

## **History of IEEE-USA: 1973-2009 – An Overview of Four Decades**

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### Introduction

Driven by growing concerns about the lack of focus on professional needs of electrical and electronic engineers and the standing of the profession, the IEEE Board of Directors proposed a change to the IEEE constitution that would broaden the Institute's role to include non-technical activities. This proposed amendment to the IEEE constitution passed by an overwhelming 89 percent majority of voters in 1972.

The IEEE United States Activities Committee (USAC) was formed in 1973, and chaired by Hal Goldberg, to address employment and national policy issues of concern to U.S. IEEE members who had been severely affected by a prolonged period of economic malaise. In 1976, USAC was established as the sixth major operating unit of the IEEE and renamed the United States Activities Board (USAB).

IEEE USAB focused on employment and career issues as well as advancement of the engineering profession and standing of the profession's members. A Washington, D.C. office was established in 1973, giving the IEEE a voice in the U.S. capital. IEEE USAB programs and activities grew during the next four decades making significant progress in addressing the Board's non-technical charter. In 1998, IEEE USAB became IEEE-United States of America, and continues its important role of advancing the profession through its influence in Washington.

This paper describes the history of IEEE-USA from 1973-2009, and will emphasize the importance of professional activities and its role in advancing the profession while meeting the global challenges of the 21<sup>st</sup> century. For more detail, including USAB's first 10 years and individual annual reports, see the IEEE-USA History Project Web page at <http://www.ieeeusa.org/about/history/index.html>.

### Overview

As this paper is being written in July 2009, Americans are celebrating the 40<sup>th</sup> anniversary of the U.S. landing on the moon in 1969. IEEE-USA's beginnings can be traced to the impact of engineering layoffs in the early 1970s following the end of the Apollo space program. Engineering activists on both sides of the United States came together to address the need to preserve the expertise of the engineering workforce: John Guarrera and Jim Mulligan on the West Coast were joined by Dick Backe, Saj Durrani and Leo Young on the East Coast. A future IEEE executive director, Eric Herz, and future IEEE-USA president, John Meredith, would cross paths for the first time on the West Coast in the 1970s to consider professional issues.

A future IEEE president (1978), Ivan Getting, who led an aerospace company, also hailed from the West Coast (California), and would encourage one of his employees, Edith Carper, to serve on the Washington office legislative staff for more than two

decades. Carper turned 90 this year. In addition, two more IEEE-USA and IEEE presidents would be tapped from the West Coast: Carl Bayless, in 1986 and 1990; and Chuck Alexander, in 1994 and 1997.

In 1972, the IEEE Washington, D.C. Section's Professional Activities Pilot Experiment helped to prevent the termination of multiple programs at NASA Centers nationwide. In addition, one of the first issues addressed by the fledging IEEE professional activities organization in Washington was to support extending equal treatment to professional employees who would receive the same benefits non-professional employees were entitled to when U.S. government service contracts were rebid and new contractors selected. As a result, the benefits previously provided to these professional employees could not be withdrawn under the new contracts. Early efforts also addressed some companies' practice of including professional employees' overtime in presenting lower cost bids to the U.S. government.

Early on, this new IEEE U.S.-based organization devoted to advancing engineering careers addressed record electrical engineering unemployment of the 1970s, surpassed only by the current unemployment of EEs as this history is being compiled in the third quarter of 2009. The organization focused primarily on the cyclical nature of the engineering profession, with the rise and fall of engineering employment persisting from 1973-2009. Thus, the nascent IEEE-USA sought to help engineers build retirement savings through defined benefit plans, portable pensions and other savings.

Retirement Security: Early IEEE-USA volunteers such as Dick Backe, a technical and business manager at Unisys/Sperry Rand, joined by John Guarrera, Jim Mulligan, Saj Durrani, Leo Young and others, established an intersociety joint pension committee, including all of the major engineering societies and representing more than one-million professionals. The group developed a joint position on pension reform.

The *Employees Retirement Income Security Act (ERISA)* was enacted in 1974 through connections to the U.S. Congress forged by John Guarrera, who was the campaign chairman for a U.S. congressman from California, Jim Corman; and by Dick Backe, who allied with the chief of staff to Senator Jacob Javits (R-N.Y.), champion of pension reform. Another early IEEE-USA volunteer, Bob Barden, appeared with Sen. Javits on NBC's *Meet the Press* to discuss the importance of pension reform.

Of special significance to the engineering profession, ERISA ensured that all employees would have specific rights in employer paid, defined benefit plans. And the legislation established individual retirement accounts (IRAs) that could be set up apart from the employer. IEEE-USA volunteers and staff also backed and helped put into law a \$2000 annual contribution to IRAs. Further, the professional activities organization supported and helped to achieve shorter vesting times for gaining access to retirement savings.

In 2001, the *Economic Growth and Tax Reconciliation Act* was enacted into law, significantly improving the portability of pension benefits and expanding tax-favored retirement savings opportunities for U.S. IEEE members. Over almost three decades, IEEE-USA volunteer leaders (including those mentioned above and also Past Presidents Dan Benigni, Jim Leonard and John Steadman) – joined by many staff members including Leo Fanning, Tom Suttle and Vin O'Neill – helped to achieve these major gains in retirement security for engineers.

U.S. Competitiveness: In 1979, then IEEE Professional Activities Vice President Bruno Weinschel seized the issue of increasing U.S. competitiveness in high-technology and testified in the U.S. Congress. During the 1980s and 1990s, the IEEE professional activities office convened multiple R&D briefings and technology policy conferences that underscored the preservation of U.S. competitiveness. Maintaining a strong U.S. sci-tech base remains one of the IEEE-USA's major thrusts.

Engineering Ethics: The early IEEE-USA was also instrumental in supporting “whistleblowers” who found engineering deficiencies in the Bay Area Rapid Transit (BART) in San Francisco in 1972 and in the planning leading to the *Challenger* disaster in 1986. With the new BART system, engineers pinpointed a problem with a speed control command, corrupted by a short circuit in a transistor, which caused a train to accelerate instead of slowing down, and resulted in a crash at one of the BART stations. IEEE-USAB filed an *amicus curiae* (“friend-of-the-court”) brief in the U.S. Supreme Court in the BART case.

Roger Boisjoly, a senior IEEE member, was a principal engineer in the telecon meeting with NASA engineers, who was overruled on a no-launch decision with the *Challenger*, and who later lost his job with his NASA contractor employer. As this history is being written, IEEE Fellow and former Lockheed Martin CEO Norman Augustine is leading an independent panel of experts considering the future of the U.S. space program after the retirement of the Space Shuttle in 2010.

