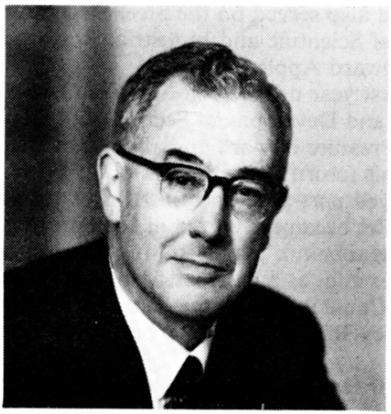
OBITUARY



Professor Alfred John Sutton Pippard, MBE, DSc, LLD, DTech, FRS

who was born on 6 April, 1891, died on 2 November, 1969. He was educated at Kingston School, Yeovil (later Yeovil County School). After a year's apprenticeship to Mr F. J. Bellamy of Yeovil, he studied at Bristol University, taking a First Class Honours Degree in Civil Engineering in 1911.

He was then articled for two years to A. P. I. Cotterill (F), of Bristol and Westminster. Experience as engineering assistant to the Pontypridd and Rhondda Joint Water Board from 1913–14 was followed by his appointment early in 1915 as Technical Adviser to the Director of the Air Department of the Admiralty (Commodore Murray Sueter), and he soon became responsible for the structural safety of all experimental aeroplanes for the RNAS.

With his intellectual calibre and specializing as he did in research into the theory of structures, he proved—then, as later—the right man at the right moment, and inevitably made his mark. On the amalgamation of the RNAS and RFC his section was transferred in 1917 to the Ministry of Munitions, where he was in charge until the end of World War I, dealing with the structural safety of all new types of heavier-than-air craft for the RAF.

After the war Pippard became a director of Ogilvie & Partners, Consulting Engineers of High Holborn, undertaking their structural work, which included acting as Consultant to firms engaged in aircraft manufacture and to the American, Japanese and British Governments on various technical problems. He also served on a number of committees concerned with aeronautical research and development, including that which investigated the R38 disaster. On the foundation of the Zaharoff Chair of Aeronautics at Imperial College in 1919 he was until 1922 Visiting Lecturer in aeroplane structures at the new school.

While outstanding as a structural engineer, it was in the academic field that Pippard became pre-eminent. Ahead of him in his early thirties lay over forty years of teaching, research and consulting work—first as Professor of Engineering in the University of Wales at Cardiff (1922–28); next at Bristol University, where he succeeded his old teacher, R. M. Ferrier (F), as Professor of Civil Engineering (1928–33) and then, until his retirement in 1956, as Professor of Civil Engineering in the University of London at Imperial College. The University then conferred upon him the title of Professor Emeritus and the College appointed him as Senior Research Fellow until 1964. From October 1956 until March 1957 he was Visiting Professor at Northwestern University, Illinois, USA. As a lecturer he had the supreme gift of making it all sound simple, masking the amount of hard slog that prefaced his apparently effortless delivery.

Apart from activities in teaching and research he was, with the late Sir Leonard Bairstow, CBE, FRS, the Air Ministry's Airworthiness Authority for the two giant airships R100 and R101 and also served on the Steel Structures Research Committee of the Department of Scientific and Industrial Research under the chairmanship of the late Sir Edward Appleton, FRS.

During World War II he was for the first year or so a full-time member of the Ministry of Home Security (Research and Development Section) and later for a time with the Ministry of Supply. Pressure of work and absence of staff on war service at Imperial College led to his return at the request of Sir Henry Tizard, FRS, and thereafter he was engaged part-time on direct war work in a consultative capacity. It was then that he became involved in such projects as self-sealing petrol tanks for aircraft, 'Habbakuk', 'anti-uplift', the design of camouflaged light 'hides' for aeroplanes and, as a member of the Structure Committee of the Scientific Advisory Council under the late Sir Ralph Freeman, in the development of the Bailey Bridge and other projects at the Bridging Establishment, Christchurch.

In 1951 he was appointed Chairman of the Thames Pollution Committee of the Ministry of Local Government and Planning (later, of Housing & Local Government), and continued as such until their Report was published ten years later. He was recently commissioned by Westminster Council to advise on the Lisson Green flats scheme after the Ronan Point Skyflats collapse at Canning Town in May 1968.

Professor Pippard ranks high among the eminent men who have given devoted service to the Institution, of which he became President in 1958. A Member of the Council from 1944–49 and 1950–54, he shouldered much responsibility as Vice-President (1954–58) during Sir Arthur Whitaker's illness and 3-months world tour. With his passion for the dissemination of learning, he gave a remarkably polished Presidential Address,* his main theme being the professional status of engineers and the need for increased theoretical knowledge. A casual attitude towards this last reminded him of Lord Melbourne, who once remarked to Queen Victoria, 'I do not know why there is all this fuss about education—none of the Paget family can read or write and they do very well'.†

During his term as President he succeeded Sir Allan Quartermaine as the Institution representative on the General Board of the National Physical Laboratory, was appointed by them to the Executive Committee and served on it for over six years. He was a member of the Education and Training Committee for most of his twenty years on the Council and its chairman for many years. He also served on the special committee which very nearly effected an amalgamation of the Institutions of Civil and Municipal Engineers and on the committee which attempted to secure closer co-operation with the Institutions of Electrical and Mechanical Engineers and establish an Engineering Centre in Great George Street.

Pippard was awarded the MBE in 1918 for services connected with the war. He received the degree of DSc at Bristol in 1920 and was elected a Fellow of the Royal Society in 1954. He received the honorary degrees of LLD (Bristol), DSc (Birmingham) and DTech (Brunel). On the joint nomination of the

* P.12 (Jan. 1959), 1.

