

Authorities Association. He was awarded the Miller Prize in 1935 for his paper on 'The reconstruction of the quay wall at No. 11 Berth, Hendon Dock, Sunderland' (read before the Students' Section of Newcastle-on-Tyne Association of the Institution, session 1934-35).

Elected an Associate Member in 1938, he became a Member in 1956. He is survived by his widow and one daughter.

**Sir Hugh Eyre Campbell
Beaver, KBE, LLD**

who was born on 4 May 1890, died on 16 January, 1967.

Educated at Wellington College, he first thought of entering the Indian Civil Service, and as a prelude to this joined the Indian police. On leave in England in 1922 he met Sir Alexander Gibb, then establishing his firm of consulting engineers, who made him his personal assistant, despite the young man's ignorance of engineering. His quick grasp of technical detail and economic possibilities soon justified this choice. During his next eight years with Sir Alexander Gibb & Partners he gained insight into chemical engineering, mining and quarry developments, transport and hydro-electric schemes.

In 1931 he went to Canada on behalf of the firm as head of a Commission appointed by the Canadian Government to study Canadian ports and to draw up a constitution for their control. The resulting Report was published as a Blue book and its recommendations adopted in full by the National Harbours Board. At the request of the then Canadian Prime Minister, Mr R. B. Bennett, Sir Hugh directed the re-building of the harbour of St John, New Brunswick, burnt to the water's edge in June of that year. With complete authority to redesign and rebuild 'sufficiently for use' by the following winter, he went ahead and completed the job in four months at a cost of £800 000. In 1932 he became a partner in his firm, dealing specifically with industrial engineering in factory building and planning, industrial layout, etc. The company acted as consultants to the Commissioner for Special Areas and he was thus closely concerned in measures for revitalizing unemployment black spots—South Wales, Tyneside, West Cumberland, etc. From 1932-36 he was responsible for the design and supervision of construction of Guinness Brewery, Park Royal (£1 600 000), Capper Pass Metallurgical Works (£170 000), Rothschild's gold and silver refinery, and other factories.

At the outbreak of World War II Sir Alexander Gibb & Partners became agents of the Ministry of Supply for the construction of immense ordnance factories at Swynnerton, Staffs, Risley, near Warrington and Kirkby, near Liverpool. In October 1940 he was brought by Lord Reith to the Ministry of



Bassano & Vandyk

Works, where he became Director-General, with responsibilities including direction of the building and construction and planning of the whole wartime programme of works and supply of building materials.

After the war he joined Arthur Guinness Son & Company Ltd, where in 1946 he became Managing Director, and in 1959, with Lord Boyd, Joint Managing Director. The following year he retired.

Sir Hugh Beaver's activities were legion: after World War II he was a member of the Reith New Towns Committee (on whose principles the new towns were built), and of the working party on the building industry. He was Chairman of the Advisory Council of the Department of Scientific and Industrial Research (1954-56), of the Committee on Power Station Construction (1952-53), of the British Institute of Management (1951-54) and of the Committee on Air Pollution—which led to the Clean Air Act of 1956. From 1951-60 he was a Director of the Colonial Development Corporation and from 1956 onwards of Richard Thomas & Baldwins. President of the Federation of British Industries (1957-59), he was also Chairman of the Industrial Fund for the Advancement of Scientific Education in Schools. From 1958-63 he was Chairman of the governing body of Ashridge College. At one time President of the Institution of Chemical Engineers, he was Chairman of the British Association's Committee of Enquiry into the metric system. Honorary degrees were conferred upon him by three universities, including Cambridge. In 1943 he received a knighthood and in 1956 was created KBE.

In 1955 he lectured to the Conference on the Conservation of Natural Resources on 'An attempt to assess the avoidable waste of materials and resources due to air pollution' (1955, p. 82), and in 1960 delivered the sixth Graham Clark lecture on 'Engineering and civilization'. *Proceedings*, 1960, 16 (Aug.) 381.

Sir Hugh had much at heart the strengthening of links between industry and education and his uncanny intuition in assessing public reaction was never more evident than when the Treaty of Rome first came to the notice of the heads of British industry.

Elected an Associate Member in 1932, he became a Member in 1940.

He is survived by two daughters.

Alfred Raworth

who was born in 1882, died on 22 January, 1967.

Educated at St Aubyn's, Lowestoft, and Dulwich College, his practical training was with the Blowitt-Lindley Company in Manchester and Brush Electrical Engineering of Loughborough (1900-03). From 1903-12 he assisted his father, John S. Raworth (M), Consulting Engineer, mainly on electric traction work (tramways). This early experience was invaluable, since the introduction of electric railways in southern England on a large scale was imminent. Alfred Raworth was to prove the right man at the right moment.

In 1912 he joined the London & South-Western Railway as Chief Assistant to their Electrical Engineer, and over the next three years helped to prepare a report and estimates for electrification of the LSWR suburban lines. Later he stage-managed the launching of the scheme.

During World War I he served from 1915-18 in the RNVR, with the rank