U.S. IEEE members also argued for the responsible development of nuclear power after the partial meltdown of the nuclear power plant at Three Mile Island in Harrisburg, Penn., in 1979.

Employment Assistance: Professional activities pioneer Dick Backe edited the first employment assistance guides to help engineers cope with the ups and downs of their profession. This guide was continued by Jean Eason, a long-time volunteer, who was also instrumental in setting up employment workshops and electronic job boards for engineers. Jean recalls fondly the contributions of volunteers and staff members such as Bill Middleton, Tom Suttle and Bill Anderson. In the 1970s and 1980s, the IEEE-USA predecessor organization also prepared *Employment Guidelines for Employers and Employees*.

Further, in the 1980s, a volunteer in the IEEE-USA predecessor organization, Bob Rivers found errors in and focused attention on engineering employment data used by the Department of Labor and National Science Foundation. The data had suggested a shortage of engineers in the United States. For many years, under the leadership of several IEEE-USA presidents, the organization pursued immigration reform – most recently seeking green cards for guest workers and ensuring that these workers are paid the prevailing wage.

Engineering Unemployment: In the second quarter of 2009, electrical engineering unemployment reached a record-high of 8.6 percent. The current IEEE-USA president, Gordon Day, suggests that the overall U.S. economy will be adversely affected since “engineering unemployment is a bellwether for recovery and job creation.”

U.S. engineers, like employees in much of the rest of the U.S., are reeling from the great recession, beginning in December 2007, and the stock market meltdown of September 2008. They are grappling with layoffs, higher expenses (especially for medical care), diminished retirement savings, reduced employer contributions for retirement, and the end of defined benefit programs. Once again, engineers are caught up in an economic downturn, in this case spreading widely among many Americans. As in previous years, the need for IEEE-USA career services increases as the economy worsens.

Success in Addressing Professional Issues: At the same time, the discomfort of some U.S. IEEE members in addressing professional and political aspects of an engineer's life remains. An effort to remove the IEEE-USA president from the IEEE Board was defeated at the June 2009 meeting in Los Angeles. An earlier move in 1995 to curtail U.S. IEEE professional activities was similarly rejected. In spite of this opposition, especially from some members of the IEEE's technical societies, past leaders and staff of the professional effort point to their successes in improving the lot of the engineer.

Leo Young, who headed the IEEE-USA's first Pension Committee, and was director of research at the Department of Defense, wrote about the IEEE's newfound role in promoting professional activities in the United States, when he was 1980 IEEE President: "Our goals of career maintenance and development are fulfilled in part when our [IEEE] societies maintain their technical excellence and worldwide pre-eminence. We now need to promote closer cooperation between the [technical] societies in selected areas and to develop new and improved educational services, as well as to undertake and maintain meaningful professional programs in areas such as pensions, age discrimination, service contracts, patents and ethics."

Dr. Young added: "It is not a question of the IEEE's attempting to ensure the career of an individual engineer working for a specific employer. The IEEE can attempt to help create the climate through communication, persuasion and legislation, which will assist engineers in ensuring their own careers and enhancing their ability to provide for themselves and their families – now and in the future."

As 2009 Vice President of Communications and Professional Activities Paul Kostek told us: "IEEE-USA has been a consistently heard voice in Washington, D.C., on issues relating to technical policy, intellectual property, pension reform and immigration reform. We've had an impact on all of these topics through testimony, op-eds, news conferences, and lobbying/meetings with legislative leaders."

In addition to his IEEE-USA service, Kostek was chair of the American Association of Engineering Societies (AAES) in 2003. Similarly, 2006 IEEE-USA President Ralph Wyndrum leads the AAES in 2009.

2005 IEEE-USA President Gerry Alphonse added: "IEEE-USA has considerably influenced the welfare of the profession by its public policy programs, Career Navigator, and the creation of *Today's Engineer* magazine."

Former IEEE-USA Career Policy Council Chair George McClure noted: "By giving voice to the IEEE's U.S. members and joining in coalitions with like-minded groups, IEEE-USA has been able to work for the improvement of retirement security [and]

for control of skilled guest worker admissions – by supporting regional training sessions and by interacting with the media on issues of concern, where IEEE-USA became the ‘go-to’ source for comments.”

Former professional activities staff director Leo Fanning recalled: “We led the highly technical IEEE into the professional aspects of the engineering community. We reached out to the grass roots of the U.S. IEEE which had never been done to any significant degree except technically.”

Even as there was disagreement among some technical society members within the IEEE on the role of professional activities in a primarily technical organization, volunteers from outside the U.S. in IEEE Regions 7-10 have sought to emulate professional programs initiated by the U.S. IEEE organization. In September, IEEE-USA is hosting a globalization of professional activities committee for the worldwide IEEE organization. In addition, over the years, IEEE-USA has sought to include representatives from the technical societies on its public policy committees to ensure their technical input.

As further evidence of this spirit of cooperation, beginning in September 2007, staff members of IEEE-USA and the IEEE Computer Society developed productive and collegial relationships by sharing the same office space. In December 2008, the two IEEE units occupied a new expanded office at 2001 L Street, N.W., across the street from the U.S. Peace Corps headquarters, and in the same building as the U.S. office for the Organization for Economic Cooperation and Development (OECD).

Global Impacts: Over the 36-year period covered by this history, Washington, D.C. has become a more global city. This change was spurred by globalization of the world’s economy. Walking around the capital city, it is not uncommon to hear multiple languages spoken. In addition to the many embassies located on Embassy Row, Washington is the headquarters of the World Bank, the International Monetary Fund and the International Development Fund. With the recent worldwide economic downturn, the U.S. capital has become the focal point for efforts to restore the economy in the U.S., as well as to improve economies globally – in both developed and developing countries.

IEEE-USA has cemented ties with the U.S. State Department through a new State Department fellowship program, and received accolades in 2002 from then-Secretary of State Colin Powell for its role: “We still have far too few officers with strong sci-tech backgrounds, but thanks to the National Academies and others in the sci-tech community – such as the American Association for the Advancement of Science, the American Institute of Physics, and the Institute of Electrical and Electronics Engineers – a small group of sci-tech fellows has joined our ranks, and their number will grow.”

Further, IEEE-USA has assisted the global IEEE in approaching the U.S. State Department on easing visa restrictions on technical professionals from outside the United States who wish to participate in IEEE technical conferences held in the States.

#### Influences of Rapidly Changing Technology

Rapid change has been the hallmark of the engineering profession for many years. These changes have come from members of the profession. As we look back to 1984, when the history of the first 10 years of the United States Activities Board was

documented, we have witnessed many technological developments that have had a profound effect on our lives. More importantly, these changes have resulted in significant differences in the jobs and careers of U.S. IEEE members. Technology has flattened the globe as suggested by Thomas Friedman in his popular book, *The World is Flat* [1].

