

Chairman of the Board

IN JANUARY 1985 RUBEN METTLER became chairman of Caltech's board of trustees, succeeding Stanton Avery. Mettler has Caltech roots going back 43 years to when, by his own admission, he distinguished himself on campus by getting a zero on his initial physics test during the first week of class. Undaunted, by the time he earned his BS in 1944 he was "doing reasonably well." He's currently chairman of the board and chief executive officer of TRW Inc.

Mettler didn't choose Caltech right off the bat. Born in Shafter, California, near Bakersfield, one of ten children, he enrolled at Stanford in 1941, planning to major in the humanities with an eventual goal of law school. Then World War II intervened, and he joined the Navy. But he had been at Stanford long enough to come under the influence of history professor Rixford Snyder, "who thought," notes Mettler, "that in order to be literate in the humanities, one should know something about chemistry, physics, and mathematics. It's particularly true in this day and age, but it was true then too. Snyder's argument wasn't just that an engineer, to be literate, should know something about Shakespeare or economics, but that a *humanist*, to be literate, should know something about *science*. That science and technology and the humanities are inextricably bound together was a rare concept, especially then."

Although the Navy recruiters didn't care much about his being literate in the humanities, they looked at all the science courses he had taken and routed him in a V-12 unit. The Naval V-12 College Training Program was set up to train engineering students as junior officers for the fleet. At Caltech the sailors were considered students like everybody else, and Robert Millikan expressed the hope that "the whole student body, whether in uniform or out of uniform, will become . . .

integrated into a *single, compact body of California Institute men.*"

So Mettler ended up at Caltech, soon to make his mark on the first physics test. Since Caltech didn't offer V-12 students special treatment ("they just shoved us into the courses"), many of the Navy men dropped back a year or two just to survive. Failing the courses meant getting bounced out of the program. Although Mettler was officially a junior, Registrar Winch Jones looked at his academic background and, not as impressed as the Navy, suggested that the Stanford humanities major register as a freshman or sophomore. But since it was a four-term program, registering as an underclassman meant no degree. Mettler felt he could catch up, took the risk, and registered as a junior.

"It was certainly one of the most difficult, intense learning experiences that I can imagine," says Mettler. "It was possible to get decent grades by the end of the term, but at the beginning . . ." In addition to the rigors of Caltech courses, V-12 students had to do all the military sorts of things — up at 5:30 every day for calisthenics and a run in Tournament Park, for example. And as a Navy student commander, Mettler had to lead a parade down California Boulevard every week.

Mettler earned his degree in electrical engineering in 1944. After that came officer's candidate school, radar studies at MIT's Radiation Laboratory (headed by Lee DuBridge), and then into the Pacific with the Electronic Field Service Group. Its assignment was to go from ship to ship to submarine to carrier ("miserable logistics") diagnosing radar problems. At the time Mettler wasn't giving much thought to the possibility of graduate school — "mostly I was just happy to get through the war." After the war ended, when he was involved with the Crossroads Project setting up instrumentation for atomic tests, a letter arrived out of the blue from S. S. MacKeown, then professor of electrical engineering, suggesting that Mettler come back to Caltech.

"I answered, first of all, that I hadn't even applied; and second, I didn't know whether they would take me," says Mettler. That was in July of 1946. Shortly thereafter he received a wire from MacKeown saying that if he could be on campus by a certain date in September, he could start right away. "Maybe Caltech was short of students or something," Mettler speculates. But he got

