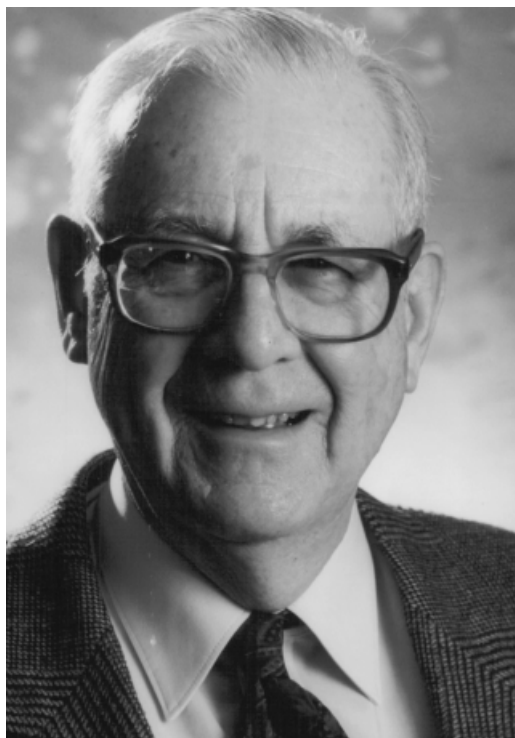


OBITUARY

George F. Sowers 1921–96



George F. Sowers

George Sowers died in October 1996 at the age of 75. Active in teaching and consultancy until his death, he was one of that rare breed of person who successfully integrated the practice of geotechnical engineering and engineering geology with research and teaching.

He obtained his B.S. degree in civil engineering from the Case Institute in 1942, and worked in his father's consultancy firm and with the Tennessee Valley Authority before joining the US Navy as an instructor. After his naval service he joined a group of young men from the USA and abroad as students of Professor Terzaghi and Casagrande of Harvard University, where he graduated with a masters' degree in 1947.

While he was at Harvard he responded to a joint advertisement by Georgia Institute of Technology and LAW Engineering for a teaching post at Georgia and a consultant for LAW, which at the time was a small testing laboratory. Thus in 1947 began a fruitful period for both Georgia Tech and LAW that lasted to his death and led to LAW becoming one of the foremost engineering firms of its type in the world and which merged with the British firm of Sir Alastair Gibb and Partners in 1989.

For almost 50 years, George Sowers concurrently held two distinguished positions: as a LAW senior engineering consultant and as a Georgia Tech professor, later being awarded the titles of Regents Professor and Emeritus Professor by the latter institution. He had exceptional physical and mental stamina. In the early 1970s, in addition to teaching three days per week at Georgia Tech and consulting on engineering problems at LAW, he also served as Chairman of LAW's Board of Directors.

His consultancy activities covered a wide range of projects, including embankment design for earth, rock fill and concrete dams and the design and construction of subways and tunnels. He was also a consultant for the Architect of the Capital in Washington DC and for the US Bureau of Reclamation. He participated in many overseas assignments, including projects in Argentina, Bolivia, Canada, Indonesia, Pakistan and the Ivory Coast.

He was a renowned teacher with a particular ability to expound on a range of case studies and practical examples from his wide experience, which made his lectures extremely popular with his students.

He was a prolific author, his list of technical papers being over 150. He was the author of eight books, including a textbook on introductory soil mechanics and foundations, of which four editions were published in the USA, in addition to being translated into Spanish and Taiwanese. During his last year of illness he worked fervently to complete his book on *Building on Sinkholes: Design and Construction of Foundations in Karst Terrain*, which has now been published by the American Society of Civil Engineers (ASCE).

The esteem in which he was held by his peers is illustrated by the number of awards bestowed on

him, including the Herschel Prize of the Boston Society of Civil Engineers (1976), the ASCE Middlebrookes Award (1977 and 1994), the Brooks Award (1990) and the ASCE Terzaghi Award (1995). He was the Terzaghi Lecturer in 1979 and the ASCE Martin Kapp Lecturer in 1985.