We have seen advances in communications, computing, transportation and entertainment. In 1984, modern conveniences such as personal computers, personal digital assistants, iPods, cell phones and hybrid automobiles were either in their infancy or non-existent. Semiconductor technology, the Internet, advances in computer architecture, and software are a few of the enabling technologies that have made all of this possible.

Much of this technology has improved the quality of our lives. Some of the dire scenarios envisioned in George Orwell's *1984* [2], also the year of the IEEE Centennial, have not come to pass – due in no small part to the efforts of IEEE members in addressing privacy concerns, for example.

Technology has also resulted in higher efficiencies and has improved quality of life for all people. Witness the improved fuel consumption in automobiles that can be attributed to electronic controlled systems used on modern automobiles. The Internet has made it easier to conduct business by providing instant information, regardless of whether an interface is located across the city or on the other side of the globe. Global positioning systems enable us to navigate from one point to another without a map.

IEEE volunteers worldwide, indeed all engineers, have benefited from technology in their activities. The Internet and e-mail enable volunteers to communicate quickly and efficiently. Electronic conferencing is used more – reducing the need for travel and making better use of volunteers' time. Portable devices enable volunteers to communicate and collaborate while they are away from their office or home.

While we see countless benefits from the many devices and systems that modern technology has brought us, there are, of course, negative consequences: for example, how the efficiencies that have resulted from technology make it possible to do more with less effort. This effect translates to fewer jobs or enables a worker with fewer skills to complete a job that was formerly done by a more skilled worker.

Robots and automation reduce the labor required for manufacturing. Computer-aided software tools enable engineers to design devices and systems more quickly. Boeing Aircraft Co. could reduce test requirements for its 777 airplane through advanced modeling techniques. And, of course, modern technology has enabled globalization.

Technology is an important driver of the future. Technology causes change that engineers have to cope with; successful engineers must constantly build their knowledge and skills to succeed. Even more importantly, engineers have to be concerned about their role in advancing the profession through their work and influence on others, as well as their role in making the world a better place. Over the years, IEEE-USA has highlighted this message in the many workshops, conferences and products.

## Forces of Globalization

As the United States entered the 1980s, its dominance as a world technology and economic leader was challenged. Japan and Germany, along with other European countries, had been rebuilding their economies in the years following World War II. Significant segments of the electronics industry had already been “lost” to these countries, even before 1980. For example, Sony, Panasonic and Philips had established major manufacturing electronics businesses – mostly in the consumer electronics sector.

This trend rapidly accelerated after 1980 with other Asian Rim countries joining the world marketplace. China and India emerged as global economic forces. Russia and Brazil appeared on the scene as competitors in the high-tech marketplace.

Once mighty high-tech companies succumbed to the growing competition from global competitors. Even giant computer corporations such as Control Data, Cray, Wang, Burroughs and Digital Equipment Corp. (DEC) disappeared through mergers, acquisitions and liquidations. Many smaller and startup companies went the same way. Once vibrant high-tech regions, including Silicon Valley and Boston’s Route 128, were cluttered with vacant factories and office buildings.

This downward spiral has been mitigated by expansionary periods of economic growth fueled by a number of drivers, such as: the rapid growth of the Internet; advances in computing technology; the entrepreneurial spirit, which has a long tradition in the U.S.; new developments in integrated circuit technology; the revolution in personal communications; and a buildup of the defense industry, beginning in 1980.

Negative forces that have had a significant impact on competitiveness include: lower wages in developing countries; smaller expenditures on Federal research and development; improved accessibility of education for engineers and technologists in other countries outside the U.S.; immigration laws and policy; offshoring; and declining interest in math and science.

Globalization has created serious career and employment issues for many IEEE members. The U.S. professional activities arm has responded by: organizing career and employment workshops; influencing public policy on the careers and employment of engineers; and promoting consulting, entrepreneurship and innovation.

Other positive influences include: policy recommendations from organizations such as the National Academy of Engineering, which issued its report on restoring U.S. competitiveness, *Rising Above the Gathering Storm* [3]; and passage of the *American Competes Act*, endorsed by IEEE-USA, which authorized nearly \$45 billion in U.S. spending on science, technology, engineering and mathematics education between fiscal years 2008-2010.

## Rebranding: A New Name and New Organization

IEEE United States Activities Board (USAB) programs and activities continued to grow through the 1980s and 1990s. IEEE USAB’s pursuit of advancing the profession through its influence in Washington was increasingly recognized as important for professional engineering organizations. During this period, IEEE and USAB leaders had numerous discussions on issues related

to governance and organization. Questions concerning IEEE USAB's responsiveness to grass roots members and member communications prompted USAB to form a review committee to consider USAB's organization and propose changes.

This committee, led by Jack Doyle, was formed in 1980. In February 1981, a final report was completed and recommended sweeping changes in IEEE USAB's board structure. The committee proposed the addition of 12 member-elected directors from 11 U.S. territories. Four additional members would include: a vice president of professional activities, the junior past vice president of professional activities, a controller and staff director. The vice president of professional activities would act as chairman of the board. While this restructuring would address concerns about representation of grassroots members, the proposal was not approved by the IEEE Board of Directors.

In 1995, then IEEE President Troy Nagle commissioned an ad hoc committee to implement a comprehensive review of USAB. Nagle's charge was to review activities of IEEE USAB during the five-year period from 1990-1994. One of the key recommendations of the committee, chaired by George Abbott, was that a U.S. IEEE President should represent the 250,000-plus U.S. members: when public positions were taken; during appearances before the U.S. Congress; or with pressing problems for the U.S. membership. This recommendation highlighted the need to signal clearly that USAB was an IEEE organization with full support of the IEEE leadership. Up to this point, this responsibility was carried out by the professional activities vice president and USAB chairman.

Between 1995 and 1996, discussion and debate among the IEEE and USAB leadership led to a significant change in the organization. Since 1988, "IEEE-USA" stood for IEEE United States Activities. In 1998, USAB was reorganized as IEEE United States of America (IEEE-USA), with a member-elected president.

Commenting on a member-elected IEEE-USA president, Dan Benigni, USAB's last vice president of professional activities, said: "We knew we would be assailed on this point, but it was vital to have an elected leader with clout." After the reorganization, Benigni would also be the IEEE-USA's first past president.

Responsibility for professional activities was assigned to a vice president of professional activities whose previous role had included being chairman of the board. The Board consisted of three other vice presidents for member activities, career activities and technology policy.

