Contrary to the view held previously, he showed that the nitrites are not unstable substances, and in a long series of papers published mainly in the

Journal of the Chemical Society, he recorded the preparation of ammonium nitrite, the alkylammonium nitrites and various other members of the series. Important as were these investigations, it was by the enthusiasm for research with which he inspired his students that he will best be remembered. He found a further outlet for his energies by founding the Bengal Chemical and Pharmaceutical Works, now one of the leading firms in the Indian chemical industry.

Rây was profoundly interested also in the history of chemistry, and his "History of Hindu Chemistry" will always be regarded as a classical contribution to this field of study. In his later years he devoted much attention to the social and economic problems of India, and in his book "The Life and Experiences of a Bengali Chemist", published in 1933, he gave some account of this side of his activities. Although at times a severe critic of British policy he had a great affection for Great Britain, which he frequently visited. His knowledge of English literature was remarkable, and his tastes catholic, ranging from Shakespeare and Milton to "Tom Jones". He served as a member of a number of Government committees, and his intimate knowledge of India proved of great value in the deliberations of the Indian Chemical Services Committee, of which the late Sir Jocelyn Thorpe was chairman.

Sir Prafulla's services to science did not pass unrecognized; he was made a C.I.E. in 1912 and knighted in 1929. He was a fellow of the Royal Asiatic Society of Bengal and of the National Institute of Sciences, the first president (1924-26) of the Indian Chemical Society and a past president of the Indian Science Congress. His passing will be deeply regretted, not only by his Indian students to whom he was a true *guru*, but also by his many friends in Great Britain.

J. L. SIMONSEN.

Prof. W. Biltz

ACCORDING to an announcement in the *Chemiker Zeitung* of January 12, Dr. Wilhelm Biltz, professor of inorganic chemistry and director of the Laboratories at the Technical High School, Hanover, died on November 13, 1943. Born at Berlin in 1877, Biltz had a long and successful career as a research chemist and became one of Germany's leading authorities on inorganic chemistry. His work covered a very wide field, for with a succession of collaborators he carried out investigations upon most of the chemical elements, in the course of which he prepared hundreds of new compounds, especially double halides and other double salts, and his work has helped to clarify knowledge of the chemistry of uranium, tungsten, molybdenum and, more recently, rhenium. In his earlier work he gave much attention to density and conductivity determinations of solutions, while later work led him into studies of affinity. This involved heating mixtures of an element and sulphur (or phosphorus, etc.) in varying proportions and submitting the products to X-ray and other methods of analysis (for example, tensimetric) to determine the formulæ of the sulphides, phosphides, etc.

In 1909 Biltz wrote "Laboratory Methods in Inorganic Chemistry", and was for many years joint editor of the *Zeitschrift für anorganische Chemie*, in which many of his papers appeared.