IEEE's United States Activities Board

THE FIRST TEN YEARS
Ten Years . . .

USAB is ten years old. This special issue of IMPACT features a number of special items to cover the ten years of our existence. All the USAB chairmen have been asked to contribute to a special program at the June USAB meeting, to be reported on in our next issue. We also asked all of our Congressional Fellows to contribute to this issue.

There has been a real change in the IEEE since the formation of USAB. There has also been a change in the attitude of engineers. We are far more concerned about our profession, both as the public views our profession and as our profession contributes to society at large. These professional concerns are really worldwide concerns, and the Chairman of the United States Activities Board is also the IEEE Vice President for Professional Activities.

To date, there has been little IEEE action on professional activities outside of the United States. Our members in Canada have some interest in professional activities but these interests are not as well organized. The article in the February 1983 IMPACT by George Sinclair was an indication of his concerns, which he has voiced frequently and which numerous other Canadians have also voiced. Still, the participation of all citizens in all aspects of society seems to be stronger in the United States than in the other countries with large IEEE membership.

Your editor believes that the increase in professional activities among engineers is good for the profession and good for the country. I would like to see more of our membership engaged in professional activities, but this engagement must be voluntary, prompted by the individual's deep concern in the area. We are a society of individuals—fortunately, individuals who have different attitudes, different capabilities, and different interests. It would be as bad to try to force all engineers into professional activities just as previously some who engaged in professional activities thought that IEEE leadership positions required individuals who had published at least 20 papers in our journals. The IEEE should be open to all who have the qualifications of an engineer. We should encourage each to participate in his or her own way.

—B. J. Leon

IEEE IMPACT IS THE NEWSLETTER FOR THE IEEE PROFESSIONAL ACTIVITIES COMMITTEES FOR ENGINEERS

IEEE IMPACT

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NOTE: MATERIAL FOR PUBLICATION MUST BE IN HAND 30 DAYS IN ADVANCE OF PUBLICATION DATES, WHICH ARE THE FIRST DAYS OF EVEN MONTHS.

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IEEE IMPACT (ISSN 0740-5317) is published bimonthly for the Professional Activities Committees for Engineers of the IEEE United States Activities Board, by the Institute of Electrical and Electronics Engineers, Inc., 345 East 47th Street, New York, NY 10017, with the IMPACT Editorial and Administrative Offices at 1111 19th Street, N.W., Washington, DC 20036, telephone 202/781-0017. Annual subscriptions are $5.00 per year and are included as a portion of the US assessment. All rights including translation are reserved by the IEEE. Second Class postage paid at New York, NY and additional mailing offices.

Postmaster: Please send Form 3579 to IEEE, 1111 19th Street, N.W., Washington, DC 20036.
USAB'S GROWING PAINS: IEE COMES OF AGE IN WASHINGTON

USAB, the United States Activities Board, has too often been viewed as the radical vocal element of an otherwise quiet and accommodating professional society that pursues (work of increasing the body of technical knowledge and literature and educating its members to the most current state of the art without much fanfare. USAB's accomplishments, however, are beginning to stand out amid the noise. The level of noise, in fact, diminished, while the message of professional concerns comes through clearer. The actions of this major board of the Institute has matured, and in the recent three to four years, a greater degree of sophistication in its operations is noticeable. The past is truly prologue in the sense that solutions to pressing professional problems have come about. As an example, the following four professional dilemmas were presented in the prequel to the annual report prepared by USAB at the end of 1976. In only five years, three of the four dilemmas have been resolved, and the fourth is targeted for 1982. Consider the first of the problems as outlined in the annual report.

"You're a systems engineer working on a Government aerospace contract for $17,290 per year. A new company takes over and you receive an offer to continue your employment at $18,700 per year."

In 1978, following a year-long struggle to devise a legislative solution, USAB achieved an administrative solution to the problem of wage-busting with OMB Policy Letter 76-2, which made professional salary considerations central to service contract bids. Government agencies were directed to consider whether realistic salary levels had been proposed. Under the new regulation, action can be taken by individual USAB members, by their service contracts to assure compliance. A booklet, PAG Guide to Service Contracts (The "PAG = A Service Contract Employee") was published by USAB to provide guidance to members of USAB. USAB Committees of the IEEE Sections and Societies. Pressure is being continued, however, for further testimony and support for various bills. Another serious problem is:

"You are 35 years old and fatigued. Consequently, you're troubleshooting by your company's inadequate pension plan. You would like to "opt out" and set up your own Individual Retirement Account (IRA) which would pay you $1500 deductible dollars every year and thereby add a tidy supplement to your ultimate retirement benefit. But the law forbids this simply because you are covered by your company's pension plan."

In 1978, USAB expanded its efforts under the provisions of the Economic Recovery Act. The limitation is $2,000, and the deduction will be effective for tax years 1981 and 1982. USAB's efforts towards more equitable pension benefits are not limited to IRAs. Portable retirement plans that will continue to be addressed in 1982. A third problem posed in USAB's 1976 report concerned:

"You are an EE on a severe conscience. You take seriously the IEEE Code of Ethics' charge to "protect the safety, health, and welfare of the public and speak out against abuses in those areas affecting the public interest." But you also have a family to support and so you keep quiet about what you consider an unsafe practice on the project on which you're working. After all, if you blow the whistle and lose your job in the process, who will help you?"

IEEE can help, according to policy and procedures initiated by USAB and approved by the IEEE Board of Directors in 1978. Procedures for support and procedures for discipline of members were outlined in various IEEE publications following BOD approval. A Member Conduct Committee is appointed each year to deal with ethical matters. USAB has published a number of materials to provide guidance to members through PACS. The fourth professional dilemma was described as follows:

"You are a prolific inventor. You have filed a number of patents, and while this has brought you a lot of praise, it ranks a bit that you've had to assign the rights to your inventions. True, you've had some promotions, but you would have family here in the income from these inventions. But there's nothing you can do. It's "company policy," and not unusual at that."