Other board members included the six U.S. regional directors, two members-at-large, the president-elect, the past president, and the IEEE-USA managing director. All Board members except the vice presidents and the managing director were elected by the membership.

Bylaw changes proposed by a USAB Bylaws Committee were adopted and plans to launch the new organization were completed in 1996. IEEE-USA's first president-elect, John Reinert, was elected by the IEEE membership during the October 1997 elections. Reinert took office as IEEE-USA president in January 1998.



These governance changes lent IEEE-USA a stronger voice to policy makers and congressional leaders in Washington, while strengthening the IEEE-USA's focus on professional activities. At the same time, U.S. IEEE members would be better represented through the ballot process.

### Young Engineers at the Table

The 1995 IEEE ad hoc review committee also recommended that IEEE USAB make "a strong effort to bring in new blood." The review committee noted that "most of the USAB volunteers are older." This point resonated with USAB leadership who had already taken steps to engage younger IEEE members in their activities. This concerted effort to bring younger IEEE members to the 1995 PACE conference led to the formation of an ad hoc group on young professionals (YP). The committee recommendations resulted in establishing YP tracks at all future PACE conferences.

The YP movement was eventually renamed Graduates of the Last Decade (GOLD), in concert with a parallel effort by volunteers of the IEEE Regional Activities Board (RAB). GOLD was officially launched by RAB at the 1996 IEEE Sections Congress in Denver. GOLD activities have grown significantly over the years, and IEEE-USA has benefited from the energy and enthusiasm of many GOLD initiatives, such as mentoring Student Branch members.

Recent IEEE-USA annual meetings have demonstrated growing interest from GOLD members. Annual meetings have proven to be an excellent opportunity for early-career IEEE members to hone their leadership skills, network with other IEEE volunteers, and gain up-to-date information on a wide range of professional topics.

In 2006, the IEEE GOLD Committee meeting was held concurrently with the annual meeting. GOLD members were able to benefit from the many sessions on career and professional development provided in the program. During the 2009 annual meeting, these younger members also introduced speakers and wrote blog summaries.

Such involvement during early careers helps to ensure that young volunteers will participate in IEEE activities for most, if not all of their entire career. More importantly, GOLD participation will prepare future leaders for the important work that is being done by IEEE-USA.

### Progress on all Fronts

During the last 36 years, IEEE-USA has found its voice in the U.S. capital – in the executive, legislative and judicial branches of government. Just a year after its 10<sup>th</sup> anniversary, in 1984, during the IEEE Centennial, IEEE-USA volunteers and staff orchestrated a message from then President Ronald Reagan, who addressed a videotaped message to attendees of the IEEE Centennial Technical Convocation at the Franklin Institute in Philadelphia. Thousands of other IEEE members watched the President through a satellite transmission to 140 sites across North America.

Mr. Reagan lauded IEEE members: “You’re the real heroes of high tech, and you have good reason to be proud of your countless achievements. And today you and your industry continue to lead us into the future with expanding markets, new jobs and exciting progress. You’ve opened the door to great advances in productivity that would have been considered unthinkable only a few decades ago.”

The IEEE Centennial Technical Convocation was developed with the IEEE Philadelphia Section and Merrill Buckley, who was Vice President of Regional Activities in 1984, and led to creation of the IEEE Sections Congress. Buckley was also 1992 IEEE President and 2000 IEEE-USA President.

Seven years later, during the first President Bush’s administration, Rep. Don Ritter (D-Penn.), then the only engineer in the U.S. Congress, paid tribute to U.S. electrical engineers and the IEEE. As recorded in the *Congressional Record* of 21 March, 1991, Mr. Ritter said:

*The 250,000 U.S. members of the IEEE are especially proud of their role in ensuring the performance of electronic systems dramatically demonstrated in Operation Desert Storm...In a full-page advertisement appearing in the March 7 Wall Street Journal and Washington Post, IEEE U.S. Activities sought the cooperation of the President, the Congress, and the business community to achieve comparable successes in high-technology commercial products and services. We owe the electrical and electronics engineers a debt of gratitude: Congratulations to IEEE-USA and the entire profession.*

Also, in 1991, during the administration of President George H.W. Bush, IEEE-USA volunteers and staff spearheaded a public affairs and public-relations campaign to influence an early appointment of the President’s science adviser. The new adviser, Alan Bromley, a Canadian-American physicist, was appointed shortly after this campaign and was hailed for his sci-tech credentials. the *Wall Street Journal* lauded the intersociety effort led by IEEE-USA.

With the inauguration of the first President Bush and *Operation Desert Storm*, IEEE-USA received two major awards from the Washington, D.C. chapter of the Public Relations Society of America in New York City and the International Public Relations Association in London for IEEE-USA’s leadership in spurring the Presidential appointment and its support for the development of high-tech commercial products and services.

In 1993, as part of the Engineers Week activities led by the IEEE, then IEEE President Martha Sloan was invited to the White House with winners of the EWeek Future City Competition. The IEEE president and middle school students were shown outside the Oval Office with President Bill Clinton in a brief segment on *ABC’s Evening News With Peter Jennings*. In 2004, IEEE-USA garnered its second International Public Relations Association Golden World Award, for leading Engineers Week in 2004 – with Joe Lillie as an honorary chairman.

In 2000, IEEE-USA joined its sister societies in promoting the National Academy of Engineering’s “Top 20 Engineering Achievements.” Then IEEE-USA Public Relations Director Pender McCarter arranged for Neil Armstrong, the astronaut and head of the NAE panel that named the achievements, to address the National Press Club.

Armstrong told a standing room only/CSPAN audience: “The twentieth century was a century often punctuated with the terror of war and darkened with societal struggles to overcome injustice. But it was also the first century in which technology enabled the tenets and the images of those traumas to reach across the world and touch people in ways that were previously unimagined. John Pierce, the engineer who fathered Telstar, the first satellite to relay television signals across the Atlantic, said that engineering helped create a world in which no injustice could be hidden.”

More recently, during the IEEE’s 125<sup>th</sup> anniversary, IEEE-USA spearheaded the introduction of *House of Representatives Resolution 413*, “Supporting the Goals and Ideas of ‘IEEE Engineering the Future’ Day on May 13, 2009,” introduced by Rep. Clifford Stearns (R-Fla.), an electrical engineer. House Science Committee Chair Bart Gordon (D-Tenn.) made short remarks on the House floor about the resolution, the IEEE and its contributions. He was followed by other Members of Congress who presented brief statements prior to the vote on the resolution.

Speaking on the House floor, Rep. Gordon said: "Who could imagine the world today without electricity, light bulbs, computers, radios, TVs, wireless communications, the Internet and all those electronic devices that inform us, entertain us and help make our lives more enjoyable? Health care has improved because we have x-rays, MRIs, laser surgery, sonograms, arthroscopic cameras and pacemakers. We can thank electrical and computer engineers for these lifesaving technologies."

