

Piloting the IEEE through a critical first year

Ernst Weber, the IEEE's first President, dedicated himself to a smooth and equitable merger while fostering the fledgling organization's transnationality

"My mission as President was to make certain that both groups [the American Institute of Electrical Engineers and the Institute of Radio Engineers] realized that working together they could achieve more than each in its own way," recalled Ernst Weber, who was the IEEE's first President after the 1963 merger of the AIEE and the IRE. Weber, who on the occasion of the IEEE's 25th year recounted his recollections of its origins in a special *IEEE Spectrum* interview, said his philosophy was that "it's the same inductance, resistance, and capacitance in power machinery as in radio communications—they're just used in different combinations for different purposes."

That belief in unity was the hallmark of Weber's year in office, and fulfilled the hopes of the committee that had engineered the merger and selected Weber for the job (the first President was not elected by the general membership).

"We all agreed that the first President would set the tone to be followed," said John D. Ryder, a former president of the IRE. Ryder had been one of the IRE representatives on the 14-man joint merger committee, and subsequently became the IEEE's first editor, in charge of all its publications (he is now retired and living in Ocala, Fla.). "I don't remember any other name ever being discussed."

A natural choice

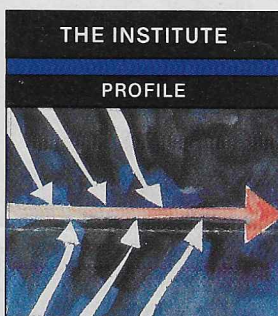
In 1963 Ernst Weber had been president of Polytechnic Institute of Brooklyn in New York (now Polytechnic University) for six years. His association with Polytechnic extended back to 1930, however, when he first joined the electrical engineering department on leaving his native Austria. There he had received his Ph.D. in philosophy, physics, and mathematics from the University of Vienna in 1926 and his Sc.D. in electrical engineering the next year from Vienna's Technical University, and had also worked for seven years for the Siemens-Schuckert Co. as a research engineer.

Early in World War II, Weber had organized a microwave research group that developed, among other things, the precision microwave attenuator sorely needed for the accurate calibration of radar. Out of this wartime research grew Polytechnic's Microwave Research Institute, which was founded in 1945 with Weber as its first director.

Shortly beforehand, in 1944, Weber and several associates had founded Polytechnic Research Development Inc., a small company, wholly owned by Polytechnic, that developed microwave measuring instruments. Over the next 15 years, Weber and his colleagues were granted 30 patents, mostly for precision microwave attenuators.

Weber had been active in both the AIEE and IRE for decades and had been made a Fellow of both organizations. He had held offices in both, heading the AIEE's research committee in 1938-39

Trudy E. Bell Senior Editor



and working in the IRE on setting standards for radio equipment from 1955 to 1959, when he became the IRE's president. In addition, many of his former students had published in the journals of both societies. Thus "everyone knew I had no feelings for [one society] over the other," Weber recalled.

Equally important to the merger committee was Weber's personality and character. The portrait his former associates paint is of a man who was and is, above all, a gentleman, with a reserved Old World courtliness, and a personal integrity and quiet diplomacy that influenced people as much by his example as by any specific action.

Donald G. Fink, who served as the IEEE's first general manager from 1963 to 1974 and is now retired and living in Somers, N.Y., recalled Weber as being "wise, well-balanced, and seldom irritated," who "asked the right questions" and "knew the difference between hype and substance and had no patience with hype." Elwood K. Gannett, who was managing editor of the IRE at the time of the merger and then became managing editor of the IEEE (and this past August retired as the deputy general manager), noted that personally Weber was "quietly intense, precise, very alert, always listening carefully but with a smile."

Clarence H. Linder, a retired General Electric Co. vice president of engineering, who had been one of the AIEE representatives on the merger committee and became the IEEE's second President, emphasized Weber's twin talents for knowing his own mind while being skilled in the art of compromise.