The present Congressional session saw USAB's patent bill introduced, while a major authorship effort is being made by USAB to place an underwriting the rights of inventors. The bill, S. 1790, is approved by the Senate and passed by the House. It provides for the rights to inventions made while employed, if such inventions are assigned to the employer and did not involve the employer's time or materials. Last year, USAB supported legislation that returned to the contractor the rights to inventions made under Federally sponsored research projects. While these dilemmas may represent the major thrusts of USAB, they are not the only prog- ress in the Washington. When members decided that energy problems were foremost in their minds, according to the 1980 Opinion Survey conducted by USAB, the Energy Committee swung into action. It pro- vided a forum on energy issues and the Congress and DOE, and it developed a number of posi- tions that were ultimately approved by the Board of Editors of the Institute. The Committee also developed a slide presentation for U.S. energy system that will be distributed in January 1982 through the PACS. In turn, members may take it to other professional societies, civic organizations, and schools for presentation.

In the 1950s, USAB was open to all workers under the provisions of the Economic Recovery Act. The limitation is $2,000, and the deduction will be effective for tax years 1981 and 1982. USAB's efforts towards more equitable pension benefits are not limited to IRAs. Portable retirement plans that will continue to be addressed in 1982. A third problem posed in USAB's 1976 report concerned:

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USAB CHAIRMAN'S MESSAGE

THE ISSUE OF THE ALIEN ENIGNEER

In recent years, the alien engineer has begun to occupy an increasingly important and controversial niche in our technical industry and even more so in our engineering schools. The reason for this phenomenon is not completely clear and widely debated. But regularly one hears segments of the electronic industry say they could not function without these alien engineers. And the statistics are incontrovertible that our graduate schools, and thereby the ranks of our teachers undergrads have extremely high percentages of aliens.

One facet that is missed is that under current law, when alien students leave school they must either obtain employment or return home. This has led to claims-and the cases have been clearly cited—that some companies and schools have taken advantage of the students' vulnerability and offered them jobs well below the salary the job might command in an open market.

Educators say, however, that considering the salaries they are able to offer, they could never obtain the staff they need to educate the engineers needed in the United States, without the aliens who are willing to take these salaries. Whether the public would be willing to include its financial support of engineering education, if it could not obtain these alien teachers, is not clear. There does appear to be an increasing realization that our engineering schools need more support. A number of companies have recently made large donations to engineering schools. A bill in Congress, H.R. 1310, proposes matching grants by the Federal government. The IEEE, through AAEs, strongly supported this proposal this past February.

The IEEE has been involved in the alien engineer issue for several years. Originally, it aimed at avoiding the wage busting of alien engineers because of their vulnerability. In 1981 a statement was sent to the Labor Department recommending that if an alien engineer is offered a job with a salary in the upper quarter for such a job, he be granted his "green card" automatically. On the other hand, if the offered salary was in the lower quarter, he should automatically be disqualified.

However about a year ago, the issue took a new direction. A bill was introduced in Congress that proposed to make citizens of aliens currently in the country. But from then on, it would be much tougher to enter the United States, and, germane to engineers, all alien students would have to return home for two years after graduation and then enter the standard queue for entry to the United States.

The USAB Manpower Committee did not oppose the two-year return but recommended that a select group of engineering graduates, those in the top decile of their classes and with salary offers above the median for the job, be exempted from the return provision. The bill was ultimately amended to include a broad exemption for all technology graduates. The cause of the controversy over the broader issue of making citizens of all current aliens, the bill never came to the floor in the 1982 Congress.

The bill again emerged in the 1983 Congress, and the IEEE was again asked by the House to testify on the alien engineer issue. This time the Manpower Committee has moved to a somewhat stronger stance on the issue, that of specifically favoring the two-year return and saying there should be no exceptions; but if there were, they should be for exceptional students. Further, together with the NSPE, we brought the issue to the Engineering Affairs Council of AEAS, and they ratified the position. And so our Career Council Chair, David Lewis, testified before Congress representing the AEAS with this position. The issue is obviously a controversial one, and the Manpower Committee position is being moved up through the hierarchy of the IEEE for ratification and/or modification. In April, on Long Island, USAB OppCom ratified the position and it will be submitted to the full USAB and the IEEE Executive Committee in June.

In the meantime, we are all looking for signs of how the members feel. At a recent Region 5 meeting in Houston, a seminar was held on professional affairs, and a straw vote on this issue favored the return-home provision by about two to one. The Institute asked several questions of their readers on the subject in a recent issue. Early returns indicate a majority favors return, with selective exceptions. One of the possible checkoffs in The Institute survey was "no opinion." Up to now, no one has checked that off, a first. Everyone seems to have an opinion on this issue.

A controversial issue on which everyone has an opinion. WOW! But as Harry Truman used to say, "If you can't stand the heat, stay out of the kitchen."
THE SCORE

IEEE 100

No, the above is not a lap-sided basketball score; nor is it the relative budget of the IEEE and USAB. Rather, it is a cryptic way of saying that in 1984 the IEEE will be 100 years old, which we all know by now. But also, as many of us may not know, that in 1983 USAB (or professional activities in the IEEE) will be 10 years old. For it was then that the IEEE Constitution and Bylaws were amended to include professional activities in our scope.

As we approach the 10th anniversary, it might be well to relook at the direction given back then. Let me quote from the IEEE Constitution the pertinent words on professional activities on professional activities. "Its purposes are—(b) professional, directed toward the advancement of the standing of the members of the profession it serves; means to this end include, but are not limited to, the conduct and publication of surveys and reports on matters of professional concern to the members of such professions, collaborations with public bodies and with other societies for the benefit of the engineering professions as a whole, and the establishment and conduct of ethical practice."

This covers what we in USAB sometimes call the "inward" part of our activities, now mainly conducted by our Career Council.

The "outward" activities of USAB are covered in the next section of the Constitution. "The IEEE shall strive to enhance the quality of life for all people throughout the world through the constructive application of technology in its fields of competence. It shall endeavor to promote understanding of the influence of such technology on the public welfare." Such activities in USAB are mainly carried out by its Technology Council.

I have not been able to find out who actually wrote these words. But at least for me, ten years later, I would not wish to change them much. The stimulus that put IEEE into professional activities after so many years of existence was truly a grass roots endeavor. One hears of organization meetings in members' living rooms planning the strategy to gain this goal. At the time there were dire predictions that this turn in the direction of the Institute would destroy its technical pre-eminence. Any honest observer would have to admit that this has not happened. In fact, to a certain extent, some of the activities of our technology policy committees may well have enlightened the outside world about our technical capabilities.

