

Dr. Daniel C. Drucker
1918–2001
Graduate Research Professor Emeritus
University of Florida

Dr. Daniel C. Drucker, 83, died Sept. 1, 2001 of leukemia in Gainesville, FL. Few people have served the engineering profession with such dedication and distinction as did Dan Drucker. He was known as a brilliant scientist, a leader in engineering education, and an eloquent spokesman for the engineering profession. Dan was a past president of the American Society of Mechanical Engineers (ASME), the American Society for Engineering Education (ASEE), the American Academy of Mechanics (AAM), and the Society for Experimental Stress Analysis (SESA) (now known as the Society for Experimental Mechanics, SEM). He also served as president of the International Union of Theoretical and Applied Mechanics (IUTAM), being only the second American ever to serve in that office. Dan was one of the most honored persons in the field of applied mechanics.

Dan was known throughout the world for contributions to the theory of plasticity and its application to analysis and design in metal structures. He introduced the concept of material stability, now known as “Drucker’s Stability Postulate,” which provided a unified approach for the derivation of stress-strain relations for plastic behavior of metals. His theorems led directly to limit design; a technique to predict the load carrying capacity of engineering structures. Dan also made lasting contributions to the field of photoelasticity. His 1940 paper on three-dimensional photoelasticity has become a classic and “Drucker’s Oblique Incidence Method” is widely used in university and industrial photoelastic laboratories.

ASME established the Daniel C. Drucker Medal in 1997 to honor him for his contributions to applied mechanics in research, education, and leadership. The medal is bestowed on individuals in recognition of sustained, outstanding contributions to applied mechanics and mechanical engineering through research, teaching, and/or service to the community. Dan was the first recipient of the award, which was presented at an 80th birthday luncheon honoring him during the Thirteenth U.S. National Congress of Applied Mechanics in Gainesville, FL, in June 1998. ASME also honored Dan with the Timoshenko Medal, the Thurston Lectureship, the ASME Medal, and Honorary Membership. For 12 years he was the Editor of the *Journal of Applied Mechanics*.

Dan was a highly esteemed member of SESA/SEM and received that Society’s two highest honors, the Murray Lectureship and Honorary Membership; he also received SESA’s M. M. Frocht Award. ASEE conferred upon Dan the Lamme Medal, the Distinguished Educator Award of the Mechanics Division; he was a Founding Fellow of ASEE, and was elected to its Hall of Fame. ASCE presented to him the von Karman Medal. The University of Liege gave Dan the Gustav Trasenter Medal and Columbia University conferred upon him the Egleston and Illig Medals. From the Society of Engineering Sciences he received the first William Prager Medal; the Founder Engineering Societies gave him the John Fritz Medal. Dan had honorary doctorates from Lehigh, the Technion, Brown, Northwestern, and the University of Illinois at Urbana-



Champaign. After Dan’s death, his daughter found among his mementos a “Medal for Getting the Most Medals” which someone had jokingly presented to him.

In 1988 Dan received the National Medal of Science. He was a member of the National Academy of Engineering and of the American Academy of Arts and Sciences, and was a Foreign Member of the Polish Academy of Science. He was listed in national and international editions of *Who’s Who*.

He had a reputation as an incisive thinker, and his advice was eagerly sought and generously given at the university, state and national levels. An articulate speaker who consistently gave stimulating and informative talks, Dan was frequently invited to give keynote or other major addresses at engineering meetings. A list of such participation is too long to be given here, but recent examples include: the National Academy of Sciences Committee on Human Rights, the National Research Council Engineering Research Board, the National Science Board and the chairmanship of the National Academy of Engineering Committee on Membership Policy.

Dan Drucker was born in New York City and started his engineering career as a student at Columbia University. His ambition at that time was to design bridges. While still an undergraduate at Columbia he met a young instructor named Raymond D. Mindlin (later a SESA Founding Member, President, and Honorary Member), who told Dan that “he *would* pursue a Ph.D. degree and he *would* write a thesis on photoelasticity.” Dan complied, and received his doctorate in 1940. It was during his student days that Dan met a young lady named Ann Bodin. They eloped and were married in 1939, living as a loving and devoted couple for more than 61 years. Dan and Ann, who predeceased him, had

a son, Dr. David Drucker now of Utica, NY, and a daughter, Mrs. Mady Drucker Upham now of Rockport, MA; and four grandchildren.

Dan taught at Cornell University from 1940 to 1943 before joining the Armour Research Foundation. After serving in the U.S. Army Air Corps, he went back to the Illinois Institute of Technology for a short time before joining the faculty of Brown University in 1947. During his tenure at Brown he did much of his pioneering work on plasticity. Dan joined the University of Illinois at Urbana-Champaign in 1968 as Dean of Engineering. During his more than 15 years there, the UIUC College of Engineering was consistently ranked among the best five in the nation. Although known for its insistence upon technical excellence, his college was also recognized for its total commitment to equal opportunity for all. He left Illinois in 1984 to become a graduate research professor at the University of Florida, from which he retired in 1994.

I met Dan during my first SESA meeting in 1949. At that time I had just started working toward a Ph.D. at the University of Illinois and intended to write a thesis on three-dimensional photoelasticity. Tom Dolan, who was my advisor, also attended the meeting and made sure that I met the important SESA members. When he saw Ray Mindlin and Dan Drucker standing across the room, he said to me, "Come over here, I want you to meet these two. They think things through pretty well before they speak, and are usually right." That was my introduction to Dan Drucker, and Tom was right. After that I started to see Dan regularly at meetings and he always greeted me with a big smile and a handshake. He had just written the chapter on three-dimensional photoelasticity in the *Handbook of Experimental Stress Analysis*, so I often talked with him about my proposed thesis. He was easy to talk with and always very helpful. In a sense he was a mentor for me while he was

still at Brown University. That happy relationship continued while we both worked through the various SESA offices, and while he was a very busy dean at the University of Illinois. He always made time to talk with me about technical subjects or SESA business.

When Dan came to Florida he immediately joined our department's "lunch bunch" which met every school day at noon. At various times that included Knox Millsaps, Larry Malvern, Ray Bisplinghoff, Hans von Ohain, Chia-Shun (Gus) Yih, plus Dan Drucker and me. What a wonderful group of colleagues. Now all of those special friends have passed away except for me, but I feel truly blessed to have been among them.

Up until the last month of his life, Dan and I still tried to have lunch three days a week. Those were happy occasions, even though we both realized that the inevitable was sneaking up on him. We didn't dwell on that and found lots of things to laugh about. In all of the thousands of hours we spent together, I never heard him utter a single swear word. He had a great sense of humor, but he never told a joke and he never spread gossip. I have never met a more honest man or pure person. Dan Drucker was the kind of person that we all try to be.

Of course, the Drucker family received letters of condolence from all over the world. Mady was kind enough to give me copies of most of those letters. The common thread that went through all of those letters was that Dan was highly respected as an engineering leader, but that he was also greatly admired as a human being. Everyone mentioned that his kindness and help had influenced their careers and their lives. What an impact he made and what a legacy he left!

Charles E. Taylor