Champions of ENGINEERING

Institution Builders

Duncan and Suzanne Mellichamp exemplify commitment, vision, and generosity. UC Santa Barbara — and the entire UC system — are far better for their efforts. Here, we retrace Duncan's long UCSB career and the philanthropy that has made the Mellichamps Champions of Engineering.

During a visit to a cousin in Dubuque, Iowa, in 1961, **Duncan Mellichamp**, then a new PhD student at Purdue University, went on a blind date with a young elementary-school teacher named **Suzanne Carlton.** They hit it off. Seven dates, seven months, and well over one hundred handwritten letters later, they were married. That was sixty years ago this September. Four years later, Mellichamp was working at the DuPont Company in North Carolina, and was asked to do some PhD recruiting at his former school. He and Suzanne traveled to Purdue, where **Professor J. E. Myers,** Duncan's former TA advisor, asked him if he'd be interested in helping to establish a new chemical engineering program at UC Santa Barbara, which Myers was joining as the first department chair.

With a promising career ahead of him — having already filed a patent for a new technique to make polyester polymer without catalyst — Duncan declined. But Myers had approached Suzanne as well, and she accepted his invitation for the two of them to visit Santa Barbara the following summer: Duncan would only have to give a seminar on his PhD work to enjoy a free vacation. They came, he spoke, and they signed on. Suzanne joined her fifth school district; she would later earn her MA in education at UCSB.

When they arrived in Santa Barbara, the university had nothing like its current stature, and Duncan recalls a pointed remark to that effect from someone at an early UC committee meeting he attended. Rather than be defensive, he recalls "resolving to help make the campus great." Several decades later, he says, "We've been successful, and I've been a part of that, which gives me tremendous satisfaction."

One reason for that success, he notes, has been a shared dedication to bringing the best people to UCSB. "Faculty here understand that you want to hire those who are likely to become stars or superstars and also attract similarly talented students. We've done that, by and large, and all of us have benefitted," he says.

During his 37-year career as an active faculty member, and his longer association with UC more broadly, Mellichamp's activities spanned a dizzying range of areas. He designed and built two laboratories, one for teaching undergraduate process control in the Chemical Engineering Department and a real-time computing lab. He collaborated with colleagues to develop the new BS, MS, and PhD programs. He published more than one hundred papers on process modeling plant-wide economic analysis, and computer control.

Even before earning tenure, he achieved many "firsts" in the new CoE. He advised the college's first PhD student, and he mentored both the first PhD in chemical engineering, who conducted research derived from Mellichamp's own experience at DuPont, and the first woman to receive her PhD in the college. He also teamed with a nationwide group of experts to edit the first book on computer applications to data acquisition and control (Van Nostrand, 1985), using as examples working experiments from the real-time computing laboratory he had modified to teach UCSB undergraduates.

He co-authored — with then fellow UCSB chemical engineer **Dale E. Seborg,** University of

Texas chemical engineer **Thomas Edgar**, and **Frank Doyle** (now dean of Harvard University's John A. Paulson School of Engineering and Applied Sciences), the award-winning undergraduate textbook *Process Dynamics and Control* (Wiley), now in its fourth edition and translated into multiple languages.

He has received numerous awards and professional honors. He was elected to the Georgia Tech Engineering Hall of Fame in 2004 and received the Purdue University Department of Chemical Engineering's Outstanding Chemical Engineer Award in 2007, and a 2010 CACHE (Computers in Chemical Engineering) Award for his many contributions to computing in the discipline.

Mellichamp served as elected Chair of the UCSB Academic Senate from 1990-'92 and was elected Chair of the UC Academic Senate's UC Academic Council, and Faculty Representative on the UC Board of Regents in 1995. He was elected a trustee of the UC Santa Barbara Foundation in 2003. In 2014, he came out of retirement to chair the highly influential Trustees Advisory Committee on Isla Vista Strategies and received the 2018 Oliver Johnson Award for Distinguished Leadership in the UC Academic Senate.

A popular teacher at all levels, Mellichamp mentored fifty graduate students, which he describes as "the most rewarding thing a professor does. You're working with people, bringing them

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to your level and above. You tell them, 'When you finish, you will be the world expert on your dissertation topic.' It's a great feeling to help someone accomplish that."

Now busily retired, the Mellichamps occupy a place among UC Santa Barbara's most recognized and respected benefactors, as demonstrated by their receiving the UCSB Medal, the university's highest honor for philanthropy, in 2006. Their contributions have had a special resonance within the College of Engineering.

They have focused their gifts on funding clusters of four endowed chairs, who are provided resources for fifteen years, enough to allow them to bring UCSB to prominence in an emerging or promising field of research selected by the university. "The fifteen years was intentional," Mellichamp says. "I wanted people to know that they had time to get everything in place and attract the funding to be world-class in that discipline, or at least on their way. I wanted to put a fire into people, just like I felt one under me when I came here."

The first cluster, in the area of systems biology, was established in 2003. At the time, **Chancellor Henry T. Yang** said, "Professor Mellichamp already has given so much to UCSB through his teaching, research, and leadership, and providing such an extremely generous gift to carry out this vision is just extraordinary." At the time, the gift to fund what have come to be known as "Mellichamp clusters" was the largest ever given by a UCSB faculty member.

A second cluster, in 2008, focused on the dynamics of globalization, and five years later came the cluster on sustainability. (See a related article on page 20.) A fourth cluster, "Mind & Machine

Better together: During nearly sixty years of marriage, Duncan and Suzanne Mellichamp have found it easy to reach agreement in their shared mission to support people, causes, and institutions they care about.