To those of us who have closely watched USAB (and the predecessor USAC) over its history have been delegated to watch its growing maturity. As one of the "old hands" of professional activities said to me after a recent USAB meeting, "They no longer jump up on the table and shout at each other." Sometimes I am personally concerned that things are so orderly that we're not getting any of our quips out there. But when I really look closely, the action is there, more than ever. We just seem to have learned how to go about it in a less passionate manner.

One of my occupations, other than my salaried job and my non-salaried IEEE work is as a jazz drummer. And thinking about USAB, I am drawn to an old jazz song whose lyric went: "You've come a long way from St. Louis, baby, but you've still got a long way to go." I think this very well describes USAB. It will be fun to look at USAB in another ten years. I hope it will have come even longer way and have less of a way to go. Come on you young PACE people, keep pushing!

Jack Doyle

USAB 10

NATIONAL PACE CHAIRMAN'S CORNER

Elsewhere in this issue of IMPACT the history of USAC/USAB and PACE/PACE will no doubt be recorded. Growing pains will be remembered by many of us. If one wishes to do so, he can criticize those initial efforts. But isn't it always easy to look back and identify misjudgments and false starts? I prefer to think that those who guided USAB in its beginning were people of good will, even as you are presently held leadership positions.

Bold steps were taken in 1971, 1972, and 1973. There are still members who will tell you that the Institute has no business being involved in professional activities. I trust that they realize the Constitution was changed by a vote of the membership, which permitted the Institute to expand in this relatively new direction.

The passage of time has other effects, as well. I wonder how many of our members have been in the Institute less than ten years. They are probably not interested in hearing that the Institute was not always the way it is today. USAB and PACE activities were in place when they joined! Think about the thousands of students who have benefited through the excellent Student Professional Awareness Program! Many of them have participated in S-PACs (Student Professional Awareness Conferences) where the USAB-PACE messages are clearly presented, and, I might add, enthusiastically received. They will always know the Institute as a strong, viable organization with two thrusts—one technical and the other professional. The latter should not, and in fact cannot, diminish the former.

Having mentioned student branches, I am reminded of the student magazine, Potential. Every time I have shown an issue to an IEEE member, the response has been, "Let me see that! Where can I get a copy?" Now, of course, it is specifically for the students. As a matter of fact, they voted to increase their dues by 20% just so they could have the magazine. But I think it would be a good idea for Sections to subscribe. Perhaps the Section executive committee has a member with student responsibilities.

This person could take out the subscription and circulate the magazine, so that everyone would get to see it. For a subscription, which costs $10 a year, write to: IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. Let me ask you to keep the communication lines open within PACE. When an item interests you or a problem needs to be addressed, don't hesitate to call your region, area or section PACE person, and call or write to me if you wish! Sandra Blair is another person to contact. She frequently makes six or eight copies of letters sent to her and distributes them to everyone who may be in a position to take action. Let's keep PACE on the front burner throughout our 10th year.

—Joseph A. Edminster

INSTITUTE PENSION FUND PROPOSED

Many of us have thought that the Institute should have a fund from which the Board of Directors could draw from time to time allot sums of money or pensions to distinguished members who are in straitened circumstances. I know this is a difficult problem to handle wisely, but I believe it would be a sound thing for the Institute to do.

Even though the Institute does not itself allocate funds to this objective, it is providing contributions to a fund for such purposes, to which many engineers will be willing to contribute. I have not infrequently heard the expression from members of the electrical industry if any one of its truly distinguished men is not provided for in his old age.

—from a letter to Institute leadership written in 1942, commenting on the nationally publicized plight of Nikola Tesla.

PROFESSIONAL IDEALS SET BY ENGINEERING FEDERATION

According to a report received by IMPACT, a "preliminary conference of many engineering societies" was held, and shortly afterward a council was organized, which was, at first, called Federated American Engineering Societies. The following excerpt from its constitution, "indicates the high ideals set out to the function of the engineer in our modern life: 'The object of this organization shall be to further the public welfare wherever technical and engineering knowledge and experience are involved, and to consider and act upon matters of common concern to the engineering and allied technical professions.'"

—Quoted material taken from Electrical Engineering 50th Anniversary Number, May 1934; "The Institute's First Half Century" by Charles F. Scott. The Federation, which became known as the American Engineering Council, was organized in November 1920, with Herbert Hoover as its president.
WASHINGTON SCENE

Increased Efficiency and Diversification of Energy Sources Urged

Former IEEE Energy Committee Chairman John A. Casazza testified at three recent Congressional hearings to "provide the Institute's perspective on the nature of the current U.S. energy problem, and the steps the Federal government should be taking to alleviate this problem." The testimony was presented to a Senate Committee on Energy and Natural Resources subcommittee on May 3, and to subcommittees of both the House and Senate Appropriations Committees on May 4. Mr. Casazza recommended a number of actions to increase energy efficiency and diversify resources. "We believe that free market forces can be constructively influenced by appropriate government policy and action," he said. The recommendations included accelerated investment in energy-efficiency equipment and support for the development of solar energy, fusion power, breeder reactors, nuclear power, and coal power. Copies of the testimony are available from the IEEE Washington Office.

Fusion Energy Research Supported

Allan T. Mense testified on behalf of both the Energy and the R&D Committee before a subcommittee of the House Science and Technology Committee on March 16. Dr. Mense responded to a Congressional request for an assessment of the scientific status of the fusion program and its technical readiness for development, and for a proposal of program activities and funding levels to maintain an aggressive R&D pace, as well as for comments on the Administration's proposal to lengthen the development schedule. He also commented on industrial involvement in the course of development. Copies of the testimony are available from the IEEE Washington Office.