† From 'Lord M' by Lord David Cecil, Constable, 1954.

Presidents of the Institution and the Royal Society he received the James Alfred Ewing Medal for 1963. He was a Fellow of Imperial College, an Honorary Fellow and Honorary Member of the City and Guilds of London Institute, an Honorary Member of the Institution of Royal Engineers and an Honorary Fellow of the Institution of Public Health Engineers.

He delivered the Unwin Lecture in 1949 and the James Forrest Lecture in 1961.

He was the Author of several books on theory of structures and of his 67 published papers the selection given below illustrates his broad range. For six of those presented to the Institution, Telford Premiums were awarded, although while a Member of Council he was ineligible under the rule then in force to receive a share in two of them. As a student he received a Miller Prize for a paper read to the Bristol and South Wales Association of Students.

He was a life Fellow of the American Society of Civil Engineers and for over 50 years an Associate Fellow or Fellow of the Royal Aeronautical Society, on whose Council he once served.

Elected to Corporate Membership of the Institution in 1916, he was transferred to the senior grade in 1927.

His wife died in 1964 and he is survived by two sons, one of whom, Professor Brian Pippard, is John Humphrey Plummer Professor of Physics at Cambridge.

Publications:

Books

'Handbook of strength calculations' (with J. L. Pritchard). Ministry of Munitions, Aircraft Production Technical Department, 1918.
'Aeroplane structures' (with J. L. Pritchard). Longmans, 1919 and 1935.
'Strain energy methods of stress analysis.' Longmans, 1928.
'The analysis of engineering structures' (with J. F. Baker), Arnold, 1936, 1943, 1957 and 1968.
'The experimental study of structures.' Arnold, 1947.
'Studies in elastic structures.' Arnold, 1952.

Papers presented to the Institution

'An application of the principle of superposition to certain structural problems.' J. 7 (Jan. 1938), 447. Corrigendum: J. 8 (Apr. 1938), 321.
'The approximate estimation of safe loads on masonry bridges.' CEW I, 365 (1948).
Presidential Address. P. 12 (Jan. 1959), 1.
'The functions of engineering research in the university.' Unwin Memorial Lecture (1949). J. 33 (Feb. 1950), 265.
'Public health engineering in America.' CCE, Jan. 1950, 5.
'Stresses in a restrained pipe-line.' J. 35 (Jan. 1951), 170.
Correspondence, J. 36 (Oct. 1951 Suppl.), xxi.
'Elastic theory and engineering structures' (James Forrest Lecture, 1961). P. 19 (June 1961), 129.
— with Prof. de G. Allen, L. Chitty and R. T. Severn. 'The experimental and mathematical analysis of arch dams with special reference to Dokan.' P. I., 5 (May 1956), 412.
— with R. J. Ashby. 'An experimental study of the Voissoir Arch.' J. 10 (Jan. 1939), 383. Correspondence: J. 12 (Oct. 1939), 371.
— with L. Bairstow. 'Determination of torsional stresses in a shaft of any cross section.' (S.) P. 214 (1921–22) 291.
— L. Chitty. 'Repeated load tests on a Voissoir Arch.' J. 17 (Nov. 1941) 79.
— — 'The stresses in an extensible suspension cable.' J. 18 (June 1942), 322.
— — 'Some problems presented by cable bracing.' D (S. & B.), No. 10 (1944–45) 3. Discussion: 28.

— — 'Experiments on the plastic failure of cylindrical shells.' CEW 3, 2 (1948).
— — 'The effects of propping an arch.' CEW 3, 113 (1948).
— — 'The determination of the stresses in an arch dam from a rubber model.' P. I., 5 (May 1956), 259. Correspondence: P. 6 (Jan. 1957) 131.
— — 'Stresses and deformations in elastic frames.' P. 16 (June 1960), 171.
— J. Z. Makowski. 'Experimental analysis of space structures, with particular reference to braced domes: with a note on stresses in supporting ring girders.' P. III (Dec. 1952), 420. Correspondence: P. III, 2 (Aug. 1953), 337.
— S. R. Sparkes. 'Simple experimental solutions of certain structural design problems.' J. 4 (Nov. 1936), 79. Correspondence: J. 6 (Oct. 1937), 340.
— E. Tranter and L. Chitty. 'The mechanics of the Voissoir Arch.' J. 4 (Dec. 1936), 281. Discussion: J. 6 (June 1937), 5.
— J. P. A. de Waele. 'The loading of interconnected bridge-girders.' J. 10 (Nov. 1938), 97.

Other Papers (*brief selection, illustrating range*)

'Report on a series of destruction tests upon Thomas biplanes and the relation between actual and calculated strength.' Admiralty Air Dept, 1917, CIM 20.
'The effect of a variation in load factor upon the structural weight and performance of an aeroplane.' HMSO, R & M 645, 1919.
'The stresses in a uniformly rotating flywheel.' P. Inst Mech E, 1924.
'The stresses in a flywheel due to acceleration.' P. Inst Mech E, 1926.
— with J. F. Baker. 'On an experimental verification of Castigliano's principle of least work and of a theorem relating to the torsion of a tubular framework.' Phil. Mag. 1925.
— with W. H. Glanville. 'Primary stresses in timber roofs.' Building Research Paper 2, HMSO, 1926.
— with M. J. White. 'The stresses in a wire wheel with non-radial spokes under loads applied to the rim.' Phil. Mag. 1932.