Washington Office Staff Heads: IEEE-USA’s first Washington office at 2029 K Street, N.W., was headed in 1973 by Ralph Clark, a respected former government employee. He was followed by Jack Kinn, who had led the staff effort for IEEE educational activities, and who was IEEE-USA’s first lobbyist. Leo Fanning, who had previously worked with the Peace Corps and Westinghouse, headed the office from 1979 to 1992. Tom Suttle, who began his career at IEEE-USA in 1977 working on pension and other employment issues, led the office from 1993-2004.

The current managing director, Chris Brantley, is a lawyer by training. Prior to becoming head of the office, he was one of several lobbyists advocating on behalf of U.S. IEEE members, engineers and the profession. Brantley, with his counterparts from the IEEE Computer Society, planned the move to the current IEEE-USA Washington Office at 2001 L Street, N.W. Previous addresses were 2029 K Street, N.W., 1111 19<sup>th</sup> Street, N.W., and 1828 L Street, N.W.

Bob Walleigh, who helped set up the current office for the National Institute of Standards and Technology (formerly, the National Bureau of Standards) in Gaithersburg, Md., served as an IEEE-USA staff member for four Washington Office directors over an 18-year period, after retiring from the National Bureau of Standards.

Washington Staff Evolution: Commenting on the evolution of IEEE-USA staff, Leo Fanning, the staff director for professional activities from 1979 to 1992, noted: “We led the highly technical IEEE into the professional aspects of the engineering community. We reached out to the grass roots of the U.S. IEEE, which had never been done to any significant degree, except technically. It was also necessary for the USAB staff to grow up within the confines of the total IEEE...It took time, hard work

and much convincing to earn our way with the mature, well-developed and highly technical IEEE staff....Staff development and growth in stature was also a major accomplishment...because it resulted in much better application of volunteer resources.”

Said Eric Herz, long-time IEEE member and IEEE executive director from 1980 to 1993: “I believe that the U.S. Congress took note of the IEEE more seriously because of the work of USAB.” Herz added: “Not everything that USAB did or stood for benefited the IEEE,” citing some employers’ reluctance to send their employees to IEEE meetings because of the IEEE-USA position on immigration reform. To address some of these employer concerns, 1999 IEEE-USA President Paul Kostek launched an effort to collaborate with industry groups, such as the Software Industry Association.

Also addressing IEEE-USA’s positive impact, Russ Lefevre, 2008 IEEE-USA president stated: “IEEE-USA is perceived as one of the most respected organizations in technology in the U.S. Congress and agencies.” Said Gloria Aukland, a long-time IEEE employee and IEEE-USA’s former communications manager: “IEEE-USA’s activities have improved the IEEE’s visibility and highlighted the importance of the profession, as well as increased the professional stature of engineer-members.”

As another indication of how IEEE-USA supported the IEEE, vice presidents of professional activities went on to become elected IEEE presidents: John Guarrera, in 1974; Dick Gowen, in 1984; Bruno Weinschel, in 1986; Russell Drew, in 1988; Carl Bayless, in 1990; Chuck Alexander, in 1997; and Joel Snyder, in 2001. IEEE-USA has also been led by a diverse group of leaders including 2005 President Gerry Alphonse, a Haitian-American; and two women presidents – LeEarl Bryant, in 2002 – and Evelyn Hirt, who will serve in 2010.

### Evolving Over Three-Dozen Years

IEEE-USA’s history over 36 years from 1973-2009 is presented on the IEEE-USA Web site [4]: “Formation: First 10 Years from 1973-83”; “Growth and Maturity: 25 Years from 1984-1999”; and “21<sup>st</sup> Century: Nearing a Decade from 2000-2009.” The following briefly summarizes how IEEE-USA programs have evolved over the last three-dozen years in three areas: career/member services/professional activities; government relations; and communications/public awareness.

### Career/Member Services/Professional Activities

Career Resources: To assist members with their career and employment, IEEE-USA provides the following online resources: IEEE-USA Career Navigator, IEEE Job Site, Employment and Career Strategies Forum, and the IEEE Career Page. With the Employment and Career Strategies Forum, members can network and collaborate in a virtual community on employment and career strategies. The community includes discussion groups, chat rooms and resource files.

Salary Survey/Service: IEEE-USA launched its first salary survey in 1973. More recently, the organization created a Salary Survey Service that provides members who complete the salary survey with a salary history, updateable salary survey, and individual salary comparator for each year that they have completed the Survey.

Career Workshops/Webinars: IEEE-USA has sponsored unemployment workshops since its inception. More recently, the organization has launched a webinar series that provides information to assist members in finding new jobs, maintaining their careers, negotiating appropriate salaries, and understanding ethical considerations in the workplace.

Engineers Guides/Professional Guidelines Series/CAMindex: The early employment guides have been updated with the *Engineers Guide to Lifelong Employability*, *Career Planning Guide for IEEE Members*, and *The Beyond Job Satisfaction Fieldbook*. The Professional Guidelines Series provides monographs on various non-technical subjects relating to the career, professional, and public policy interests of the IEEE's U.S. members, available to members without charge. IEEE-USA's Career Asset Manager Index (CAMindex) helps members keep records of all the educational, professional and personal activities that might be useful in quickly putting together a resume or job application.

Engineering Ethics: Since IEEE-USA backed whistleblowers in the BART and space shuttle cases, the organization has promoted high ethical standards for members. IEEE-USA created the Member Conduct Committee in 1978 to enforce the IEEE's *Code of Ethics*. The committee is now an IEEE-wide body.

Licensure & Registration: For many years, the professional activities organization focused on matters involving licensing of Professional Engineers and the impact that professional licensure has on U.S. IEEE members. Through the leadership of Joel Snyder, John Steadman, Greg Vaughn and others, IEEE-USA has represented the interests of the U.S. electrical and computing professions in the National Council of Examiners for Engineering and Surveying (NCEES), which is comprised of state licensure officials responsible for developing and administering model licensure laws.

In June 2009, with the IEEE Computer Society, IEEE-USA agreed to provide support to the NCEES as it considers developing a model licensure examination for software engineering in response to requests by 10 states. IEEE-USA has also offered Professional Engineering (PE) review courses, such as in sample tutorial practice problems in electrical and computer engineering.

Consultants Networks: U.S. IEEE members who have turned to consulting have formed local Consultants Networks. IEEE-USA supports these members through its Alliance of IEEE Consultants Networks Coordinating Committee (AICNCC) and with various services including an on-line Consultants Directory. Over the years, IEEE-USA has supported fair treatment of consulting engineers under tax laws to help guarantee productivity, innovation and new business development.