John A. Casazza

Increased NASA and NSF Funding Supported

On behalf of the R&D Committee, Theodore R. Simpson testified before a subcommittee of the House Appropriations Committee on April 20 in support of full funding of a number of R&D programs of the National Aeronautics and Space Administration and the National Science Foundation. Regarding NASA's budget, Mr. Simpson specifically endorsed funding levels for space science and applications, space transportation, and aeronautics, although some increases were recommended for research in advanced aeronautics technology. In the larger context of overall R&D funding levels, Mr. Simpson remarked that while international competition is increasing, the U.S. trend toward decreasing R&D levels "has to be reversed." He termed Federal R&D a "key factor in maintaining our competitive edge," supporting the view that national economic well-being and national security "depends in part on science and technology." In discussing the NSF budget, he pointed to the "vital role that high technology will play in opening up new industries and job opportunities," as a reason why "we must not short-change the engineering disciplines. . . . It is engineering and engineering research that will provide the critical linkages between discoveries in the laboratory and products and services in the marketplace." He also specifically endorsed program elements that would encourage faculty retention, including upgrading research tools and the new NSF research awards program, noting that about half of the awards proposed are slated for engineering. [See separate story in this issue.] Copies of the testimony are available from the IEEE Washington Office.

Theodore R. Simpson (l.) at witness table with Russell C. Drew.

Russell C. Drew, chairman of USA's Government Activities Council, testified before a subcommittee of the Senate Appropriations Committee on April 20 and a subcommittee of the House Appropriations Committee on April 7 against proposed budget cuts in programs of the National Bureau of Standards. The cuts appear "both short-sighted and completely out of keeping with our national need for technological development," he said. Two programs deserving of full funding, the Measurement Assurance Program and the Institute for Computer Science and Technology, were highlighted in Dr. Drew's statement. "There is general agreement that technology is one of the most important of the many factors that must be addressed in order to retain the degree of industrial leadership necessary to our continued economic health." Copies of his testimony are available from the IEEE Washington Office.

David C. Lewis

"Return Home" Provision for Foreign Students Supported

David C. Lewis, chairman of USA's Career Activities Council, testified on behalf of the AAES Engineering Affairs Council in favor of legislation requiring foreign students studying in the U.S. to return to their home country for two years after graduation. "We support the return-home provisions of H.R. 1510, and feel they should be implemented now. . . . We are opposed to exploitation of alien engineers, just as we are opposed to the exploitation of American engineers." Copies of the testimony are available from the IEEE Washington Office. [See additional report in this issue.]

New USA Committee to Study "Supercomputers"

An ad hoc committee on super scientific computers is planning to issue a preliminary report this year on government initiatives that may be needed to maintain the U.S. lead in the development of super-speed computers. The U.S. has always led the world in developing and producing "supercomputers," according to Dr. Sidney Fernbach, a theoretical physicist who chairs the new committee.

Meanwhile, the White House Office of Science and Technology Policy announced that it has asked the Department of Energy and Defense to assume responsibility for addressing the Federal role in development and use of "supercomputers." While U.S. firms have dominated this field, the Japanese Ministry of International Trade and Industry is now assisting their industry to develop advanced computers that may begin to challenge U.S. leadership within a year or so. Dr. George A. Keyworth, Science advisor to the President, stated, "We are watching this situation closely because the industry is fragile . . . . Our national interests require that we maintain a dependable domestic capability to meet our needs."

Patent Bill Reintroduced

Sen. Charles Mathias (R-MD), who chairs the Subcommittee on Patents, Copyrights and Trademarks, has reintroduced a bill to protect semi-conductor chips and masks against unauthorized duplication. IEEE has been formally requested to testify at a hearing tentatively scheduled for May 19. USA's Patents Task Force will prepare the testimony.

Research Awards Program Announced by NSF

A new program of research awards to the nation's most outstanding and promising young science and engineering faculty has been initiated by the National Science Foundation at the request of President Reagan. The program is expected to help universities meet the demand for highly qualified personnel for academic and industrial research and for teaching.

The Presidential Young Investigator Awards will provide cooperative research funds (from $25,000 to $100,000 per year) for up to five years to a maximum of 200 young university engineering faculty each year.

"Young" means faculty who are no more than seven years beyond receiving the doctorate degree. For further information, write: The President's Young Investigator Awards, National Science Foundation, Room 414, Washington, D.C. 20550, or telephone (202) 357-7536.

Strategy Recommended to Innovate Hi-Tech Products

Preserving national capacity to create and use technology must remain the nation's highest priority," according to a blue-ribbon panel assembled by the National Research Council. Stressing that domestic actions hold the key to the nation's performance in advanced technology development and trade in the years ahead, the panel urged the U.S. to give "immediate attention" to a two-part strategy, including new government and industry initiatives, aimed at strengthening domestic innovative capacity and reducing international trade frictions. The report and recommendations of the panel were made public in a hearing of the Senate Finance Committee on April 14. Further details are covered in USA's Legislative Report.
Cogeneration to Reduce Costs, Increase Efficiency

The combined production of electricity and useful thermal energy— cogeneration—could contribute significantly to reduced costs and greater planning flexibility for electric utilities, as well as to increased energy efficiency in industrial facilities, commercial buildings, and rural and agricultural uses, according to a report released by the Congressional Office of Technology Assessment. OTA also points out, however, that cogeneration's potentially large market will be limited by technical, economic, and institutional constraints. One current, primary restraint is the uncertain status of regulations on pricing and obligations to interconnect. Resolution of these issues, currently on appeal to the U.S. Supreme Court, would lend economic and planning certainty to potential cogeneration projects.

Electric Energy Systems Program Supported

Lester H. Fink testified on behalf of the R&D Committee before a subcommittee of the House Science and Technology Committee on March 17. "IEEE has consistently supported the Electric Energy Systems Program," he said, in testimony before Congressional oversight committees. "We strongly support continuation of that program." Major benefits were cited in the realm of advances in basic theory and in the recruitment and training of postgraduate professionals, who have begun to "inject new vigor into university power engineering programs and the power industry at large." Congress was urged, however, to restore funding at a level that will sustain the program’s successful efforts, and to relocate it under an agency more supportive of broad-based, long-range research concerns, as well as to assure qualified staff at an adequate level. Copies of the testimony are available from the IEEE Washington Office.

R&D at DOD Supported

Five action items "of particular concern to IEEE" were proposed for implementation in the DOD budget by Dr. Harvey C. Nathanson testifying on behalf of the R&D Committee before a subcommittee of the Senate Appropriations Committee on April 19. His recommendations included protecting the Technology Base funding, continuing funding to upgrade university research equipment, supporting an assured manufacturing capability for the VHSC program, continuing emphasis on advanced materials, and maintaining the vitality of R&D and R&D procedures. Copies of the testimony are available from the IEEE Washington Office.

