WILLIAM E. SPLINTER

1925–2012

Elected in 1984

“For invention and development of safer aerial spray systems and improved harvesting systems which have promoted a better environment and stronger agriculture.”

BY RON YODER
SUBMITTED BY THE NAE HOME SECRETARY

WILLIAM (Bill) ELDON SPLINTER, George Holmes Professor Emeritus of Biological Systems Engineering at the University of Nebraska-Lincoln, passed away on September 26, 2012, in Lincoln. Forward thinking, innovative, tenacious, and a strong and effective leader for melding biology and engineering, he was inducted into the NAE in 1984.

Bill was born on November 24, 1925, on his grandparents’ ranch five miles northwest of North Platte, Nebraska. He was raised on an irrigated farm near North Platte, and his early life experiences shaped his thinking throughout his life and had a significant impact on his career as an engineer. “My life has been a series of fortunate events and this was the first,” he wrote in a history of the Biological Systems Engineering Department (formerly the Agricultural Engineering Department) at the University of Nebraska. “The responsibility and skills I learned on the farm have been the foundation for my professional career.”

Bill earned his bachelor’s degree in agricultural engineering from the University of Nebraska in 1950 before matriculating at Michigan State College (now Michigan State University), where he earned an MS in 1951, followed by his PhD in 1955, both in agricultural engineering. During this period he also served in the US Navy reserve, as a yeoman at the end of
World War II and as a radar man on a destroyer during the Korean War.

His second fortunate event “followed a lengthy argument with my advisor in mechanical engineering over having to take a required course in economics. In desperation, I think, he asked me just what I wanted to do. With my farm background I thought designing tractors would be something I could do. He suggested I check with the Agricultural Engineering Department, which was a branch of engineering I had never heard of, but I talked to Professor E.E. Brackett. I had now found people who spoke my language.”

The third fortunate event in his life “was being offered a scholarship by Professor A.W. Farrall...to attend Michigan State to work on an MSc degree.... The key thing I learned from Dr. Farrall was not to be hesitant in trying out new ideas.”

“Fortunate event number four was being hired by Professor Wallace Giles...in 1954, directly as a research associate professor, Department of Agricultural Engineering, North Carolina State University [NCSU], with a research budget of $3,000 per year. My responsibility was to mechanize the production of flue-cured tobacco to eliminate the need for over 460 man-hours per acre of backbreaking work under high temperature and humidity conditions.... We were among the first to conduct human factors engineering studies of the effort required and the accuracy of workers using a mechanical transplanter.” Other research on mechanizing the production of tobacco to improve the efficiency of production and to reduce the drudgery followed. “I think we accomplished the task for which I had been hired. Then the medical profession determined that smoking tobacco was a serious health hazard. So much for being a second Eli Whitney,” Bill wrote.

He advanced to the rank of professor at NCSU and pursued his interest in applying engineering science to biological systems, conducting research with his students on the mechanical harvesting of cabbage and sweet potatoes. He also maintained collaborations with Henry Bowen at Michigan State University on increasing deposition of agricultural sprays and dusts on target plant surfaces by applying electrostatic
charges. In his deposition research he developed an air curtain
nozzle that was highly efficient for both sprays and dusts,
resulting in one of the six patents he received for developments
while at NCSU. Because he and several other faculty members
in the department were using basic biological science in their
research, the NCSU Agricultural Engineering Department
changed its name to Biological and Agricultural Engineering
in 1965, becoming the first department in the discipline to do
so.

“My fifth fortunate event was being hired to head the
agricultural engineering program at the University of
Nebraska-Lincoln [UNL] in 1968,” Bill wrote. While attending
a professional meeting out of state he received a telephone
call from University of Nebraska President Durwood Varner
telling him to hire five irrigation engineers for the agricultural
engineering faculty. These hires and their work resulted in
an extensive irrigation engineering educational program
throughout Nebraska and were the catalyst for the state’s
becoming a leader in irrigated agriculture—it now has more
irrigated acreage than any other in the country. This intensive
irrigation activity led to a $50 million private gift and the
establishment in 2010 of an institute with global reach, focused
on the management of water in agriculture—the Robert B.
Daugherty Water for Food Institute.