"He had very strong, definite ideas, with the ability to speak out frankly and candidly," said Linder, who is now retired and living in Schenectady, N.Y. "But he is not an aggressively baseball-bat kind of individual who will fight openly for his ideas—he is much more subtle than this. His nature was to draw the parties together and try to have them work out their differences, and have a conciliatory relationship." As the IEEE's first President, Linder added, Weber was "a natural."

Drawing the parties together

In the permanent headquarters staff in New York City, "it was a time of a lot of nervous suspicions" between people who had come from the AIEE and those from the IRE, Gannett noted. In the upper ranks of the two organizations "people were starting to wonder what would happen to them," he said. "There was a lot of turf divisiveness over which would 'win out' in the way the new society ran things."

One example was the way the merger was handled in the headquarters offices in New York City. "We had two complete, full-time staffs brought together in the merger," Fink recalled. "That meant that the merged organization was considerably overstaffed. But I knew that if I had to cut staff down by firing people, their remaining friends would feel I'd mortally wounded them." So Fink consulted Weber, whom he valued as an adviser who would "always come up with a sensible answer."

Weber and Fink came up with a plan not only not to fire anyone, but also to adjust salaries in each position so that the higher pay scale would prevail—a plan that the IEEE's new Board of Directors approved. "The staff got to the right size purely by attrition," Fink added, "and I got support from Weber in keeping the staff happy and active."

Even more important was the task of keeping the massive volunteer organization geared up to its new responsibilities. During the IEEE's first year, Weber, in his words, set out to "make this transition as frictionless as possible." When committees had to change their names, "people felt deprived of their positions," he recalled, "so I had to persuade them and find ways they could feel part of the transition and not commandeered into it."

Then there arose the problem of how the 30-odd professional groups should be represented on the IEEE Board of Directors. It was obvious to everyone concerned that all 30 group chairmen could not sit on the board; it was just as obvious that so dynamic a force in the new institute could not be denied representation.

So the IEEE Board turned to the AIEE model of half a dozen divisions, each composed of an assortment of compatible professional groups and each headed by an elected director who sat on the Board. An early version of this arrangement developed under Weber's presidency and was formalized during the succeeding terms of Linder and Bernard M. Oliver.

In pursuing unity Weber also spent a good deal of his time on the road in the United States and Canada, visiting some 40 of the 120 IEEE Sections, many formed by merging sections of the AIEE with those of the IRE. During these visits he felt that the most important thing he had to do was to "transmit the strong feeling that it must be successful."

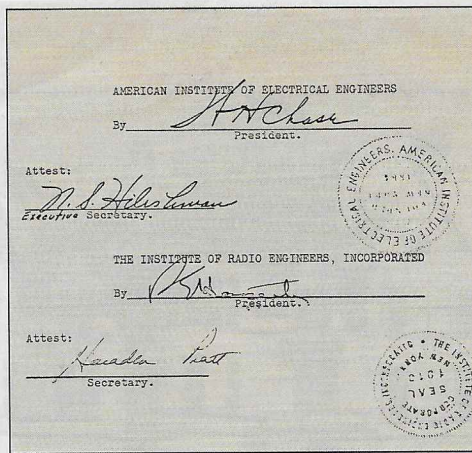
Weber was a well-known lecturer, and announcement of his presence could be counted on to draw a good attendance. "I had eight or 10 topics I could lecture on," he said, "and depending on the people I met, I emphasized one or another aspect," from power to microwaves. The merger itself was not one of his topics, but "there were usually questions about the merger that I could easily answer." He noted that "from time to time very critical voices would be heard in a meeting, but they quickly died down and never became troublesome."

Diversity within unity

"Weber was confronted with the fact that members in both societies were deeply concerned that their technical interests would not be damaged by this merger, but would be enhanced," said Linder.

And Gannett said: "Weber understood—and not everybody else did—that the strength of the Institute lay in its diversity, and having separate groups that were almost autonomous was a secret of its strength." With that conviction, Weber

Ernst Weber spent much of his year as the IEEE's first President on the road, garnering support for the new organization. Here, in March 1963, he tried a new IBM 7080 computer at IBM Corp. in Poughkeepsie, N.Y., which he visited after the Hudson Valley Joint Technical Societies meeting. Looking on are two of his former students from the Polytechnic Institute of Brooklyn (now Polytechnic University).



