



George Winter

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1907–1982

By Anton Tedesko

George Winter was born on April 1, 1907, in Vienna, Austria, and died November 3, 1982. At the time of his death, he was Class of 1912 Professor of Engineering Emeritus at Cornell University.

An engineer, teacher, researcher, and industry consultant, George Winter became chairman of Cornell's Department of Structural Engineering in 1948. He served in this position for twenty-two years, during which time he brought international distinction to himself, to the department, and to the university. He was a member of several international engineering groups, was fluent in four languages, and maintained friendships worldwide.

George Winter grew up in Vienna during a time of great cultural and intellectual activity. As a youth, he was exposed to and influenced by what went on in the worlds of science, art, literature, drama, and music. The Vienna intellectual climate contributed to his well-rounded education. After studying engineering for a year in Vienna, he moved first to Stuttgart and then to Munich, where he received his diploma engineer degree from the Institute of Technology in 1930.

In his first job, he worked on the construction of the first building that was built higher than permitted under the conventional building code of Vienna. In July 1931 George Winter and Anne Singer were married, and in April 1932 they

journeyed to Russia, where George secured a position in structural design and construction under Russia's first Five-Year Plan. He also held a teaching assignment at the Mining Institute in Sverdlovsk.

Their son Peter was born in August 1934. Because the Russia of the purges was not a place in which the Winters wanted to remain, they returned to Austria in early 1938. Winter was then offered a fellowship at Cornell University, and in August 1938 he enrolled at Cornell as a doctoral student in structural engineering. Two years later, he received his Ph.D. and became a staff member at Cornell, a position he retained throughout his life.

George's entry into the research field of steel structures was timely. An expanding market for thin steel structures had created a demand for rational standards of design. In addition, Cornell's Dean Solomon Cady Hollister had obtained support from the industry to conduct the required research. His educational background and experience in engineering practice provided him with the correct perspective for this type of design-oriented research program.

His work led to the publication of the first edition of the *American Iron and Steel Institute Specification for the Design of Cold-Formed Steel Structural Members* in 1946. Most of the research and writing of this code, and of many subsequent editions, can be attributed to George Winter. The code became the generally accepted international standard in the field.

As an outgrowth of his work in thin steel structures, George Winter also became deeply involved in the writing of standards for heavier steel construction, serving for many years as a key member of the American Institute of Steel Construction Specification Committee. He was also chairman of the Column Research Council.

His research contributions in the steel area included investigations of the buckling and postbuckling strength of thin walled shapes, the effects of cold-forming, and ductility effects, as well as torsional and flexural buckling. In addition to his contributions in cold-formed steel and structural steel

design, Winter's interest in reinforced concrete structures spanned his entire professional career. His reinforced concrete research centered on such topics as long-term deflections, microcracking, progressive fracture and failure, and inelasticity and strength.

He devoted much time and energy to the revision and improvement of the Building Code of the American Concrete Institute (ACI), providing leadership for the introduction of a rational approach to structural safety involving load and resistance factors. For twenty-eight years, until his death, Winter was a member of the ACI Building Code Committee and repeatedly the chairman of one of its subcommittees. His influence on the development of reinforced concrete designs was further extended through his efforts as coauthor of the fifth through ninth editions of the book *Design of Concrete Structures*.

Although George Winter exercised great influence on many aspects of structural engineering research and practice, perhaps his greatest impact was in his role of teacher. He was curious to know the basis of every idea when it was stripped down to its roots, and he could explain complex ideas simply and clearly. He demanded much of himself and of others in his quest for improvement.

As Professor Floyd Slate put it in the preface to a commemorative volume published at the time of Winter's retirement in 1975, "The atmosphere which he consistently created in the classroom was exhilarating: the clarity, the stimulation, the thought-provoking questions, the personal interactions, the sincerity, the dedication—all of these things and more made his teaching both a challenge and an excitement." This same commitment to excellence and to nurturing the ability to think critically extended to his work as thesis adviser to his many graduate students. Winter taught many engineers who have gone on to become leaders in the structural engineering profession.

His presence was felt far beyond Cornell's College of Engineering. He played a central role in the intellectual life of

the university, particularly in the arts and sciences, through which he maintained many friends. George Winter was a strong supporter of music, and he took an active interest in the musical well-being of the Cornell community. He served on and chaired the Faculty Music Committee and was chairman of the Friends of Music at Cornell.

He was a longtime member of the Andrew D. White and Herbert F. Johnson museums and of the Cornell Library Associates. Prehistoric archaeology was another interest George pursued for many years. He was a member of the American Archaeological Institute and participated in the Smithsonian Archaeological Expedition to Egypt in 1966.

Winter was elected to membership in the National Academy of Engineering in 1970. He served on the Committee on Membership for three years, and he also served on a committee of the technical panel of the National Research Council's Advisory Committee to the Department of Housing and Urban Development. As a member of this committee, he prepared a critique of the criteria developed by the National Bureau of Standards, which NBS subsequently changed.

George Winter was named an honorary member of the American Society of Civil Engineers and of the American Concrete Institute. He received three national awards from the American Concrete Institute: the Wason Research Medal for Research (1965), the Henry C. Turner Medal (1972), and the Joe W. Kelly Award (1979). He also received three national awards from the American Society of Civil Engineers: the Leon S. Moisseiff Award (1948), the Croes Medal (1961), and the E. E. Howard Award (1981).

In September 1982 Winter received the prestigious International Award of Merit in Structural Engineering from the International Association for Bridge and Structural Engineering, "in appreciation of his outstanding contributions in research and teaching of structural engineering." He was also awarded an honorary doctorate from his undergraduate university, the Technological University of Munich.

He was the author or coauthor of more than eighty technical

papers, many of which dealt with the results of his research. He also served as visiting professor at the California Institute of Technology, the University of Michigan, the University of California at Berkeley, and the University of Liège. He lectured at the universities of Glasgow, Bristol, and Cambridge in the United Kingdom.

His professional accomplishments were many, but his first love was his family. The Winter family enjoyed spending vacations in the Alps, mountaineering with or without skis, or at their summer home on Mount Desert Island in Maine.

George Winter is survived by his widow, Anne Winter, of Ithaca, New York, and West Tremont, Maine, and by a son, Peter Michael. Peter is professor and chairman of the Department of Anesthesiology at the University of Pittsburgh and lives in Pittsburgh with his wife and two children.

George Winter was unique in being able to excel in so many roles—first and foremost, as a teacher who nurtured critical thinking, but also as a researcher, an author, a member of professional committees, a developer of building codes, and a leader in engineering education and campus cultural life. He greatly expanded the horizons of his students, colleagues, and friends.

