Professor Emeritus Floyd Slate died in Florida at the age of 88. He was a professor of materials in the Department of Engineering Mechanics and Materials (the precursor of the Department of Theoretical and Applied Mechanics) and subsequently of the Department of Structural Engineering in the School of Civil and Environmental Engineering from 1949 until his retirement in 1987. Born in Indiana and raised on a farm in that great state, Slate was no stranger to hard work. He attended Purdue University where he majored in chemistry, receiving a B.S. in 1941, a M.S. in 1942 and a Ph.D. in 1944. From 1946-49 he was an Assistant Professor at Purdue, where he worked on the Joint Highway Research Project as Chief Chemist, and on the Manhattan Project as Chemical Supervisor.

He joined Cornell University in 1949 as an Associate Professor, received full professor status in 1973, specialized in engineering materials – particularly concrete and masonry – and studied the relationship between internal structure and engineering properties. His passion and deep expertise in all things related to concrete
materials began with his Ph.D. dissertation at Purdue, where his background in chemistry was called upon to advance the development of a new type of paint for marking highway pavements. In what became his characteristic method for tackling a new problem, he threw himself into the study of Portland concrete to fully understand the substrate to which his new, extended-durability paints were to adhere. As is absolutely true in the case of Professor Floyd Slate, “the rest is history.” His background in the well-organized literature of pure chemistry, combined with his in-depth exploration of the concrete literature led to a life-long passion for that literature and a firm requirement that each of his graduate students match their time in the laboratory with equal time in the Cornell library, where, Floyd was fond of saying, that within the extensive collections at Cornell, “A scholar can follow a footnote home.”

Alumni fondly and enthusiastically recall the courses he taught: Engineering Materials, Differential Equations for Engineering, Strength of Materials, Structure and Properties of Materials, and Advanced Plain Concrete (concentrating on the material itself), to name a few. His materials courses were always accompanied by a weekly hands-on laboratory component, most frequently under the watchful and dedicated supervision of Stanley Olsefski, professional lab technician extraordinaire and Floyd’s co-author and long-time friend.

Among the innovative and interdisciplinary courses not previously offered on campus, Slate co-developed “Low-Cost Housing” with Professor Henry Richardson of Cornell’s College of Architecture. The course provided a forum in which Floyd could engage students across campus and share knowledge and insight gained in his extensive international travel to study indigenous construction methods, materials, and cultures. Within a comfortable setting of his enumerable stories and broad collection of slides and photos, students took on individual projects to explore a country or region and to suggest new ideas for improving the human condition. While encouraging creativity, Slate was quick to point out that advances in the technology or economy of building materials or systems must be compatible with the culture and traditions of any particular society.
for such innovation to be successful, and his lectures always included photos of well-intentioned technologies that led to social failures. His breadth of knowledge on the topic enabled him to compile the publication, "Low-Cost Housing for Developing Countries, an Annotated Bibliography 1950 – 1972."

Professor Slate supervised many graduate students who majored in structural and transportation engineering, but he may be best known in the field of concrete for his landmark, break-through work on identifying and proving the existence of hair’s-width “microcracks” within the concrete matrix, and correlating these cracks with the macro behavior of reinforced and unreinforced concrete under multi-axial loading. The existence of such cracks had been postulated, but it was only when Slate and Olsefski recovered and refurbished a used X-Ray machine from the Cornell School of Veterinary Medicine, and pioneered techniques for using it to study thin slices of concrete, that the cracks were positively identified and mapped. Slate and his co-authors then went on to describe the effects of these cracks on the most basic of concrete behaviors: the shape of the stress-strain curve, and that was only the beginning of a long-list of award-winning papers. Slate’s successors extended X-Radiography to Neutron Radiography, and sustained what has become the Cornell hallmark of connecting micro- to macro-behavior.