With their signatures on the Agreement of Merger of March 8, 1962, the AIEE and IRE presidents took the first step toward amalgamating their two societies into the IEEE. The signatures (top to bottom) are those of Warren H. Chase, Nelson S. Hibshman, Patrick E. Haggerty, and Haraden Pratt.

was one of chief proponents of the IEEE's present structure of many Societies within a society.

In 1961 Weber had been chairman of the IRE's Professional Group Committee, the equivalent of today's Technical Activities Board. The committee was composed of the chairmen of all the professional groups, so his was a powerful position.

Each professional group, like each technical committee in the AIEE, was organized around a specific specialty in engineering, such as control theory or some branch of communications. But there the similarities ended.

The IRE's professional groups were composed of any members who had an interest in the subject. In addition, they were virtually autonomous, in that members elected their own officers and could sponsor meetings without prior permission from the board or the president, excepting in matters involving publications or finances.

The AIEE technical committees, on the other hand, were composed of only 20 to 50 appointed members and were headed by chairmen who were appointed with the board's approval by the AIEE president. The chairman could act with only limited power and authority.

In 1962 Weber worked with Hendley Blackmon, engineering manager at Westinghouse Electric Corp.'s central laboratories in Pittsburgh, and Edwin L. Harder, a senior consultant also at Westinghouse in Pittsburgh, as well as others in the IEEE's technical operations department, on the task of recommending how all the other AIEE technical committees and the IRE professional groups should be paired with each other to form professional



groups within the new IEEE. Both Blackmon and Harder were AIEE representatives on the merger committee, and Blackmon also served on the IEEE Board of Directors the first year.

The two discussed their proposal with the various committee and professional group chairmen, who accepted their plan. "On the whole there was very little problem because many of the committees and the groups were used to working together through joint committees," Weber said, "and when we felt there was too much reluctance, we let [the decision] go for another year."

In Weber's words, the AIEE's Power Committee was "the most reluctant group" to accept the merger proposal. Before the merger, that committee's 50 members represented the interests of about 40 percent of AIEE's 60 000 members and, as there was no equivalent interest in the IRE, they were concerned that the field be given the proper attention. Weber said he approached the Power Committee "to feel them out about the merger and to point out that they could become a professional group [in the new IEEE] with complete autonomy."

The Power Committee agreed to join the IEEE if they could continue to operate as they did as an AIEE committee and be called the Power Division, conditions that the Board of Directors "let slide because of the sensitivity of the issue," Weber said. During his year as President, Weber also felt it wise not to press the matter: "One has to be a little diplomatic," he explained. "At least I convinced them enough not to object to the merger" when it came to a vote before the general membership.

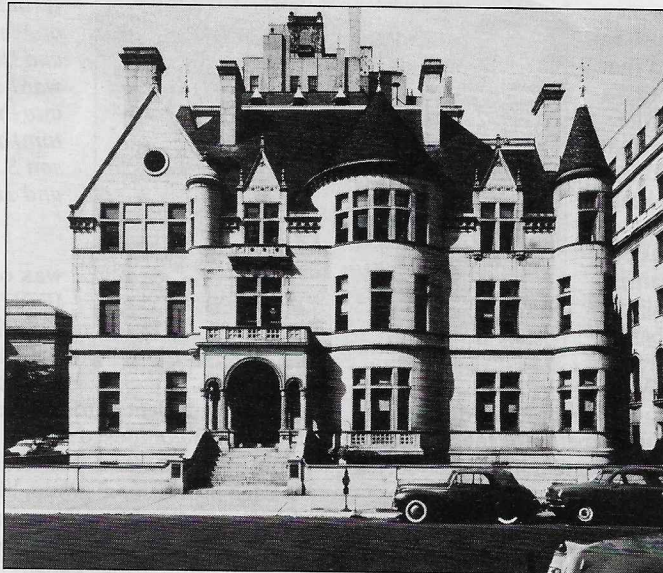
In 1965, after discovering that a committee had less autonomy than a professional group ("that's what convinced them," Weber noted), the Power Division agreed to become the IEEE Group for Power, Equipment and Systems.