George Sowers was active and held office in many professional societies, including the ASCE, the American Society for Testing and Materials, the International Society for Soil Mechanics and Foundation Engineering (ISSMFE), the Earthquake Engineering Research Institute, the US Committee on Large Dams, the Seismological Society of America and the Association of Engineering Geologists. He was Chairman of the ASCE Geotechnical Engineering Division, Vice President of the ISSMFE and President of the Georgia Section of ASCE. He was elected as an Honorary Member of ASCE in 1986, and to the US National Academy of Engineering in 1994.

His energy and dedication was such that through his international consulting work, his writing, his work in professional societies and through his teaching, he became pre-eminent in his field. He loved his work and was virtually a full-time professor and a full-time consultant. It is difficult to appreciate that he did so many things so well—his students never felt neglected or short changed. A George F. Sowers Distinguished Graduate Student Award has been established at Georgia Tech to perpetuate his memory.

In 1944 George married Frances Lott, a mathematician and hydrologist. His Harvard bachelor colleagues greatly appreciated the hospitality given by the Sowers in their home. In over 50 years of marriage, Frances took a great interest in his work and gave him unstinted support, in addition to the voluntary community and church activity to which they both contributed. She survives him along with their four children.

—Hugh Sutherland

BIBLIOGRAPHY

- 1947 Model study develops stepped transition for Mr Morris stilling basin. *Civil Engng (ASCE)* Mar., 130.
- 1949 Charts for piling design developed from studies of soil bearing capacity and settlement. *Civil Engng (ASCE)* May, 183–184.
- 1949 (with G. H. Nelson). Effect of reusing soil on moisture–density curves, *Proc. Highway Res. Board* **29**, 482–487.
- 1950 How to cut costs on soil testing. *Engng News Record* **144**, No. 7, 36–37.
- 1951 (with G. B. Sowers). *Introductory soil mechanics*. New York: Macmillan (subsequent edns 1961, 1970, 1979).
- 1954 Soil problems in the Southern Piedmont region. *Proc. Am. Soc. Civil Engrs* **80** (SEP **416**).
- 1954 Modern procedures for underground investigations. *Proc. Am. Soc. Civil Engrs* **80** (SEP **435**).
- 1954 (with C. M. Kennedy). Effect of repeated load application on soil compaction efficiency. *Highway Res. Board Bull.* **93**, 61–64.
- 1955 Soil compaction and laboratory control. *Proc. 3rd Am. Georgia Highway Conf.* 73–81.
- 1955 (with J. G. Gulliver). Effect of varying tramping foot width on compaction of cohesive soil. *Proc. Highway Res. Board* **34**, 598–601.
- 1957 What contractors should understand about trend excavation and backfilling. *Roads Engng Const.* **95**, No. 5, 49, 51, 53, 54, 151–154.
- 1957 (with A. D. Robb and others). The residual lateral pressures produced by compacting soils. *Proc. 4th Int. Conf. Soil Mech. Found. Engng* **2**, 243–247.
- 1957 (with E. A. Miller). The strength characteristics of soil aggregate mixtures. *Highway Res. Board Bull.* **183**, 16–23.
- 1961 (with M. Fansold). The bearing capacity of friction pile groups in homogenous clay from model studies. *Proc. 5th Int. Conf. Soil Mech. Found. Engng* **2**, 155–159.
- 1961 (with C. E. Gore). Large scale pre-construction test of embankment materials for an earth rock dam. *Proc. 5th Int. Conf. Soil Mech. Found. Engng* **2**, 717–720.
- 1961 (with A. B. Vesic). Stress distribution beneath pavements of different rigidities. *Proc. 5th Int. Conf. Soil Mech. Found. Engng* **2**, 327–331.
- 1961 Use and misuse of earth dams. *Consult. Engr (USA)* **17**, 1, 106–114.
- 1961 (with C. E. Gore). Large scale pre-construction tests on embankment materials. *Proc. 5th Int. Conf. Soil Mech. Found. Engng* **2**, 717–720.
- 1962 (with H. L. Sally). *Earth and rockfill dam engineering*. London: Asia Publishing.
- 1963 Engineering properties of residual soils derived from igneous and metamorphic rocks. *Proc. 2nd Panama Conf. Soil Mech. Found. Engng* **I**, 39–62 (discussion); **II**, 541–542, 607–609, 626.
- 1964 Fill settlement despite vertical sand drains. *J. Soil Mech. Found. Div., ASCE* **SM5**, 289–302.
- 1964 *Soil stress–strain, strength, and earth pressure. Illinois Section lecture series*. New York: ASCE, pp. 1–31.
- 1964 Strength testing of soils. *ASTM STP* **361**, 3–31.
- 1965 Compressibility of broken rock and the settlement of rockfills. *Proc. 6th Int. Conf. Soil Mech. Found. Engng* **2**, 561–565.
- 1965 Georgia satellite flexible pavement evaluation and its application. *Highway Res. Record* **71**, 151–171.
- 1965 (with A. J. Glenn). Settlement of tall chimneys on residual soils derived from metamorphic rock. *Proc. Behav. Soil Under Stress, Indian Inst. Sci.* **3**, C6.
- 1967 (with G. B. Sowers). Failures of bulkhead and excavation bracing. *Civil Engng (ASCE)* Jan., 72–77.
- 1967 (with C. M. Kennedy). High volume changes clays of the South Eastern coastal plain. *Proc. 3rd Panama Conf. Soil Mech.* **2**, 99–120.
- 1967 Philosophy of education for soil mechanics and foundation engineering. *Proc. 3rd Panama Conf. Soil Mech.* **2**, 433–436.