Bill led the University of Nebraska’s Agricultural
Engineering Department in becoming very involved in
sponsored research. He had written successful competitive
grant proposals at NCSU and wrote successful research
proposals at the University of Nebraska and then teamed with
able faculty members to conduct the research. The graduate
program also expanded considerably under Bill’s leadership,
adding a PhD program in 1971.

“Fortunate event number six was my election as president
of ASAE (American Society of Agricultural Engineers)....
I had served on numerous committees but this was a new
challenge that I enjoyed very much.” As president (1978–1979)
he greatly increased involvement with other national and
international engineering organizations, and worked with
Bob Tweedy (later ASAE president, 1981–1982) in creating the ASAE Foundation to support special Society initiatives.

“Fortunate event number seven was the surprise letter in 1984 indicating that I had been elected to the National Academy of Engineering. There were only two agricultural engineers serving as members at that time. This was a ‘mule entered in the Kentucky Derby’ situation but I helped organize and served as the first chairman of Section 12, Special Fields.”

He was the first engineer from Nebraska elected to the NAE (at his death he was one of two), and was quite active on several Academy committees.

“In 1988 my eighth fortunate event was my selection as associate vice chancellor of research” at the University of Nebraska. When the vice chancellor left the position two years later, Bill was named interim vice chancellor for a year, and then vice chancellor. He was instrumental in increasing research funding and led the move of the university from a Carnegie Category II to a Category I research institution. “Hopefully it can be claimed that my team set the stage for the major sponsored research program that exists today,” he wrote. There is little doubt that this is the case.

Although he officially retired in 1993, a significant portion of Bill’s career remained. He served twice as interim dean (or, as he said, “intermittent dean”) of the University of Nebraska College of Engineering (1994–1995 and 2001–2002). In 2002 he was interim director at the University of Nebraska State Museum, and from 1999 until early 2011 he was director of the Lester F. Larsen Tractor Test and Power Museum. Bill and others felt strongly that the original Nebraska Tractor Testing Laboratory building (established as part of the Agricultural Engineering Department by the state legislature in 1919 and built in 1920) should serve as the museum. Unfortunately there were holes in the roof—as big as ten feet across, according to Bill—and the exterior of the building was in disrepair. Bill took on the challenge of raising funds to restore the building to house the collection and established an endowment to provide operating funds.

As a result of Bill’s leadership, the laboratory was
recognized as an ASAE historic site in 1980, and the Lester F. Larsen Tractor Test and Power Museum was dedicated in 1998. It was important to Bill that the museum be known not only for the evolution of the agricultural tractor but also as an educational facility, tracing the evolution of food production from human to animal to gasoline engine power. The exhibits end with the transition in the late 1950s to diesel engines as the primary power source for agricultural tractors.

In 2004 the agricultural engineering annex in the UNL Biological Systems Engineering Department was dedicated as the Splinter Laboratories. The facility, built under Bill’s direction in 1979, houses the current Nebraska Tractor Testing Laboratory, teaching and research laboratories, and a precision machine shop for fabricating research equipment. Bill called this “the most significant professional recognition of my career” and said “the facility has special meaning to me as I had laid out the design to specifically house the major noise-generating functions of the department.... The building has proven highly functional—good engineering design if I say so myself,” he wrote.

Bill’s support of the University of Nebraska never waned. He and his wife Eleanor established a student scholarship fund and an endowed professorship in the Biological Systems Engineering Department. The month he died he was revising and updating the history of the department and working to arrange a meeting with a potential donor for support of the museum.