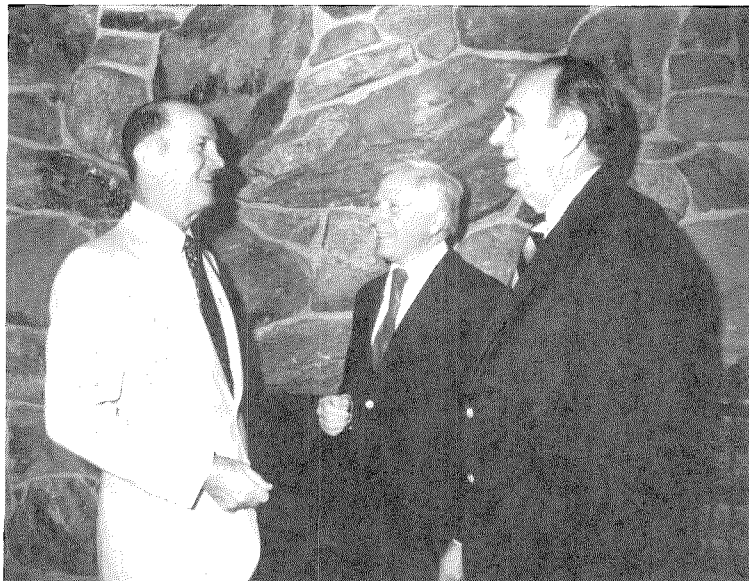
out of the Navy at the end of August and arrived in Pasadena the following week.

Because of his Navy experience in radar and electronics, as well as the courses he had taken previously, Mettler signed up for electrical engineering. “It sounded like a good plan, and I knew I could always go back to Stanford or something if I didn’t like it. And I loved it; I just loved it. I was turned on by it; I found it exciting. I plunged right into the very difficult courses — difficult for me after having been in the service and away from school for a few years.”

Mettler also signed up for a minor in aeronautical engineering — he wrote his dissertation on a combined electronics/aerodynamics project. He was an instructor in applied mechanics, and he worked in GALCIT under Clark Millikan and Hans Liepmann, now the Theodore von Kármán Professor of Aeronautics and director of GALCIT. Liepmann remembers him as one of a remarkable group of young men to come out of Caltech right after the war, a group that also included Allen Puckett (PhD ’49), now chairman of the board and chief executive officer of Hughes Aircraft Company, and T. A. Wilson (MS ’48), chairman of the board of The Boeing Company. Fred Lindvall, now professor of electrical and mechanical engineering, emeritus, was Mettler’s thesis adviser. Lindvall particularly remembers how well Mettler handled his job as resident associate (“We always called them housemothers then,” says Lindvall) of Ricketts House. “He had a natural ability to manage people,” Lindvall remembers. “He would just quietly ask students to desist from doing something wrong and they would desist. It didn’t take any pressure.” Then, when Col. E. C. Goldsworthy, master of student houses became ill, Mettler took over as his deputy.

The years following the war were difficult ones for an RA, because in addition to the 17- and 18-year-old students entering Caltech right out of high school, there were also returning veterans in their late 20s. “So it was next to impossible to get the veterans who had been in the service for four or five years to accept the same constraints that one would hope applied to 17- and 18-year olds,” Mettler recalls. “It was an unusual time in the student houses. Some of the younger students probably picked up some bad habits from some of the older ones — and vice versa.”

Mettler finished his PhD in 1949. Bill



Pickering, professor of electrical engineering (now emeritus), who became director of the Jet Propulsion Laboratory in 1954, tried to recruit Mettler to JPL. Lindvall also remembers Mettler as a “very good student, careful and dependable,” whom he tried to persuade to make a career in engineering education instead of industry. “But Si Ramo was a better talker than I was, so he went the business route.” Simon Ramo and Dean Wooldridge (both PhD ’36) were research associates at Caltech during the time that Mettler was a grad student, and when he left Caltech in 1949, they took him to Hughes Aircraft Company.

At Hughes he became the leader of a group designing and developing a new integrated avionics system (navigation, communications, guidance control, weapons control) for fighter planes, eventually becoming project manager, responsible for building the system and flight testing it. The system was selected by the Air Force for quantity production for its fighter interceptors. For this work Mettler was named the nation’s Most Outstanding Young Electrical Engineer by Eta Kappa Nu in 1954. In the same year he was appointed a full-time consultant to the Department of Defense and spent a year in Washington, working for the President’s Scientific Advisory Council in the White House in the morning and in the Pentagon in the afternoon, an experience he found fascinating. “This gave me an opportunity to work on important projects in the Pentagon but also to get some sense of how they fit into a bigger mosaic.” Among those projects were the technical intelligence programs that gath-

Ruben Mettler (left) enjoys a convivial moment with President Goldberger and Stanton Avery (right), chairman emeritus of the board of trustees.

ered the first evidence that the Soviets were launching long-range ICBMs.