Entrepreneurs Village: An online village allows members to seek advice and mentor other entrepreneurs who are engaged in businesses based on technology. To assist high-tech entrepreneurs starting new businesses, in June 2009, IEEE-USA President Gordon Day and the U.S. Small Business Administration signed an agreement pledging mutual cooperation in promoting, strengthening, and expanding small business development throughout the country.

Innovation Institute: An Innovation Institute was first proposed by 2006 IEEE-USA President Ralph Wyndrum, in response to the National Academy's *Rising Storm* report on challenges to U.S. competitiveness, rooted in the Bell Laboratories tradition of

innovation. After hosting a series of educational forums, the Institute conducted three industry roundtables in 2009 to chart a new direction. It is currently exploring an alternative approach in solving difficult technical problems involving on-line collaborations with industry and university partners.

PACE Workshop/Annual Meeting: The twice yearly and annual PACE Workshops that brought together IEEE-USA volunteers have evolved into the annual IEEE-USA annual meeting. The annual meeting: provides basic volunteer and leadership training through interactive workshops; offers discussions and workshops from experts on engineering career development and lifelong employability; gives updates on IEEE-USA's current legislative priorities affecting technology and engineering careers; and conveys information on how members may take part in an effective grassroots lobbying network.

Former IEEE-USA professional activities staff manager Ann Hartfiel assessed the value of the PACE network: "As a channel for the dissemination of information to the societies, regions, subregions and section executive committee, PACE was pretty effective in creating awareness of issues and what IEEE-USA was doing to address them. However, my impression is that the dissemination stopped there, for lack of a means to reach the scattered members who did not actively participate within the local IEEE structure." IEEE-USA continues to reach out to U.S. IEEE members who are not volunteers.

Student Professional Awareness Conferences (S-PACs): On the organization's success in reaching students, Ann Hartfiel observed: "The S-PAC Committee grew into a vibrant and ever changing group of recent graduates eager to involve students in IEEE-USA activities. The number of student branches holding S-PACs grew to the point that it was hard for both the committee and the staff to keep up with them." Currently, IEEE-USA is supporting an average of 40-50 student professional activities conferences and events annually.

Former Professional Activities Vice President/IEEE President Chuck Alexander recalled how he was first drawn to the IEEE: "For me it started when I was a freshman in the College of Engineering at Ohio Northern University, during the fall of 1961. The faculty most strongly encouraged us to join IEEE, then the AIEE, as freshmen. In addition, they stressed the professional side of becoming actively involved in our student organization." Former IEEE/IEEE-USA Presidents Alexander and Merrill Buckley continue to serve as S-PAC speakers.

Precollege Education: IEEE-USA's support for science, technology, engineering and mathematics has spanned from a White House visit for the first anniversary of the Young Astronauts' program; to creation of classroom activities to spark both boys' and girls' curiosity and creativity in the world around them; to K-12 mentoring; and to support for hiring more math and science teachers in high school. Additionally, under 2006 IEEE-USA President Ralph Wyndrum's leadership, IEEE-USA contributed substantial funds to the IEEE Educational Activities Board Teacher In-Service Program presenting technologically oriented subject matter to precollege students.

## Government Relations

Public Policy Priorities: Each year, coinciding with the convening of a new session of Congress, IEEE-USA established public priorities. Currently, those priorities include: innovation and competitiveness; energy; broadband networks; immigration; patent reform; engineering workforce security; e-health; and critical infrastructure protection.

Position Papers/Testimonies: At present, more than 75 IEEE-USA position statements identify important technical and/or engineering career-related aspects of specific public policy issues affecting the IEEE's U.S. members. These position statements make specific public policy recommendations for consideration by the U.S. Congress, Executive Branch officials, the Judiciary, representatives of state and local government, and other interested groups and individuals, including IEEE members.

IEEE-USA regularly communicates to Congress and the Administration in letters, position statements and testimonies. These communications address: aeronautics, space and transportation; computers and communications; education; energy and the environment; engineering workforce; homeland security; intellectual property; medical technology and health; and research and innovation. When opportunities arise, IEEE-USA has also tackled issues at the state and local level, such as 2007 testimony by IEEE Board member and IEEE Region 3 Director John Dentler before a committee of the Maryland General Assembly opposing the adoption of a state sales tax on computer-related services.

IEEE-USA's impact has been significant from the start, playing an instrumental role in a broad effort to improve retirement security through pension portability, which resulted in the creation of Individual Retirement Accounts and other reforms. At a June 1983 Senate hearing, IEEE-USA supported the *Manufacturing Sciences and Technology R&D Act*, and garnered worldwide attention with the first congressional testimony delivered in the computer-synthesized voice of *Hero I*, a Heathkit robot.

During the past 10 years, IEEE-USA has had measurable influence on important national legislation related to U.S. competitiveness, energy, immigration, patent reform, retirement security, precollege science and math education, and electronic health records. IEEE-USA has also successfully advanced the IEEE's interests in legislation, including securing recognition of IEEE's interconnection standards in the *Energy Policy Act of 2005*, placing IEEE representatives on various federal advisory boards and committees, identifying the IEEE as a key stakeholder in federal Smart Grid efforts, and securing the House Resolution recognizing the IEEE's 125<sup>th</sup> Anniversary.

Supreme Court Amicus Curiae ("Friend-of-the Court") Briefs on Patent Rights: The U.S. Supreme Court has adopted significant new legislative standards proposed by IEEE-USA in landmark intellectual property cases. Under the leadership of 2004 IEEE-USA President John Steadman and Intellectual Property Committee Vice Chair Andrew Greenberg, IEEE-USA helped to protect copyrighted works and technology with "non-infringing" uses in "friend-of-the-court" *amicus* filings.

Ruling unanimously in *Festo Corporation v. Shoketsu Kinzoku Kogyo Kabushiki Co., Ltd.*, the Supreme Court dismissed the "flexible bar" and "absolute bar" standards advocated by the opposing sides, and adopted IEEE-USA's proposed "foreseeability" standard. The standard states that holders of an amended patent give up protection for only those things that were foreseeable by

persons familiar with the associated technology. According to Bloomberg News, the decision “may be the most significant Supreme Court patent decision in two decades, affecting as many as 90 percent of the 1.2 million patents now in force.”

Government Fellows Program: Founded in 1973, IEEE-USA’s award winning program currently supports three government fellowships for qualified IEEE members. The fellows spend a year in Washington serving as advisers to the U.S. Congress and to key U.S. Department of State decision-makers. Both the Congressional Fellowship and Engineering & Diplomacy Fellowship link engineers with government, providing a mechanism for the IEEE’s U.S. members to learn firsthand about the public policy process.