Intelligence," now in its third year, replaced the first cluster as its cycle ended; and a fifth cluster, scheduled to begin in 2023, will focus on social and racial justice. "I truly hope UCSB can develop a national program to deal with the overwhelming issue of racial justice," Mellichamp says.

In all, the Mellichamps have endowed fifteen chairs, and Duncan says that experience led to the idea of clusters. He had seen individual endowed chairs remain in place long after a faculty member whose research had inspired the gift had retired or the area of research had lost impact or disappeared altogether. He thought a better way to build major programs would be to endow multiple chairs under a uniting focus. The two exceptions have been single endowed chairs that went to biochemical engineer **Frank Doyle** (2003), and chemical engineer **Michael Doherty** (2019). Both have been elected into the National Academy of Engineering — Doherty in 2016 and Doyle in 2021. The Mellichamps also challenged others (on a 1:1 basis) to fund separate Founder's Chairs awarded to chemical engineers **M. Scott Shell** and **Michael Gordon** in 2019.

The Mellichamps have been able to achieve what they have thanks to their solid partnership, Duncan's career, and some wise investments along the way. They also owe much to his willingness to embrace challenges as opportunities. In fact, it is hard to fi nd an instance when this autodidactic emeritus professor either turned down the chance to pursue something entirely new and foreign to him, or took it on and did not succeed at it.

"I've always enjoyed working really hard," he says. "I also like seeing what I can do. And I like to be in the lead."

Born in Georgia but raised early on in New York City, where his father was a textile engineer, Mellichamp earned his BS in chemical engineering, with highest honors, from Georgia Tech in 1959. As an 18-year-old, he entered a co-op program at DuPont, during which he alternated between attending university for a quarter and working at the company for a quarter. During one of his seven quarters at DuPont, it acquired a "mini-computer," about the size of a refrigerator. "It didn't have the computational horsepower of a cheap digital watch, and it used paper tape — before cards were used for programming — but you could do computational work on it," Mellichamp recalls, with only the slightest trace of his nearly lost Georgia accent.

When he returned to Georgia Tech the following quarter, it had a new mainframe UNIVAC computer. "They were eager to get anyone to use it, even undergraduates, because nobody knew computers. I just signed up and used it to do my class heat exchanger design," Mellichamp recalls.

At Georgia Tech, he also befriended a German exchange student who suggested that he apply for a reciprocal year abroad, so he did, was awarded the fellowship, learned German, and attended the Universität Stuttgart, where he took courses in computer design and programming and nuclear engineering. "Having the co-op work experience plus this life abroad was really useful," he recalls. "I went to Purdue when chemical engineering was just exploding into the modern era with mathematical models that required knowledge of computers. I have so often been in the right place at the right time."

His German friend also offered Mellichamp another important invitation. He and several other European exchange students had arranged to meet with students at Morehouse College, the historically Black men's university in Atlanta. "He asked me if I'd like to go with him, and I said 'sure,'" Mellichamp recalls. "Georgia Tech was still segregated at that time, and had just begun admitting women in 1952. We went to the meeting in the Morehouse president's living room and talked about our student experienc-es. That was eye-opening. I'd say that if I'm a progressive — and I surely have been from the beginning — that experience is probably one reason. Who got that kind of opportunity in the South in the 1950s?"

In 1966 Santa Barbara, the Mellichamps bought a duplex to live in, and Duncan taught himself about real estate investment. Some sound investments would later provide the capital for their philanthropy. After retiring, Mellichamp took a new tack into finance, writing journal papers on modeling financial risk versus return in designing chemical plants.

In another realm, the Mellichamps both enjoy opera, which is, of course, very different from running an opera company. But after spending twelve years on Opera Santa Barbara's Board of Directors, Duncan, the newly elected vice president, stepped in as president when the company encountered financial difficulties. Under his leadership, nine months later, the opera was back on solid financial footing, though he credits his fellow Board members with the turnaround.

In 1997, Mellichamp began an instrumental role as Chancellor Yang's special assistant for external developments; his first major effort was to connect UCSB and the County of Santa Barbara to work on a master plan for Isla Vista. That led to a project to build UCSB faculty housing and to save the Ellwood-Devereux bluffs, a process that included two land swaps and, later, the purchase by the California Trust for Public Land of 64 acres of what had been the Ocean Meadows golf course. The Trust then gifted the property to The Regents of the University of California as the long-term steward of the new North Campus Open Space (NCOS).

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In one of the couple's recent activities, they combined Suzanne's lifelong interest in the environment, nature, and animals with Duncan's organization and communications acumen to participate in the NCOS Restoration Project. This collaboration of multiple environmentally focused partners is managed by UCSB's Cheadle Center for Biodiversity and Ecological Restoration, with the goal of returning the golf course to its natural state. Suzanne financially supported the construction of a key facility, the Carlton-Duncan Visitor Plaza, which carries her name and that of several of her family members, honoring a family commitment.

On the cusp of their 55th year in Santa Barbara, their 60th wedding anniversary, and his 65th year as a professional chemical engineer, the Mellichamps report that they continue to arrive at agreement easily, particularly when it comes to supporting the university. "It's special to me," Suzanne says, "but, of course, Duncan's whole career has been here in California, and we've appreciated getting to know so many people through the university. It's our second home, and it means a lot to both of us."

"We're just trying to make a difference in areas that are of interest to us," says Duncan, to which Suzanne adds, "We've wanted to provide scholars who can contribute to the university, incentive to come here to teach and do research. We've attracted quite a few great people that way, so it must be a good thing."