

**OBITUARY**

## Ian Frank Symons 1941–93

Dr Ian Symons died peacefully on 14 June 1993, after a long illness. He will be remembered especially for his early work on the stability of earthworks and latterly for his considerable contributions to the understanding of earth-retaining structures.

Ian Frank Symons was born on 3 January 1941 at Lyndhurst, Hampshire. After graduating in civil engineering from Birmingham University in 1963, he joined the Road Research Laboratory at Harmondsworth as a Scientific Officer. He soon became a team leader within the Soils Section, working on laboratory and field studies of the performance of cement-stabilized materials for use in pavement foundations.

On being promoted to Senior Scientific Officer in 1967, Ian became leader of a team investigating problems of major instability in highway earthworks. He initiated and carried out the first large-scale survey of highway instability problems in relic landslip areas and overconsolidated clays. He was also responsible for studies of the problems of building embankments on compressible subsoils. An important contribution that evolved from this work was the use of site-monitoring techniques, in association with stability charts, thus allowing the optimum rate of construction to be attained. This proved to be an early, and very successful, example of the observational method, which is still widely used today.

In 1971, at the age of only 30, Ian was promoted to Principal Scientific Officer and took over as Section Leader of a group engaged in research on slope stability problems, as well as the performance of earth-retaining structures and the pressures acting on them. During this period, he designed the pilot-scale retaining wall at the Transport and Road Research Laboratory (TRRL), which has been used widely to study compaction-induced and swelling pressures in backfills placed behind retaining walls.

In 1973 Ian became a chartered member of the Institution of Civil Engineers, and in 1974 was awarded a master's degree in foundation engineering by Birmingham University.

For the two-year period 1974–76, Ian was seconded to Sir William Halcrow and Partners as a Principal Engineer. Here, he worked on engineering appraisals of coal tips in South Wales, following the Aberfan disaster, and on a survey of the stability of an old canal system, following a piping failure. He was also responsible for the



ground investigation and preliminary design of piled foundations for the Orwell Crossing, near Ipswich; this included the longest single span concrete road bridge of its day in the UK.

On returning to the TRRL in 1976, Ian took over a section concerned with research on the preservation of underground services. This work involved wide-ranging studies of the ground movements caused by trenching and the effects of such movements on adjacent pipes, together with studies of the effects of stresses induced in underground services by traffic loading.

In 1983 Ian returned to studies on retaining walls, taking over as Section Leader of the Earth Retaining Structures and Foundations Section. He assembled a large team to undertake a comprehensive programme of research composed of extensive field studies of the behaviour of actual structures, complemented by centrifuge modelling, pilot-scale and laboratory tests, and analytical studies. In 1985 he was awarded the George

Stephenson Gold Medal by the Council of the Institution of Civil Engineers for a paper in *Géotechnique* on the performance of a propped, embedded retaining wall at the Bell Common Tunnel.

Ian was appointed Honorary Visiting Professor to the Geotechnical Engineering Research Centre at City University in May 1987. Ian considered this a great honour and took to the role with his customary enthusiasm. The resulting collaboration proved to be an inspiration to Ian and a benefit to the students.

In recognition of the outstanding contribution he had made to work on geotechnical engineering at the TRRL, Ian was promoted to Senior Principal Scientific Officer in July 1988. In 1991 he was awarded the degree of doctor of engineering by Birmingham University for his thesis on research in geotechnical engineering for highways. On the reorganization of the TRRL to become the Transport Research Laboratory in 1992, Ian was appointed a Research Fellow, as well as a Senior Project Manager.

Ian could be regarded as a complete all-rounder, with the ability to carry out meticulous and detailed planning at the start of a project, through all aspects of its conduct, to the mathematical analysis and interpretation at its conclusion. Throughout his varied career, the outstanding characteristic of Ian's work was his clear engineering appreciation of complex soil and soil-structure interaction problems. His insight into often complicated phenomena enabled him to develop new understanding and modify design procedures to be suitable for use by both designers and code writers. This was augmented by an astute ability to dovetail together his considerable personal strengths with those of his team, and colleagues in universities, consultants and contractors. The resulting amalgam has, without doubt, led to considerable advances in the status and quality of geotechnical engineering, particularly for highways.

As a result of his high standing in the profession, Ian was frequently invited to prepare papers and make presentations at national and international conferences, meetings and symposia. He was always in demand for his opinions and advice on steering groups, committees and panels. This resulted in his serving on a large number of committees for, among others, the Science and Engineering Research Council, the Construction Industry Research and Information Association, the British Geotechnical Society, the Institution of Civil and Structural Engineers and the British Standards Institution. In the latter case, he was a major contributor to the drafting of BS 8002 and had commented extensively on Eurocode 7. At the time he was taken ill, he had laid the founda-

tions of a TRL symposium on the use of the observational method in geotechnical engineering, a subject which formed a common thread throughout his career.

To his colleagues in the geotechnical community, Ian will be remembered as a great enthusiast, always prepared to discuss technical problems. Often, when unhappy with a solution arrived at in group discussions, he would continue working by himself until he had resolved the difficulties. This approach would invariably produce a much clearer understanding of the problem and sometimes provide a new insight into the technical issues. Although he had strong views on many topics, he was always patient and courteous with those holding disparate opinions. He was truly a gentle man.

On a personal level, Ian was a delightful companion, with an amusing fund of anecdotes. He had a keen interest in the wellbeing of all those working around him and in developing the careers of his staff. To his widow, Eve, and to his three sons, Rupert, Alexander and Nicholas, we extend our sincere condolences, together with those of friends and colleagues worldwide, who have expressed their sadness at his untimely death.

Those who had the privilege to know and work with Ian, will remember him for his tireless energy and his great passion for all aspects of geotechnical engineering. Indeed, it should be an inspiration to us all that, in spite of his career being so tragically cut short, he accomplished so much in so little time.

R. T. Murray, M. P. O'Reilly and J. Temporal

#### MAJOR PUBLICATIONS BY RESEARCH TOPIC

##### *Stability of earthworks and slopes*

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- Trott, J. J., Taylor, R. N. & Symons, I. F. (1984). Tests to validate centrifugal modelling of flexible pipes. *Ground Engrg*, **17**, No. 6, 17–28.
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