Several former IEEE-USA Congressional Fellows have gone on to serve in leading government posts, including: Leonard Weiss, staff director with former Sen. John Glenn (D-Ohio); John Peha, chief technologist with the Federal Communications Commission; and Peter Winokur, member, Defense Nuclear Facilities Safety Board. Three IEEE-USA presidents were Congressional Fellows: LeEarl Bryant, 1993; Russ Lefevre, 2001; and Gordon Day, 2005.

Washington Internship for Students of Engineering (WISE): WISE is a summer internship program in engineering and public policy. Third and fourth year engineering and computer science students and graduates pursuing policy-related graduate studies are selected in a nationwide competition to spend nine weeks in Washington, D.C., learning how engineers contribute to public-policy decisions on complex technology issues.

Grassroots Advocacy: Under the leadership of 2001 IEEE-USA President Ned Sauthoff with then Government Relations Director Chris Brantley, IEEE-USA began a systematic effort to involve IEEE’s U.S. members in “grassroots” advocacy with the establishment of the Congressional Advocacy Recruitment Effort (CARE). In 2003, the organization hired a full-time grassroots coordinator, Russ Harrison, who has addressed dozens of local IEEE entities in the last six years. The resulting CARE Network has grown to 18,000 registered participants who receive IEEE-USA legislative alerts. An associated online Legislative Action Center enables all U.S. IEEE members to contact their legislative representatives in all 50 states and all congressional districts.

Since 1996, IEEE-USA has also been a lead organizer of the multi-society Science, Engineering and Technology Congressional Visits Day program. In recent years, IEEE-USA added a Career Fly-In and coordinated Washington visits, in partnership with the IEEE Robotics and Automation Society and the IEEE Photonics Societies.

In 2009, IEEE-USA held its first Energy Fly-in giving U.S. IEEE members an opportunity to meet with congressional staff and influence the development of energy policy in Washington. As one measure of this effort, IEEE-USA is now coordinating over 250 U.S. IEEE member visits annually with members’ elected officials in Washington and in members’ home districts.

Other current grassroots activities include: the Engineering the Vote voter registration effort, a series of workshops on running for public office organized in partnership with Scientists and Engineers for America; and a speaker program for IEEE sections and groups, involving IEEE-USA’s government relations staff and former government fellows.



Conferences and Workshops: Almost since its inception, IEEE-USA has convened major meetings on research and development funding in electrotechnology and on technology policy issues. Tech policy conferences have been held on “Policy Imperatives for Commercialization of U.S. Technology” (1989) and “Restructuring the Electric Power Grid” (1997).

Since 2006, IEEE-USA has become actively involved in organizing and co-sponsoring technical conferences and symposia on important areas of emerging technology with significant public policy implications. IEEE-USA was a co-founder of the IEEE International Conference on RFID in 2007, and a supporter of the IEEE Technologies for Homeland Security Conference and IEEE Green Technologies Conference.

In addition, a 2007 workshop in partnership with the IEEE Power and Energy Society on “Plug-In Hybrids: Accelerating Progress” drew strong congressional interest and resulted in legislation to promote hybrid vehicles. IEEE-USA has also partnered with the Georgia Institute of Technology in supporting the 2007 and 2009 Atlanta Conference on Science and Innovation Policy, and with the National Institute of Standards and Technology in backing a 2007 Conference on Bioeconomics.

Collaboration with American Association of Engineering Societies (AAES): As a member of the AAES, IEEE-USA has joined with more than 25 professional engineering societies to pursue common government relations and public relations goals in: technological competitiveness, pensions, sustainable development and the environment, and promotion of the image of engineers. Other areas of AAES partnership include: engineering workforce surveys and representation in the World Federation of Engineering Organizations. In addition, IEEE-USA has spearheaded efforts to maintain a more efficient and influential umbrella organization.

#### Communications/Public Awareness

As IEEE Educational Activities Director, Jack Kinn collaborated on the Institute’s first public relations program. When he headed the Washington Office in 1980, Kinn hired IEEE-USA’s first public-relations manager, who reported to a PR staff director in New York City. In 1981, Pender McCarter was hired by then IEEE executive director Eric Herz and IEEE-USA staff director Leo Fanning as the IEEE Washington Office PR manager. McCarter served with two IEEE PR directors before being tapped as the IEEE-USA’s first associate director and director of communications and public relations.

From 1981-2006, the communications/PR staff and volunteers collaborated on fashioning a new image and identity for IEEE-USA that enabled the organization to communicate more clearly and effectively with its publics, both in and outside of the government; launching *Today’s Engineer*, the first monthly magazine devoted to advancing engineering careers; leading a public affairs and public relations campaign to appoint a stronger sci-tech adviser to President George H.W. Bush’s White House staff; and conducting a PR and ad campaign to support the development of commercial technologies.

In 1989, IEEE-USA’s Supercomputer Subcommittee focused national attention on development of U.S. supercomputers, covered in a front-page lead story in the *Wall Street Journal*. IEEE-USA’s support for a less costly space station in 1990 was praised in

the lead editorial in a Sunday edition of *The New York Times*, and was included in a report on the *CBS Evening News With Dan Rather*.

More recently, IEEE-USA has lent its public relations support to IEEE technical conferences. These conferences covered public policy issues and emerging technologies in: homeland security, plug-in hybrid electric vehicles, radio frequency identification devices and bioeconomics.

Other joint staff and volunteer PR activities in this 25-year period included: designing a public awareness campaign for strengthening precollege math and science education; coordinating on behalf of IEEE staff and volunteers the \$1-million public-relations efforts of 60-plus high-tech organizations during National Engineers Week in 1993 and 2004; spearheading two United Nations Engineers Week forums on promoting opportunities for women in engineering worldwide; and restarting in the mid-1980s and continuing into the mid-1990s an IEEE industry-relations program.

Additional activities from 1981-2006 included: launching in 1983 the IEEE's first Technology Media Briefing, held in Washington, and repeated annually for more than 15 years, most recently in 2009 during the 125<sup>th</sup> IEEE anniversary celebration; producing two IEEE media directories of hundreds of knowledgeable members of the IEEE's more than three-dozen technical societies, the model for a later searchable electronic guide; planning and promoting the IEEE Centennial in 1984, including a video tribute to IEEE members from President Reagan; bolstering the image of engineers by placing advertisements in the *Wall Street Journal*, *The New York Times*, the *Washington Post*, and the *Los Angeles Times*; creating a grass-roots public relations counseling program for U.S. IEEE members; and securing placements for IEEE members on *Donahue*, *Good Morning America* and *60 Minutes*.