Bill had great vision and could see the whole picture, even as he focused on specific parts to move his vision forward. He was a strong supporter of changing the Agricultural Engineering Department’s name to Biological Systems Engineering, a change that was made official in 1990. Along with the change of the department name, UNL became the first department to develop an ABET-accredited degree in biological systems engineering. These changes occurred after Bill had become vice chancellor of research, but he had laid the groundwork for them over the previous 20 years. His vision led to the development of a curriculum melding engineering
and biology that has increased undergraduate enrollment tenfold.

Throughout his career Bill was also involved in international projects and activities in many countries—Southern Rhodesia, South Africa, India, Colombia, Chile, Russia, Mexico, Italy, China, Germany, Australia, Morocco, Ireland, Japan, Taiwan, Singapore, Egypt, Greece, and Switzerland.

Bill received many professional awards and recognitions throughout his career. He was a fellow of the ASAE, NSPE, and AAAS. He received two of the highest honors bestowed by the ASAE: the John Deere Gold Medal in 1995 and the Massey Ferguson Educational Gold Medal Award in 1978. The USDA recognized him with its National Creativity Award, presented by the National Extension Association. In addition, he received many state, university, and regional recognitions, including election to the Nebraska Hall of Agricultural Achievement and the Pioneer Irrigation Award. He was also proud of being recognized with the Floyd S. Oldt Boss of the Year Award by the UNL Office Professionals Association, and in 2001 UNL selected him for the George Howard–Louise Pound Distinguished Career Award. He was a member of many academic honorary societies: Sigma Tau, Tau Beta Pi, Alpha Epsilon, Pi Mu Epsilon, Sigma Pi, Sigma Xi, Gamma Sigma Delta, and Phi Kappa Phi.

Bill loved to fly, and was soloing soon after high school. His flying allowed him to visit the western portions of Nebraska to meet with employees in Scottsbluff and North Platte, and to travel extensively around the US while he was ASAE president. He had flown nearly 5,000 hours with an instrument rating when installation of a pacemaker ended his flying days. He also incorporated his interest in engineering and energy into his personal residence, designing and having built a house with solar heating in which he and his second wife, Betty, were living at the time of his death.

His daughter Kathy Splinter-Watkins shared her recollections:

Dedicated to family as much as to work, he would fly the whole family to professional conferences where he attended meetings.
Eleanor and the kids participated in tours or family events set up by the conference. Those were the family vacations. Bill also included children in his trips to the tobacco fields, to veterinary labs to see the glass-sided cow, to irrigated fields, and to the Nebraska family farmyard with all the animals and corn silos. He was enamored of nature, pointing out various animals or birds in the air. His sense of humor was ever present as he would keep his kids busy by asking them to count numbers of cattle by their legs and divide by four.

He read books to his children as they propped on the arms of his easy chair. Family dinners often included international graduate students and were catered to their various cultural and religious requirements. Thanksgiving meant “all inclusive.”

Bill was a master of learning and teaching. His interests were diverse, from art to music to science to health. He loved flying and traveling, hunting and sailing, reading and gardening. He was interested in all cultures and nationalities, all animals large and small.

Lest the picture is painted too perfectly, Bill definitely had his opinions and they were not to be crossed. He expected his family to take his word as the truth. But he brought in many different perspectives from circumnavigating the world four times. He was always eager to learn more as his projects from work would spill over into home life.

Bill was terribly proud of his family. All four children completed college degrees, two with master’s, and have good careers. After Eleanor passed away in 1999 he kept in contact with each of his children with weekly phone calls. He was fortunate to fall in love again. He totally accepted Betty’s family as his own, so now he had four more children. All ten of his grandchildren are achieving much that he would be proud of and are following in his footsteps.

In addition to Betty, Bill is survived by his sister Donna Marie, two sons and two daughters (from his marriage to Eleanor), three sons and a daughter (Betty’s children), and ten grandchildren.

Many of us, both family and work associates, who have known Bill Splinter consider that one of our most “fortunate events.”