IEEE MEMBER IS GUEST OF TV TALK SHOW

Dr. Thelma A. Estrin, 1982 IEEE Executive Vice President, is seen here seated behind TV talk show host Phil Donahue (c.) on "The Phil Donahue Show," which aired nationally in April. The invitation to IEEE to appear on the show came as a result of CBS coverage of the Capitol Hill briefing for Congress and the media, sponsored by USAB in conjunction with broadcast of the EAB Robotics Seminar. (See IMPACT, Feb., 1983.) The subject of the Donahue Show was computers as educational tools, including such advanced technologies as robotics.
"PACE in the Second Decade" is Theme of 1983 National PACE Workshop

The 1983 National PACE Workshop, "PACE in the Second Decade," will be held at the Pointe Resort in Phoenix, Arizona, during Labor Day weekend. The sessions will begin Friday evening, September 2, and continue through Monday morning, September 5.

In a departure from past PACE Workshops, this year's program will include intensive workshops on leadership skills to enhance the development of the PACE volunteer network and the USAB programs served by that network. Also, attendees will be asked to examine what might be wanted and needed by IEEE members during the next 10 years, and to set goals accordingly.

Workshop planners have arranged for other special considerations, in addition to the off-season rates accorded attendees. For those who wish to bring families, the room rate for double occupancy will be the same as for single occupancy. This will be in effect for the weeks before and after the meeting.

PACE leaders are asked to contact their Regional or Divisional PACE Coordinators about attending.

Attend the Careers Conference

USAB's Task Force on Career Maintenance and Development is sponsoring a third conference on careers, September 27-28, 1983, in Palo Alto, CA. "Enhancing Careers by Fulfiling Individual and Organizational Goals" will consider engineering careers from the standpoint of the practicing engineer, manager, social scientist, and academic, according to Conference Chairman Wallace D. Decker. Further information on the Conference and how to register is available from the IEEE Washington Office.

USAB CITATION OF HONOR
PRESENTED TO JAMES F. FAIRMAN, JR.

IEEE President James B. Owens (r.) presented a USAB Citation of Honor to James F. Fairman, Jr., during the annual awards banquet of the Washington D.C. and Northern Virginia Sections. An engineer and an attorney, Mr. Fairman currently practices law in Washington, D.C. His award was for "enhancing recognition of national professional activities." For a number of years, he has counseled on legal aspects of both the ethical and age discrimination concerns of the Institute.

USAB CHAIRMEN HONORED AT DINNER COMMEMORATING USAB'S DECEMNIUM

The current USAB Chairman, Edward J. Doyle, and six former chairmen of USAB or its predecessor organization, USAC, the United States Activities Committee, will be honored at a dinner commemorating USAB's Decennium during the series of Board meetings to be held in Denver in June.

On June 9, the current members of the Board of Directors and the major IEEE Boards—USAB, TAB, RAB, EAB and PUB—who will be gathered in Denver for their meetings, will attend a dinner and program sponsored by USAB to commemorate its first ten years and express its appreciation to the leaders of IEEE professional activities. A commemorative booklet describing USAB's history, including the events that led to its formation and its significant accomplishments on behalf of the profession, was prepared for the occasion. USAB's guests of honor, and the years during which they held office, are:

Edward J. Doyle, 1982-83
Richard J. Cowen, 1980-81
Bruno O. Weinschel, 1978-79
John J. Guerrera, 1977
James H. Mulligan, 1976
Harold S. Goldberg, 1975
Leo Young, 1974
Harold S. Goldberg, 1973
IEE’s LEWIS TESTIFIES ON IMMIGRATION BILL
Boston Section PACE Representative Observes

On March 10, Dr. David C. Lewis, chairman of the USAB Career Activities Council, testified before the House Subcommittee on Immigration and International Law. A representative of the Boston Section’s Professional Activities Committee (PACE), he was in Washington to observe the hearings, to talk with aides of Rep. Barney Frank, and to meet staff members of the IEEE Washington Office.

Mr. Lewis addressed those sections of the Massachusetts Immigration Bill (H.R. 1510) that deal with the return home of foreign students who have studied in the United States. Speaking for IEEE and for the Engineering Affairs Council of the American Association of Engineering Societies (AAEES), he pointed out that the position that all students, upon completing their education, should return to their home country for a period of at least a year or two years.

He went on to testify that "H.R. 1510 accepts the question of student education, and is offered as a whole or in part, as a solution to the problem of foreign students who have received their education in the United States and have not been able to find work. But that solution is not feasible.

It seems to me that I get a different message, however, from many other IEEE members. I take a lot of friendly teasing at IEEE meetings and during informal conversations, since I turned from engineering to law. I also regularly get letters from IEEE editors regarding IEEE publications. The message I get is that IEEE shouldn’t mess in social affairs, including pensions, age discrimination, career development, and like matters. The members who send this message also seem to have an unhealthy disdain for politicians, and for other people who are considered less well-trained or trained differently—including lawyers like myself—or those who seem to have less imagination and lack innovation. We must work together, a notion that is infinitely chimerical.

Surely, we have all spent at least one day with someone who considers him- or herself an expert on insulting management, interface protocols, ANSI standard lines0000 dealing with control valves monitoring nuclear plants of the boiling water type. These individuals are enamoured of sutters, their variety and applications. An important difference between the surgeon and the engineer is that the latter is an expert in interface protocols, ANSI standard...
REFLECTIONS ON THE CAREER PATH - WOMEN IN ELECTRICAL ENGINEERING

In the late 1970s Benjamin Franklin said that science would serve the coming century as handicrafts had served the last. In the early 1800s Jacob Bigelow, a physician, intro-
troduced into general usage the word "technology" to signify that union. Both Franklin and Bigelow saw science and technology as ahead of their times. Most scientists in the universities pursued natural philosophy or investigations aimed toward the discovery of lofty metaphysical truths about the universe. They had nothing but disdain for practical applications. The practical men had little use for theories. These traditions impeded the development of science and the useful arts, which finally occurred in 1861 when MIT was established to educate the modern engineer.

All of us women in engineering are present-day pio-
ners, but I would like to introduce you (see boxed insert) to the women who were engineers more than a half-
century ago. I would like to tell you that at least one of those women was my role model. The truth is: I was the first woman engineer I ever knew.