Extending the IEEE's reach

Second only to his commitment that the merger be smooth and successful was Weber's dedication to seeing that the activities of the fledgling IEEE extended beyond the boundaries of North America. The AIEE had, of course, been the *American* institute, whereas "the IRE had always stressed nonnational, global interaction," Weber said.

In 1961 Weber had been one of five past presidents the IRE had sent to eight European countries to visit existing sections and create interest in new ones. Also, international concerns were "well in my own way of thinking," he added. Even after moving to the United States he maintained a family home in Tirol, near Innsbruck, Austria, which he visited each summer.

To set the IEEE on its way, Weber said, he took advantage of a singular asset: a network of thousands of students who had taken his classes in the preceding three decades, many of whom "had reached positions of prominence around the world." Weber planned a two-month trip around the world at his own expense in 1963 to "stimulate interest in forming international sections for the IEEE," he said. He also believed that such internationalism would foster global understanding because "science and engineering are activities people can get together and talk about without getting into politics."



The IRE headquarters at 79th Street and Fifth Avenue in New York City, which also served as half the IEEE headquarters during Ernst Weber's first year as President, was a three-story mansion that had once been the home of Clare Boothe Luce, the playwright and former U.S. ambassador to Italy. In 1963 Weber spent part of his time here as IEEE President, attending monthly meetings of the Board of Directors and the Executive Committee.

IEEE History Center

Among other places, the trip took him to West Germany and Austria, where he met with former colleagues at Siemens AG and at the Technical University of Vienna; to Turkey, where one of his former students was dean of engineering at the Middle East Technical University in Ankara; to India, where another was a colonel in the Indian Air Force at its headquarters in Poona, in charge of microwave techniques; and to Japan, "which had an alumni section of Polytechnic so it was an easy matter" to excite interest, he remarked.

"I also talked for the first time over the new AT&T Telstar communication satellite to the Société Française des Electriciens [the French Society of Electrical Engineers] in Brest" in northwestern France, he said. Many of Weber's former students helped promote IEEE Sections in these countries. In fact, early in October Weber

was to return to Munich for the 25th anniversary celebration of the IEEE's Region 8.

Looking back, looking ahead

In Weber's view, the IEEE has become a genuine blend of its two earlier societies. The formal structure of the organization and the qualifications for the different levels of membership are closer to those of the AIEE than to the more informal IRE, he said. On the other hand, the Societies-within-a-society structure of the IEEE grew directly out of the professional groups of the IRE, as do the present-day *Proceedings*.

Looking back at the IEEE over the past 25 years since his presidency, Weber feels that "in principle the positive aspects of [the two predecessor societies] working together has prevailed," although he noted that in such a large organization some of the advantages of the informality of smaller groups have been lost.

Regarding its transnational character, Weber feels that the IEEE "has achieved recognition that no other professional organization parallels." However, he would still like to see more interchange between professional societies and electrical engineers in other countries, perhaps through having officers or directors of non-U.S. countries sit as formal visitors in IEEE Board meetings, and he would like to see Board meetings being held outside North America.

"We always can learn from one another," Weber said. And the international exchange "fits in with the globalization of our professional life."

To probe further

One book that recounts the formation of the AIEE and the IRE and their eventual merger to form the IEEE is *The Making of A Profession: A Century of Electrical Engineering in America* by A. Michal McMahon (IEEE Press, New York, N.Y., 1984). Another written by two people actively involved with the IEEE merger, is *Engineers and Electrons* by John D. Ryder and Donald G. Fink (IEEE Press, 1984).

An early expression of Ernst Weber's convictions about the transnational character of science and technology is his article "The International Mission of Science," published in *The Scientific Monthly*, vol. 44, pp. 171-173, February 1937. ♦