

of the Society of Authors (London). In addition to his teaching, practice and research, he found time to write a number of books and papers (a selective list of which follows) in his lucid and lively style, and was a frequent contributor to *The Engineer*. The conclusions of his years of experience are published in a monumental 3-volume work, 'Irrigation and hydraulic design'.

In 1915 Dr Leliavsky was awarded the order of St Stanislas II, with swords, for his work on the Wielke Bloto Dam, and in 1945 received the Egyptian title of 'Bey' (abolished in 1952 with all other Egyptian titles). Other honours included the Institution's Crampton Prize (1938), a Telford Premium (1948) and the Stevens' Premium, awarded in 1956 by the American Society of Civil Engineers.

He was elected a Member in 1945.

His sudden death from cerebral haemorrhage came only five days after the death of his wife. He is survived by his sister, Madame Vera Choumiline.

Selective list of books and papers by Dr Leliavsky:

Shearing stresses in gravity dams. *J. Instn civ. Engrs*, vol. 8, February 1938, p. 73.

Stresses and temperature effects in dams, with particular reference to Aswan Dam. *J. Instn civ. Engrs*, vol. 29, January 1948, p. 185.

Thermal movements in the buttresses of the Aswan Dam. *J. Instn civ. Engrs*, vol. 30, March 1948, p. 79.

'An introduction to fluvial hydraulics', Constable, London, 1955.

'Irrigation and hydraulic design', 3 vols, Chapman & Hall, London, 1955-60.

'Uplift in gravity dams: calculation methods, experiments and design theories'. Constable, London, 1958.

JESSEL ROSEN, B.Sc., who was born on 21 November, 1892, died on 9 June, 1963.

Educated at Monmouth Grammar School and Latymer Upper School, he studied engineering at the City & Guilds Engineering College, London, where he took the degree of B.Sc.(Eng.) in 1912. In the same year he joined Messrs C. A. Parsons & Co., working in their test house, workshops, drawing, and design departments under Sir Charles Parsons and Captain A. H. Law. In 1918 he became their Chief Electrical Designer and in 1922 Chief Electrical Engineer.

In 1927 he was made Director and head of Parsons' Electrical Department, responsible for the design, manufacture and development of large dynamo electric machinery, multi- and single-phase turbo-alternators, large power transformers, air-coolers, etc. Altogether he was associated for eighteen years with Sir Charles Parsons, until the latter's death in 1931, and was co-inventor with him of a high voltage alternator (concentric conductor).

In 1940 Mr Rosen volunteered to assist the Director of Electrical Engineering at the Admiralty, and in 1944 was appointed Assistant to the Director, being responsible for the design and development of high-power electrical supply systems and equipment for the Fleet. In 1946 he joined the Admiralty's Department of Scientific Research, where he remained until his later years.

An expert on electrical installations, internal combustion, and steam, Mr

Rosen specialised in the design, construction and testing of heavy industrial machinery, especially high-voltage turbo-alternators, rotating dynamic electric plant and switch gear.

He was the author of several papers, and was awarded the Gold Medal of the Junior Institution of Engineers. He was also Assessor of the Mechanical Engineering Research Board and a member of the Propulsion Committee of the Aeronautical Research Council, the Admiralty Ship Welding Committee, the Admiralty Marine Propulsion Committee, the British Shipbuilding Research Association, etc.

He was elected an Associate Member in 1918 and became a Member in 1942. He is survived by his widow.

JOHN KEITH ROSS, M.A., B.Sc., who was born on 31 August, 1872, died in October 1963.

Educated at Royal High School, Edinburgh, he studied engineering at Edinburgh University, where he took the degrees of M.A. and B.Sc.(Eng.). After a year's practical training with Mr C. P. Gates (A.M.), contractor, he joined Mr Gates' firm, working as assistant engineer on sewage purification works at Heywood, Lancs., on Talbot Road New Station, Blackpool, and finally on the widening of two railway lines (Chester-Holyhead, Saltney-Rhyl) and on a viaduct at Rhyl.

From 1902 to 1904, as engineer and agent for Messrs Monk & Newell, Contractors, he worked under Mr James Glover (M) on a 20-mile stretch of pipeline between Thirlmere Aqueduct and Manchester, and on wharves for Lever Brothers at Port Sunlight. As engineer and agent for the contractors, he later worked on covered balancing reservoirs at Cricklewood for the Metropolitan Water Board.

Backed by already considerable experience, Mr Ross went to Australia in 1906 and for the rest of his working life played a large part in the development of New South Wales. As engineer for the Commonwealth Oil Corporation he was engaged for three years on the design and construction of bridges, sidings, buildings, etc, at Newnes, New South Wales, under Mr D. A. Sutherland and Mr Henry Deane (M).

In 1909 he was appointed engineer in charge of railway construction by the NSW Public Works Department and for the next eight years worked on several new lines—Lockhart to Clear Hills, Galong to Boorowa, Dunedoo to Coonabarabran and Dubbo to Merrygoen. In 1918 he became resident engineer to the Commonwealth Department of Works and Railways, in charge of the construction of Molongolo concentration camp (railway, water, and sewerage) and the completion of the water supply to Canberra from Cotton River—work which was completed in record time. From 1919 until 1927, as resident engineer to the Public Works Department, NSW, he was in charge of the construction of Hume Reservoir, designed for two million acre-feet of water, at a total cost of £5 400 000—the second biggest dam in the world at the time. There followed three years as inspecting engineer on the River Murray Construction Works, including Hume Reservoir, Nepean Dam, and the northern suburbs ocean outfall sewer at Sydney.

After a visit of inspection to Europe, Mr Ross returned to New South Wales to take up a new post with the Public Works Department, Newcastle, as engineer in charge of design and construction of sewerage works for Newcastle