YESTERDAY

At school nobody took me very seriously. But I took myself seriously and Jerry my husband, took me serious-
ly. From the beginning, our marriage of almost 40 years has been a partnership. This was something that came to both of us quite naturally. Neither of us had to overcome the mindset of believing women's place was only in the home.

Edith Clark, electrical engineer

Edith Clarke was the first woman to be elected a fellow of the American Institute of Electrical Engineers, forerunner of the IEEE. She made many original contributions to stability theory and circuit analysis. She graduated from Vassar and received a master of science degree in electrical engineering from MIT. She spent most of her career with General Electric and authored many publications on various aspects of power system analysis. She holds many patents in the field.

Ada Augusta, software engineer

At the age of 15, Ada Augusta was a skilled mathematician and a close friend of Charles Babbage. In a detailed analysis of his pro-
posed "analytic engine," a mechanical calculating machine, she developed the essential ideas of program-
ning. Her name will soon become a household word because of her profound impact on the future of computer science.

RETURNING TO THE UNITED STATES FROM ISRAEL, WE DECIDED TO MOVE TO SUNNY CALIFORNIA, WHERE JERRY BECAME A PROFESSOR IN THE ENGINEERING SCHOOL AT UCLA. NEPOTISM LAWS PROHIBIT ME FROM OBTAINING A POSITION IN ENGINEERING AND I OBTAINED A JOB IN THE MEDICAL SCHOOL AS A RESEARCH ENGINEER WITH THE NEWLY FORMED BRAIN RESEARCH INSTITUTE, WHERE I DEVELOPED AND SERVICED A LARGE IMPERSONAL PURPOSE COMPUTER FACILITY FOR BRAIN RESEARCH. MY CONTRIBUTIONS HELPED TO TRANSFORM BRAIN RESEARCH FROM A QUALITATIVE DISCIPLINE TO A QUANTITATIVE DISCIPLINE, USING NEUROSCIENCE AND NEUROPSYCHOLOGY.

Elsie Gregory MacGill, aeronautical engineer

Elsie MacGill earned a bachelor's degree in electrical engineering from the University of Toronto, and a master's of science degree in engineering from the University of Michigan. She was the first woman to design, build and test her own airplane. These accomplishments were made despite a crippling attack of poliomyelitis while she was a student at Michigan University.

MARGARET H. HUTCHINSON, CHEMICAL ENGINEER

Dr. Hutchinson earned her degree in chemical engineering from Rice and was the first woman to earn a doctor of science degree at MIT. The major portion of her career was as a consultant for the Badger Process Division of Stone and Webster Engineering Corporation—she directed development and design of major plants for the produc-
tion of penicillin, oil and synthetic rubber.

Margaret Ingels, mechanical engineer

Margaret Ingels is credited with being the first woman in the world to obtain a mechanical engineer-
ning degree. She was born in 1867 in Kentucky, she

Dr. Estrin chaired the USAF Committee on Professional Opportunities for Women (COMPOW) from 1976 through 1978, and actively supported women over a five-year period. She has also served as President of the Engineering in Medicine and Biology Society, Director of Division VI, and Executive Vice President of IEEE.

Nora Stanton Barney, architect

She was the first woman in the United States to receive a civil engineering degree. The granddaughter of Elizabeth Cady Stanton, the women's suffrage leader, she brought suit against ASCOE, in an effort to advance from junior member (today's AM) status to AM (now M, and thus voting, or corporate mem-
ner ranking). It was one of the few battles she lost. She graduated cum laude from Cornell University in 1905, where she was Sigma Xi, an honorary scientific society. From college, she authored a short paper on the water system of Washington, D.C., which served as a primary refer-
ence in studies on the transport of solids in liquids for 30 years. (Transactions, ASCE, December 1906.)

In 1908, Mrs. Barney was married to Dr. Lee DeForest, inventor of the radio vacuum tube. She became his assistant, but, as DeForest remarks in his autobiography, her need to work independently drove them apart. After their divorce, she married Morgan Barney, a naval architect.

TODAY

At the present time, I am on leave from UCLA, serving as Director of the Electrical, Computer and Systems Engineering Division of the National Science Foundation. For me there was nearer a doubt than I had to con-
tinue in that line of work as a professional woman. My career has been a great adventure with great satisfactions—but if I were starting on that journey today, I'd use a different plan-
ning as a guide. I am on the journey with higher ex-
pectations; there are many more roads to choose from. Forty years ago my options were severely limited by the societal norms of the time.

Career and life planning is a relatively new field that
touches upon a number of a person's life. For engineers it addresses such fundamental questions as: Do I want a higher degree? Should I become a registered engineer? Do I want to work in an industrial or a managerial career, or both? What type of job do I want in the next years? Where is it? What is the knowledge base? What level of experience is required? What skills are needed? Various forms of insurance and retirement planning are guides in making these decisions because it

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IEEE IMPACT JUNE 1983—15
THE IEEE ROLE IN IMPROVING PENSION BENEFITS FOR THE ENGINEERING PROFESSION

IEEE's role in improving pension benefits for the engineering profession began with efforts toward passage of the Employee Retirement Income Security Act (ERISA) in 1974. ERISA was a major step forward in pension legislation. For the first time, periods of up to 25 years were not uncommon before ERISA. Today, as a result of ERISA, the maximum length of time that an individual can be in a pension plan is ten years. Among other things, ERISA allowed individuals who were not covered by a pension plan to set up tax-deferred IRAs. However, not everyone was allowed to set up an IRA for two reasons: first, it was felt that persons covered by pension plans really did not need the doubt that having IRAs would create, and second, the tax loss associated with letting everyone have an IRA was perceived to be too great.

The United States Activities Committee (USAC)—the predecessor of the United States Activities Board (USAB)—worked hard to assure that ERISA contained a "carve-out" provision, in the hope that it would be used to establish a portable pension fund for IEEE members. When ERISA was enacted, it did indeed contain the "carve-out" provision that USAB sought, but it was a permissible provision, not mandatory. Because of the permissive nature of the provision, USAB and IEEE pressed the Administration and the Congress to give pension plans an incentive to prevent employees who were covered by, but not vested in, pension plans from leaving the firm. Up until this time, the Pension Task Force acted as a focus for its pension-related activities. Some of the early members were Leo Young, assisted by his late wife, Mary Young, and Richard J. Baker. John G. Glidden served as Task Force Leader for several years. One of the first activities of the Task Force was to seek other ways to provide incentive to employees who were often covered by, but not vested in, pension plans. From the outset, the Pension Task Force understood the necessity of minimizing the tax loss associated with any enlargement of IRA eligibility. At the same time, they were well aware of the problems faced by many working engineers, i.e., never being vested in any pension plans.