- 1968 Foundation problems in sanitary landfills. *J. Sanit. Div. ASCE SAI*, 103–116 (*Trans. ASCE* **134**, 472–473).
- 1969 Safety factor in excavations and foundations. *Highway Res. Record* **269**, 23–34.
- 1969 (with B. J. St John and C. E. Weaver). Slickensides in residual soils and their engineering significance. *Proc. 7th Int. Conf. Soil Mech. Found. Engng* **2**, 591–597.
- 1971 Changed soil and rock conditions in construction. *J. Constr. Div. ASCE CO2*, 257–269 (*Trans. ASCE* **139**, 84).
- 1971 Landslides in weathered volcanics in Puerto Rico. *Proc. 4th Panam Conf. Soil Mech.* **2**, 105–115.
- 1971 (with H. T. Whitney and others). Slides in residual soils from shale and limestone. *Proc. 4th Panam Conf. Soil Mech.* **2**, 139–152.
- 1971 (discussion). Review of shearing strength of rock-fill. *J. Soil Mech. Found. Engng Div., ASCE SM5*, 1971, 794.
- 1972 (with L. D. Wheelless). Mat foundation and pre-load fill, Veterans Administration Hospital, Tampa, Fla. *Proc. Perform. Earth Earth-supported Struct.* **2**, 939–951.
- 1973 Remote sensing: a new tool in site investigation. *Law Engng Test. Bull.* **G5**.
- 1973 Settlement of waste disposal fills. *Proc. 8th Int. Conf. Soil Mech. Found. Engng* **2-2**, 207–210.
- 1974 Analysis and design of lightly-loaded foundations. *Proc. Anal. Design Geotechnol. Engng (ASCE)* **2**, 49–78.
- 1974 Education of engineering students to become engineers. *Proc. Civil Engng Educat. (ASCE)* **1**, 320.
- 1974 Safety of small dams. *Proc. Engng Found. Conf.*
- 1975 Failures in limestones in humid subtropics. *J. Geotechnol. Engng Div., ASCE GT8*, 771–787.
- 1975 In foundation construction, expect the unexpected. *World Construct.* **28**, 8 Aug., 50–55.
- 1975 Pile driving problems in the south eastern US. *Proceedings of the piletalk seminar.*
- 1975 Settlement in terrains of well indurated limestone. *Proceedings of a conference on the analysis and design of building foundation*, Lehigh.
- 1976 Dewatering rock for construction. *Proc. Rock Engng. Found Slopes (ASCE)* **I**, 200–216.
- 1976 Foundation bearing in weathered rock. *Proc. Rock Engng. Found Slopes (ASCE)* **II**, 32–42.
- 1976 Mechanism of sub-evidence due to underground openings. *Transport Res. Record* **612**, 2–8.
- 1976 (discussion). Sanitary landfill settlement rates. *J. Geotechnol. Engng Div., ASCE GT6*, 653.
- 1977 Schäden an Dämmen. *Ver. Inst. Grundb. Bod. Fels u Verk (RWTH Aachen)* **4**, 191–242.
- 1977 Evaluation of dam safety, session II report: failure a near failure. *Proceedings of the evaluation of dam safety (ASCE)*, pp. 61–72.
- 1978 Reconnaissance report on the failure of Kelly Barnes Lake Dam, Toccoa Falls, Georgia. Washington, DC: US Committee on Natural Disasters.
- 1978 (with D. C. Royster). Landslides: chapter 4: field investigation. *Transport Res. Board Special Report* **176**, 81–111.