When IEEE-USA coordinated the IEEE's lead society role in Engineers Week in 1993, it spurred the creation of the Future City Competition, which over the last 25 years has grown from involving 200 schools and 600 students to more than 1,100 schools and 30,000 students. IEEE-USA also led the way in 1993 with the first EWeek Family Night that has become the successful EWeek Family Day attracting thousands of youngsters and adults to the National Building Museum to learn firsthand about engineers and engineering. IEEE-USA's current public relations manager, Chris McManes, has overseen this activity annually since 2000. McManes and IEEE-USA Marketing Manager Chris Currie, with volunteers (including Jean Eason, George McClure and Paul Kostek), have also helped to navigate changes in PR as the Internet has revolutionized the profession.

Member/Electronic Communications/E-books: Under the volunteer leadership of Joel Snyder, Charles Lessard, Gus Gaynor and Jean Eason, IEEE-USA launched *Today's Engineer*, the first magazine to cover engineering careers in 1999. *Today's Engineer Digest* has received multiple *Apex Awards* for publications excellence, as overseen by long-time IEEE-USA Publishing Manager Georgia Stelluto. IEEE-USA has also published some 40 e-books on career, professional and public policy topics.

In addition, the organization's home page logs 314,000 visitor sessions per month; and *Today's Engineer Online*, 95,000 visitor sessions per month. Currently, IEEE-USA Electronic Communications Manager Greg Hill oversees a monthly e-mail alert

promoting IEEE-USA products and services that is sent to virtually all U.S. IEEE members with e-mail addresses. IEEE-USA's current managing director, Chris Brantley, had previously laid the groundwork for IEEE-USA's Web pages.

### The Second Millennium

As the first decade of the second millennium comes to a close, IEEE-USA is faced with old and new issues. The organization's functions remain basically the same: serving as the U.S. IEEE member's individual resource to establish a solid, lasting career in a chaotic world – working to support individual careers; as the technical professional's advocate to create a stable and productive work environment for all engineers – working to enhance the profession; and as the profession's voice in Washington and throughout the nation to build a strong and competitive U.S. market – working to shape U.S. technology policy.

For America's engineers, it always seems to be "the best of times" and "the worst of times." As this history is being written in July 2009, California is again pummeled with budget woes. As a reporter in *The New York Times* observed in July: "Three decades of staggering population growth, combined with three high-impact recessions, budgeting by ballot box, federal mandates, an unusual tax structure, and the rising cost of social services have finally produced disastrous results." The current situation in California may be worse than the economic downturn in the 1970s and 1990s. Now, the state is reeling from a lack of funds to pay for basic government services and is even issuing IOUs to cover its liabilities.

At the same time, as the IEEE seeks to become a truly global organization, some members question the value of U.S. IEEE centered activities, in general, and involvement in U.S. politics, in particular, especially as these activities are weighed with the IEEE's global objectives. Some members of the IEEE's technical societies continue to be uncomfortable dealing with non-technical issues and political activities.

In the late 1990s, Robert Putnam, in his book *Bowling Alone* [5], recorded the declining participation of individuals in volunteer activities – of concern then to many associations, including the IEEE. In July 2009, IEEE-USA Managing Director Chris Brantley noted that "volunteering for IEEE-USA seems to be strong," despite budgetary restraints brought on by the great recession. Similarly, a report released the same month by an independent federal agency that runs AmeriCorps and other programs documented that 62 million people volunteered in different capacities in 2008. A more recent 2009 report cites a decline in volunteering due to the great recession. IEEE-USA and other organizations will continue to be challenged in the way they tap and utilize their volunteer resources.

Additionally, demographic changes, which will produce the first non-white majority in the U.S. by 2042, dictate that the IEEE and other professional organizations will need to find new members among women, Hispanics, African Americans and other minorities. As IEEE-USA 2009 President Gordon Day said in *USA Today* in July: "We do need to work on our science/technology/engineering/math education. We do need to draw more people into the field. [The market for high-tech workers] is cyclic, and it always will be." We are also in the midst of an electronic revolution, a multi-tasking digital age that will require more highly trained engineers and technologically literate citizens.

Continuing concerns about addressing global issues that affect all citizens worldwide, such as preserving the environment and finding new sources of energy, argue for a more collaborative and inclusive approach among people and organizations. The astronauts who landed on the moon 40 years ago this month commented on how fragile the earth appeared to them from 130,000 miles. The death of CBS Newsman Walter Cronkite in July has reminded us how enthusiastically he greeted the lunar landing as a wondrous achievement by engineers and scientists. We can look at this achievement and IEEE-USA's history as *what was*. But they can also be a reminder to us and a challenge of *what can still be*.

Almost 20 years ago, then-IEEE President Leo Young wrote about the IEEE's newfound role in promoting professional activities in the United States. Dr. Young's family fled Nazi occupied Austria in 1938 to come to the United States. His observations apply today: "We engineers are part of a larger society. We must continue to do all we can to serve that society. In a shrinking and ever more independent world, and with diminishing material resources, the engineer has a critical role to play. Increasingly, technology, research, innovation, and productivity are becoming public-policy issues in the United States and throughout the world. We have an unquestionable responsibility to participate in the debate."

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### **About the Authors**

John W. Meredith, a retired electronics engineer, retired from Agilent Technologies in 2008. He is an active IEEE volunteer having served as IEEE-USA President in 2007. Meredith started his professional career as a U.S. Navy Officer in 1965. After completing assignments on the *USS Intrepid* and in the Navy Electronics Laboratory, he served in a number of engineering and management positions in the nuclear power and semiconductor fields. Meredith was employed with General Electric, Honeywell, American Microsystems, and Hewlett-Packard (later Agilent Technologies). He is currently serving on a number of IEEE committees and is a member of the IEEE Foundation Board of Directors. Meredith is also involved with accreditation of engineering programs and is a member of the ABET Engineering Accreditation Commission .

Pender M. McCarter, a public awareness consultant, retired in January 2007 as IEEE-USA's Director of Communications & Public Relations. McCarter served 25 years: as IEEE PR Manager (1981-1994); and as IEEE-USA PR Manager and IEEE-USA Associate Director/Director of Communications & Public Relations (1994-2006). During this time, he helped fashion a new image and identity for IEEE-USA to communicate to the organization's publics, both in and outside of government; as well as promoted technological literacy, public understanding of engineering, and increased diversity in the engineering profession.

McCarter is active in the Public Relations Society of America, as an accredited Fellow; and the International PR Association, as a United Nations NGO representative. His career encompasses 40 years in association management, high-tech PR, journalism and education.

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