Over a period of several years the Task Force developed a proposal for the Employee Retirement Income Security Act (ERISA) pension plan, or LERA. The LERA was very similar to an IRA except that it was designed to be used by an individual who was covered, but not fully vested in the pension plan of his current employer. When the individual did fully vest, or employment was terminated, he or she had to pay taxes on the money that was in the IRA account. Thus, persons who never became fully vested in pension plans had some needed protection, and the Treasury did not lose tax revenues to people who ultimately vested. There was no double coverage in the LERA concept.

Acting on behalf of the Pension Task Force, Congressman James C.orman (D-CA) introduced a bill containing the LERA concept in the House of Representatives in 1978. The Senate Finance Committee approved the bill, H.R. 628, passed. The bill was resubmitted by Mr. Corman in 1978. H.R. 628 was passed in the House in 1978 but failed in the Senate. In 1979 a bill providing for LERAs was introduced by Senator Lloyd M. Bentsen (D-TX) and others in the Senate, and Mr. Corman resubmitted H.R. 628 in the House. This time the Senate bill passed, but the House bill did not. Throughout this period, the Pension Task Force actively supported the numerous bills, numerous sponsors, and numerous legislative approaches containing the LERA concept, in addition to providing testimony on a number of occasions. John Guerrera testified several times, as did Robert A. Barden who later became Task Force Leader. Additional Task Force members who testified were J. Agnes Holst and Alston Constance. Congressional committee and subcommittee hearings were held and testimony was given by IEEE members, including John Guerrera, and by witnesses representing such organizations as the U.S. League of Savings Associations and the National Association of Insurance Commissioners.

TOMORROW

In the world of tomorrow we will have restructured the world of work to accommodate all human beings, including working women not when women can or should or will work. Women are working, they want to work, they have to work, and the economy needs them to work. We must confront the problem of how to make our work-world more responsive to the personal and social needs of all of us with equal pay for comparable work, job-sharing, part-time work and easy access to child care. When we do, half of the members of the learned professions will be women. The traditional women's professions of today—teacher, nurse, secretary, librarian—will include large numbers of males. As a result, these professions will no longer be among the lowest-paid occupations.

No salary is offered; only all the overtime an individual could want. Apart from the free coffee generally available at task force meetings, there are no other fringe benefits, let alone a pension! On the plus side, volunteers participating in these activities can help solve a major problem of the profession, and they can reasonably expect to learn a lot about corporate pension plans, especially their own. Contact your USAB recruiter today! Write or phone IEEE Washington office, 111 Nineteenth St., N.W., Washington, D.C. 20363; (202) 785-0017.

Tell'em Dave Lewis sent you.

THE IEEE IMPACT JUNE 1983 — 17
USAB Patent Activities: A Retrospective

The issue of patent rights in electrical and electronic technology has been a principal focus of USAB over the past decade, through its Patent Task Force. Throughout the last decade, this important issue has been discussed among those members having diverse opinions as to what the United States patent law should be and in such diverse settings as formal meetings of this task force, society meetings, or even in the United States Supreme Court.

On the one hand, members who are entrepreneurs, managing directors, or patent attorneys generally view the purpose of patent law to encourage development and investment in new technologies from the time of invention forward. On the other hand, those who are generally employees and/or individual inventors and creators, view the primary purpose of the patent laws to encourage the act of invention and, once an invention is made, the disclosure of that invention. It is unfortunate that this different philosophical views exist and have been reported in the press, which contributed to the decline of the Research and Development Institute, because the result has been legislated legislative action and the taking of significant advisory positions that have been described as being at a level that the Congress itself had not previously considered as being in the progress of Science and useful Arts . . ." (U.S. Constitution, Article I).

In the first few years of USAB, patent issues were considered as part of other committees. In about 1976, the Institute adopted a statement of policy favoring the sponsorship of legislation giving employed inventors a greater right or reward in their inventions than was allowed under the laws at that time. It was felt that the patent law should be reformed in order to encourage the development of new inventions. The Patent Task Force was then formed to implement policy and by the end of 1977 it had been drafted which, in turn, it had become the right of employers to require in advance the assignment of all inventions of its employees during the term of employment without any special recognition or compensation. The purpose of these activities was that the promotion of the useful arts would be better served by directing the patent law to encourage the making of new inventions, and, once made, their disclosure, even in the employment context.

It was about that time that the direction of the Patent Task Force was later postponed until some years later. The attention of the Patent Task Force was then directed to questions of whether a patent

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IEEE CONGRESSIONAL FELLOWS—THEN AND NOW

1983 also marks the tenth anniversary of the IEEE Congressional Fellows program. Over the past decade, 21 IEEE members have served Congress, reviewing proposed legislation from an engineering and scientific perspective, identifying qualified witnesses for legislative hearings, and serving as liaisons to executive departments and agencies, as well as to the engineering and scientific communities.

Personal reflections on their Fellowship activities in Congress and the impact on their professional and personal lives have been contributed by several former and current Fellows.

Willis D. Smith (1974): My current position as Deputy Staff Director for the Minority on the Senate Armed Services Committee indicates that nine years after starting my IEEE fellowship, it still has an influence on my career. The extremely broad, diverse, and complex nature of my assignments has been invigorating to me.

The IEEE history of my viewpoint is epitomized by the Fellows program. During a Fellow’s tenure, the benefits to the IEEE should be minimized to avoid the appearance of conflict of interest. However, the experience gained by the Fellows is a reservoir that the Institute can draw on for dealing with issues and setting forth the Institute’s views at all levels of government.

The mere existence of the Fellow program has given the Institute heightened prestige, recognition, and impact on the national scene. It is an exceedingly cost-effective program. I am indebted for the opportunity the IEEE afforded me by selecting me as one of its first Fellows.