But in 1955 he returned to California — to the newly formed Ramo-Wooldridge Corporation. Here he was initially system design leader and then program director for the Thor intermediate-range ballistic missile and then took over responsibility for technical supervision of the Atlas, Titan, and Minuteman missile programs as well. During the early years of Ramo-Wooldridge, Mettler was also involved in developing some of the earliest U.S. scientific satellites, including Pioneer 1.

When Ramo-Wooldridge merged with Thompson Products (of Cleveland, Ohio) in 1958, Mettler became executive vice president of the renamed TRW Inc., as well as president of TRW Space Technology Laboratories. When the latter became part of the TRW Systems Group in 1965, Mettler was again named president (as well as a director of the company). For the next six years Mettler's group was responsible for a number of key elements of the U.S. scientific satellite program, including the Pioneer and OGO (Orbiting Geophysical Observatories) satellites, as well as the 1968 Global Communications Network. It also designed and built the lunar module descent engine and was involved in such military applications as nuclear detection satellites and antisubmarine warfare. He became president and chief operating officer of TRW Inc. in 1969 and established a home in Cleveland, Ohio; he moved up to the positions of chairman of the board and chief executive officer in 1977.

Mettler lives with his wife, Donna, in Cleveland and in West Los Angeles. Their older son, Matthew, 28, graduated from Stanford in electrical engineering, earned an MS in computer science, and helps manage a fledgling venture capital group in Silicon Valley. Daniel, 25, lives at the Jay Nolan Center in the San Fernando Valley. As an autistic child, Daniel could not communicate through normal spoken language, but the Mettlers discovered when he was six that he could read and that he had exceptional musical talent. "It just shows that the human mind is capable of prodigious leaps," says Mettler. Daniel is now an accomplished pianist. "Music has become his life, and we went through some exhilarating experiences as this happened." Mettler himself plays the piano, which led to the initial breakthrough in communication through music, "but I can't even touch what he now plays."

Perhaps because of his son, Mettler has been deeply concerned with the problems of the disadvantaged — the physically, economically, or ethnically disadvantaged. And, as in other areas of his life, he has devoted his considerable energies to finding solutions to some of the problems. In 1977 President Carter asked him to develop a program to urge *private industry to hire more Vietnam veterans*. Working through the National Alliance of Business, Mettler's committee placed several hundred thousand disadvantaged workers in jobs, among them 150,000 veterans. The unemployment rate for Vietnam veterans went from over 15 to under 8 percent in about a year. For this work and for helping to raise 110 million dollars in two years as chairman of the national campaign for the United Negro College Fund, Mettler was honored in 1979 with the National Human Relations Award of the National Conference of Christians and Jews.

Caltech isn't exactly disadvantaged, but Mettler's activities have always included his alma mater also. He's been active in the Alumni Association and has chaired the Alumni Fund. In 1966 he was one of the first recipients of the *Distinguished Alumni Award*. He's been a life member of The Associates since 1968 and a member of the board of trustees since 1969.

Because of this long-time association with Caltech and its trustees, the chairmanship didn't hold many surprises for Mettler. But a year as chairman has strengthened some of the ideas he already held about the Institute. "The last year has very strongly reinforced my sense that Caltech has its comparative advantage relative to other institutions in the exceptional number of incredibly talented individuals in an institutional setting that is small enough for them to really communicate with each other. I think the strong and unrelenting commitment to excellence at Caltech is exactly right."

But he also thinks it extremely important to articulate a vision of the Institute's future and to project that vision outside the Caltech community. "The trustees should participate, along with the administration, the faculty, and the staff, in shaping a coherent vision of what the Institute can do and can be — a vision that maintains the excellence of the past, builds on it, and sets new goals. The trustees need particularly to focus on developing the resources that are necessary to carry out that vision." □ — JD