On these pivotal projects and papers Floyd worked closely with many of his CEE colleagues such as George Winter and Arthur Nilson. He also interacted with colleagues at other Universities, particularly in the Mideast and South Pacific. He was a member of the American Institute of Chemists (AIC), American Concrete Institute (ACI), American Society of Testing Materials (ASTM), and American Society of Civil Engineers (ASCE), and served on several professional committees. He won the ACI Wason Medal for Materials Research for the "best original research work in fields of cement and concrete" a remarkable three times, in 1957, 1965 and 1974. In 1983, he was the recipient of the ACI Arthur R. Anderson Award for “outstanding contributions to the advancement of knowledge of concrete as a construction material.” And in 1986, he won the Wason Medal for most meritorious paper published by the ACI. His work also contributed to Cornell’s structural engineering
laboratory earning ACI’s Charles S. Whitney Medal in 1988 for contributions to the field. In 1992, Floyd was elected to ACI Honorary Membership. Within Cornell CEE he won the award “for outstanding and consistent contributions to bettering faculty-student relations” and received top teaching recognition from Tau Beta Pi. Always looking for innovative solutions to practical problems, Floyd Slate was sought-after as a consultant to governments and industry and traveled to many foreign countries lecturing and consulting on concrete, masonry, corrosion, and indigenous, culturally compatible, affordable housing.

A key to Professor Slate’s success was that he liked nothing better than to be in his lab, and in that lab he absolutely insisted on painstakingly careful experimental technique. He had carried this passion from his Purdue training, where Floyd’s first Ph.D. student, Professor William Dolch (who went on to great renown in concrete research) recalled, “Professor Slate personally showed me exactly the right way to fold filter paper.” In the concrete, masonry, and timber labs at Cornell he enforced strict compliance with ASTM test methods, even to manually controlling rate of loading with older-generation hydraulic test machines not built to make such control easy. He equally applied the notions of scrupulous care and attention to detail in his early pre-computer, pre-finite-element analysis of stress and strain via numerical methods and the graphic “Point Matching” technique, working with Professor Harry Donald Conway and involving hundreds of tedious yet critical calculations. And when the analytical or experimental work was done, Slate required that his students “write it up in such manner that the reader could exactly duplicate the work in every detail.”

So complete was his mastery of concrete materials, and so keen was his interest in learning more that in only a few years he came to prominence as an invited speaker in the most influential national and international conferences and venues, where his published conference proceedings are every bit the landmark contributions of his work in more readily available journals. His personal friends and associates in the field constituted a virtual “Who’s Who” of concrete research, which has paid huge dividends to Floyd’s
subsequent students as an entree to that community by virtue of association with Professor Slate.

While Floyd Slate’s many outstanding and pivotal technical contributions can be readily verified and appreciated again and again in his beloved “Literature,” it may be on the non-technical side of his Cornell career that he made his most profound contributions. While always an award-winning teacher, he was also a mentor, equally willing to discuss career directions, teaching styles and policies, and advice for balancing career, family, and personal time. Further, his international travel gave Floyd a deep knowledge of languages, customs, traditions, and cultures. Dinner at Floyd and Midge’s house was always an international affair, with cuisine and guests representing many lands. After-dinner discussion was never about concrete (that was for the office), but always about insights from differing world cultures. Never-favoring any custom or belief system over another, Floyd embraced them all, searching to discover meaning and inspiration in words and their origins, rituals and their significance, and people and their hearts and minds. To become one of Professor Slate’s graduate students was to become a member of an international community, temporarily represented in Ithaca but sharing ideas and languages from faraway places. For Floyd each day was a celebration of Cornell’s international nature, mission, and opportunity.

Floyd Slate not only loved Cornell deeply and appreciated its countless technical, cultural, and social opportunities, but he loved the Finger Lakes region and counted it among the most beautiful and peaceful environments in the world (and he would know, having visited most of the world). Early one cool, crisp fall morning he called several colleagues that he knew to be photographers to alert them that the sky that day had an unprecedented clarity and shade of blue, and that he recommended that the schedule for the day be adjusted to take advantage of the illumination, which he knew would not last long. Likewise one recalls another day when Floyd received a letter informing him that one of his past students had just received a prestigious academic award at his home university in the Middle East. Floyd’s uninhibited joy in his student’s success knew no
bounds as he fairly danced around his office saying that it was “A great day for Cornell.”

Professor Slate is survived by his children, two daughters and one son. His beloved wife, Margaret – known to many as "Midge," predeceased him on August 16, 2004.

Kenneth C. Hover, Chair; John F. Abel