

relative merits of plates, unless the differences between the plates are small. (3) The present British Standards recommendations for notched bar tests are not suitable for the testing of mild-steel plates, and will require revision if the notched bar testing of mild-steel plates becomes common. In particular, the importance of the temperature of the metal under test is not sufficiently emphasized. (4) There is considerable uncertainty about the standard of quality in respect of resistance to brittle fracture that is required in steel for particular applications. Much study of this subject appears to be needed. (5) The resistance to brittle fracture of weld metal and the heat-affected zones of welds has not yet been sufficiently studied.

N. P. ALLEN

## OBITUARIES

### Sir Cyril Sankey Fox

THE sudden death of Sir Cyril Fox in Calcutta on December 28, 1951, has come as a shock to all who knew him. Soon after arriving from England he fell ill with pneumonia, and then when apparently well on the way to recovery died suddenly of coronary thrombosis. Science has thus lost a distinguished exponent of engineering geology.

Cyril Sankey Fox was the son of John Henry Neat Fox, and was born in Calcutta on February 24, 1886. He obtained his technical education at the Civil Engineering College, Sibpur, and at the University of Birmingham, where he took the degree of B.Sc. in mining in 1908. He then spent some eighteen months underground at Cannock Chase Colliery, until he was recalled to the University of Birmingham as a lecturer in mining in 1910. (He took the degree of D.Sc. in mining in 1923.)

In 1911 Fox was appointed to the Geological Survey of India as assistant superintendent. He was promoted superintendent in 1930, and succeeded Dr. Heron as director on July 31, 1939. He was knighted in 1943 and retired from the service on January 1, 1944.

Early in the First World War, Fox obtained a commission in the Royal Engineers, and was present at the battle of Loos in 1915 as Brigade Signals Officer, 15th (Scottish) Division. The close explosion of a shell during this action made Fox exceedingly deaf, and he was thereby greatly handicapped for the rest of his life.

In his early years in the Geological Survey of India, Fox was engaged on systematic surveying in the Central Provinces (in the party of the present writer), but after his recall, with other officers, from the war overseas, he was placed in charge of a mica mine at Jorasimar in Bihar. Thereafter his flair for economic and engineering geology was continuously utilized. Besides studying problems in water supply, dam sites and landslips, Fox made in turn surveys of India's bauxite and coal resources. For the latter survey Sir Edwin Pascoe formed a new Coalfields Party and placed Fox in charge. The results of this work spread over some years were presented in a series of memoirs on the geology and coal resources of the coalfields of India, all written by Fox himself (*Mem. Geol. Surv. Ind.*, 57, 58, 59), except for that on the Raniganj Coalfield (61) by Dr. Gee and others. Besides contributing copiously to the departmental publications before he became director, Fox pub-

lished separate books on bauxite (1927 and 1932), on engineering geology (1935), and, since his retirement, one on the geology of water supply (1949), and another on water that has just appeared posthumously (1952).

Fox received charge of the Geological Survey of India at a very difficult time. With the outbreak of war the staff was promptly concentrated on work of economic importance, and Fox secured the sanction of the Government of India to the formation of a Utilization Branch. He was thus able to employ mining engineers from Burma, rendered available by the Japanese invasion, for prospecting and developing mining propositions such as the lead-zinc deposit of Zawar in Rajputana. The invasion of Burma, and of a part of Assam, with its threat to Calcutta, threw an additional burden on the Geological Survey of India on account of the necessity of packing and removing from Calcutta collections of valuable specimens. In addition, the shortage of paper, and of lead for type, caused by the War, played havoc with the departmental publications, from which they have not yet recovered, in spite of the efforts of Dr. West during his period as director.

After retiring from the Survey, Sir Cyril Fox started a new career as a consulting geologist, and reported between 1944 and 1946 on the mineral resources of several Indian States. These reports, all published by the respective States and on sale, take the form of what the author calls a 'mineral audit' of the possibilities of each State. In 1947 he reported on the geology and mineral resources of the Dhufur Province, Muscat and Oman, in Arabia. At the time of his death, Sir Cyril had extended his operations to Egypt, and had built up a practice in which his services, particularly on problems of engineering geology, were in demand in Arabia, Egypt and India. He had taken a house in Wimbledon, London, from which he conducted his practice.

While in India, Sir Cyril had served as president of the Mining and Geological Institute of India (1936), of the Geological, Mining and Metallurgical Society of India (1943-45), and of the Royal Asiatic Society of Bengal (1942), of which he was made a Fellow in 1939. He was also president of the Geological Section of the Indian Science Congress in 1929. He was a founder member of the National Institute of Sciences of India (1935), a Fellow of the Geological Society of London (1909), and a member of the Institution of Mining Engineers.

Sir Cyril married Mabel Janet Dunn in 1916. Our sympathy must go out to Lady Fox in her unexpected loss.

L. L. FERMOR

WE regret to announce the following deaths:

Dr. W. R. Ivimey Cook, senior lecturer in the Department of Botany, University College of South Wales and Monmouthshire, Cardiff, on February 1, aged fifty.

Dr. W. J. Elford, F.R.S., head of the Division of Physical Chemistry, National Institute for Medical Research, Mill Hill, London, on February 14, aged fifty-two.

Dr. Max Hartmann, of the Pharmaceutical Department of Ciba Laboratories, Basle, where he was concerned in the production of coramine and other medicinal products, on February 2, aged sixty-seven.

Dr. Graham Renshaw, formerly a medical practitioner of Sale, Manchester, and well known as a naturalist, on January 13, aged seventy-nine.