**HEADLINE: OBITUARY: PROFESSOR SIR ALEC SKEMPTON**

**BYLINE:** Peter Vaughan Skempton: doyen of soil mechanics Godfrey Argent

**BODY:**

ALEC SKEMPTON was one of the most influential British civil engineers of the 20th century.

The discipline of Soil Mechanics, the application of engineering science to many different materials, was a late arrival in the theory of civil engineering, perhaps because it involves the complexities of geology. It was formulated by the distinguished Austrian engineer Karl Terzaghi in Istanbul in the 1920s and started to be applied within 10 years. In 1937 Skempton took up the new subject with enthusiasm. He rapidly became pre-eminent in its British development and the doyen of the subject in Britain for the last 50 years. Born in Northampton in 1914, the only son of Alec and Beatrice Skempton, he was educated at Northampton Grammar School. He went on to study Civil Engineering at the City & Guilds College, then a distinct part of Imperial College, London. Here he developed an interest in geology and an ambition to do research, as well as taking a first class degree and playing on the 1st XV.

He then started research in concrete. However, a job in the concrete section of the Building Research Station at Garston, Hertfordshire, was offered. The opportunity to do research with a salary was then
rare. He took a Master of Science degree by research and moved in 1936. A soil-mechanics section had just been set up at Garston led by Leonard Cooling. Attracted by the new subject, Skempton transferred to work under Cooling.

There followed a very active period in which the new subject was developed and tried and tested in numerous field applications. Of particular interest was the work done on the collapse of the embankment of Chingford Reservoir in north London during its construction in 1937. It was built faster than was usual, leaving insufficient time for consolidation and gain in strength of the soft clay foundation. Karl Terzaghi was brought in by the contractor to give a second opinion. He agreed with the conclusions of the young Skempton. A friendly relationship involving mutual respect developed.

Skempton married Mary (known as Nancy) Wood, a graduate of the Royal College of Arts, in 1940; she was to be his constant companion and supporter until her death in 1993.

In 1945 he was invited to give some lectures on Soil Mechanics at the City & Guilds College by Sutton Pippard, head of the Civil Engineering department. In 1946 he joined the college full time. Within 10 years his soil mechanics group had gained international fame. A year-long postgraduate teaching course was established in 1950. Skempton had assembled a very talented staff, who were encouraged to follow a wide range of interests. The dominant theme remained the observation and solution of real engineering problems.

At this time Skempton was consulted on practical problems at the rate of one per month. The report on each one was meticulously bound by Nancy, who was, among other things, a professional bookbinder. The group still thrives today, perhaps due to the principles on which it was set up. In 1957 Skempton became the second President of the International Society of Soil Mechanics and Foundation Engineering, succeeding Terzaghi. He became Professor of Soil Mechanics in 1955 and head of the Civil Engineering department in 1957. He was elected Fellow of the Royal Society in 1961 and a founder Fellow of the Royal Academy of Engineering in 1976.

Skempton dealt with the full range of engineering problems. His synthesis of engineering and geology was particularly noticeable. He made contributions to geology itself, particularly Quaternary geology, so important to his interest in the stability of natural slopes. As the motorway programme developed, he was involved in slips on the Sevenoaks bypass, the M6 and the M4, all of which delayed or threatened to delay completion of these new roads. They involved pre-shearing of stiff plastic clays by Quaternary ground freezing. The slip on the M6 occurred contemporaneously to construction of the large embankment dam at Mangla in Pakistan. Similar shear surfaces were found in the foundation. Skempton was involved in studying the problem and recommending remedial action.

In 1984 the large embankment dam at Carsington in Derbyshire developed a slide just before it was finished. Skempton was asked by the owner, Severn Trent Water, to direct the investigations into the failure. These showed the important role of Quaternary geology and of progressive failure in plastic clays, which made the embankment considerably less safe than had been thought by its designers.

The third area in which Skempton worked was engineering history. He was President of of the Newcomen Society for the Study of the History of Engineering and Technology from 1977 to 1979 and wrote many papers. He played a significant role in developing the interest of the Institution of Civil Engineers in preserving their own history, helping to change an organisation which threw away old books when it wanted more space to one which has an active archival system and which publishes
books on engineering history. Typically, he did a lot of bibliographic research himself, producing, for example, Early Printed Reports and Maps (1665-1850) in the Library of the Institution of Civil Engineers (1977).

His great love outside engineering was classical music, and he became a competent flautist in adult life to enhance this enjoyment. He and Nancy were keen croquet players and active members of the Hurlingham Club for many years.

Skempton was an unusual man; a leader by example, not exhortation; a single-minded academic who considered research to be his first priority; a scholar whose approach required intimate association with practical engineering and real structures in the field; a polymath whose multiple interests reinforced and refreshed each other over a long and active career; an engineer who never claimed to be clever but who had a notable habit of being right. As a teacher he always debated with his juniors as an equal, but to those who had prepared their arguments inadequately he gave a very hard time, irrespective of their seniority. His own working habits were meticulous, and he would accept nothing until he had assembled, plotted and analysed the data himself, formed his own conclusions and written it down in his own elegant and much honed prose.

He was knighted in the Millennium Honours list for services to engineering, but said, "Mind, you are still to call me Skem."