- 1979 Application of results of exploratory borings and index properties to soil engineering problems. *Proc. Int. Symp. Soil Mech.*, Oaxaca, **1**, 3–16.
- 1979 Foundation modules for mat on sand. *Proc. 6th Panama Conf. Soil Mech. Found. Engng* **2**, 315–321 (closing speech, 3, 61–63).
- 1981 Lost ground subsidence in two shallow tunnels. *Proc. 6th Panama Conf. Soil Mech. Found Engng Special Session. Soft Ground Tunnelling*. Rotterdam: Balkema, pp. 75–78.
- 1981 Pile problems related to the geology of the south eastern US. *Proc. Geopile Conf.* 143–173.
- 1981 Rock permeability or hydraulic conducting an overview. *Proceedings of permeability and groundwater containment transport (ASTM)*, pp. 65–83.
- 1981 There were giants on the earth in those days. *J. Geotechnol. Engng Div., ASCE GT4*, 383–419.
- 1982 (discussion). Geotextile-reinforced unpaved road design. *J. Geotechnol. Engng Div., ASCE GT12*, 1662.
- 1983 In search of ancient engineers. *Civil Engng (ASCE)* Oct., 46–50.
- 1984 Correction and protection in limestone terrain. *Proceedings of sinkholes: their geology, engineering and environmental impact*, pp. 373–378.
- 1984 Education for geotechnical engineering of the future. *Civil Engng Practising Design Engrs* **3**, No. 9, 947–957.
- 1984 (with K. P. Atkins, Jr). Tunnelling under building with their roof cover. *J. Geotechnol. Engng Div., ASCE GT3*, 311–317.
- 1985 Alternative procedures for investigating failure. *Proceedings of reducing failures of engineered facilities (ASCE)*, pp. 31–40.
- 1986 Correction and protection in limestone terrain. *Environ. Geol. Water Sic.* **8**, Nos. 1–2, 77–82.
- 1986 Failure investigations for forensic engineering. *Proceedings of forensic engineering: learning from failure (ASCE)*, pp. 7–21.
- 1987 Investigating failure. *Civil Engng (ASCE)* May, 83–85.
- 1991 The human factor in failures. *Civil Engng (ASCE)* Mar., 72–73.
- 1992 National Landslides. *Proc. Stability Perform. Slopes Embankments (ASCE)* **II**, 804–833.
- 1993 (with J. Davie and others). Jatiluhur Dam: Problems and rehabilitation. *Proceedings of geotechnical practice in dam rehabilitation (ASCE)*, pp. 17–34.
- 1993 Human factors in civil and geotechnical engineering failure. *J. Geotechnol. Engng Div., ASCE GT2*, 238–256.
- 1993 (discussion). Effects of freezing on hydraulic conductivity of compacted clay. *J. Geotechnol. Engng Div., ASCE GT11*, 1864–1865.
- 1994 Residual soil settlement related to the weathering profile. *Proc. Conf. Vertical Horizontal Deform. Found. Embankments (ASCE)* **2**, 1689–1702.
- 1995 Forensic engineering: state-of-the-art. *Proc. 10th Panama Conf. Soil Mech.* **4**, 677–703.
- 1996 *Building on sinkholes: design and construction of foundations in karst terrain*. New York: ASCE.