Anthony L. Rigas

Anthony L. Rigas (1975): The Fellowship program has indeed influenced my awareness of the political workings of our national government and has had a very positive effect on my life. The experience gained led to a number of activities in the years since my return from Washington. I was appointed to the Energy Extension Service Program at the University of Idaho, where I am now director of education outreach at the College of Engineering. I was also appointed to the State Energy Extension Task Force by the Governor of Idaho and subsequently elected chairman for two consecutive terms. Because of my political experience and contacts, I was elected to the Democratic Party and elected to the State Executive Committee of the Party. I am also invited to speak and represent Congress and educational matters before various governmental and professional agencies. These services and the issues decided by Congress today are so complex, so interdependent, so vital to our survival as individuals and as a nation, that we cannot afford not to get involved.

Leonard D. Weiss (1976): From a personal point of view the IEEE program gave me the entree to the legislative community that has since directed and provided meaningful contributions to public policy in America in a number of diverse areas, including arms control and nuclear proliferation, energy, and a number of educational, public policy, and accountability, science and technology policy, education, and environmental protection.

In retrospect I find it remarkable how easy it was to make the transition from a fifteen-year career as an engineering professor and researcher to a career as a legislative, political, and government consultant within the U.S. Senate. Of course, it helped that I was (and still am) working for John Glenn, whose appreciation of technical expertise and hard analysis is exceeded by no one in public life today.

I do believe, naturally, that the IEEE program has been beneficial to the organization and to the country. The organization has received the goodwill that flows from the good work done by its representatives in Congressional offices since 1973, and the country has benefited from having its legislative deliberations informed by the expertise provided by IEEE fellows.

If there is one thing that has become reinforced in my thinking since arriving here, it is that America’s problems both here and abroad are too serious to be solved by any simplistic program. This is what I have learned through policies that stem from ideological notions, or implemented without due regard for democratic principles or the principles of human rights.

John B. Wallace (1978): Not only was my Fellowship a highlight of my professional career, but it was a major happening in my personal life and in the life of my family as well. The year we spent in the nation’s capital gave me the insight into the workings of the legislative branch of our government that no amount of reading could have provided. That day-to-day, hands-on type of experience that a congressional staffer is exposed to in the Fellowship program was invaluable and I would not have missed it. It was a year’s time for growth for my entire family.

Living in Virginia, exploring the countryside and historic Civil War sites were very rewarding. The visits to the Smithsonian Museum, the historical monuments and buildings and the parks and the beautiful flower gardens of Washington will long be remembered. The many fine friendships we shared with other Fellows in the Science and Engineering Fellowship Program were also very rewarding. All of us shared our common experience “on the Hill” and our personal experiences in our careers.

I returned to my former position of Principal Applications Engineer with my employer of 28 years, The Detroit Edison Company. I was able to apply the thoughts, experiences, and knowledge gained during my Fellowship career, continued, to some extent, to be active for the Congressional Fellowship program. Since I am a member of The Detroit Edison Company’s Fellows Bureau, we work together on a presentation of my experiences in the Fellowship program and have presented this talk about two dozen times to various IEEE groups, Detroit Edison management and engineering groups, to various professional and engineering groups, and to the Engineering Society of Detroit, which has become a participant in the Congressional Fellowship program by sending two fellows to Washington in the last two years to serve in the senate offices of Michigan’s two Senate representatives.

I have maintained close communication with several of the other Fellows that I worked with during my fellowship. Although Senator Schmitt was not successful in his reelection bid in 1982, many of his staff are now part of the professional staffs of the various congressional committees. We have been in contact many times to discuss proposed legislation that was of common interest, and I have visited with them several times when I was in the Washington area on business. I believe these contacts and others I have had as a member of the IEEE Congress as a Member of Congress Selection Committee have helped to keep me quite active politically, both in the national election campaigns and in local politics as well. I was very active in a local ballot referendum campaign last fall and felt good about being on the winning side of the issue.

The Congressional Fellows program should continue to be supported by IEEE. It benefits the Institute by having its members see on the Hill, and their assistance on the various issues provided by IEEE, two very positive effects on the Members of Congress that are thus served. It is also a great benefit to the individual engineers that are chosen to represent their colleagues. As Senator Schmitt was often seen when I was on his staff, “Most engineers and scientists feel that politics should be left to the politicians, but that is the best day there is for legislators.” Engineers have a role to play in the political process, and the sooner they perform that role, the better off the country will be for it.

David C. Lewis (1979): It’s hard to believe that it has been three years since I left Capitol Hill. It was a lot of fun. I met many of the winners in the Congressional Fellowships program, however, have been the members of the IEEE. The program has placed IEEE members as staff on the Hill who are sympathetic to technology, and even sympathetic to the IEEE. Just as important, a cadre of ex-Fellows has helped USABT to formulate and pursue a legislative agenda that is consistent with these goals. In the past, the Fellowship certainly provided new insights into the legislative process. It allowed me to focus on national priorities rather than the sort of things a typical engineer works on. It was exciting stuff.

Thomas L. Fagan

Thomas L. Fagan (1980): The IEEE Congressional Fellows program has had a major impact on both my career and my life. It certainly has helped me to understand better how the system operates, where the pressure points are, and how legislation really gets moved through the Congress. It also enabled me to build up quite a base of professional contacts and acquaintances on the Hill.

After returning to Pennsylvania with my employer, the General Electric Company, I was offered the opportunity to continue to utilize my relationships and experience with the Congress by working as Manager of Congressional Relations for the company. This has been a very natural and easy transition to make and has enabled me to expand greatly on my technical and Congressional interfaces.

I can see that over the past ten years IEEE has developed a very solid reputation on the Hill. On the Senate side alone, I know of about 20 offices that will reach out and ask, “What is IEEE’s position on this issue?” IEEE witnesses have also been very credible at quite a number of congressional hearings. The Institute has established a presence in Congress, and the long-term prospects are very favorable. However, IEEE cannot become complacent. There is a very high turnover rate with the Congress, especially among the Hill staffers. The staffers tend to be very bright, recent graduates, overachievers who are underpaid and work for only a few years, utilizing the service as a stepping stone in their career furthers.

As a group they are still predominantly lawyers and journalists with very limited technical backgrounds and experience. They and their Members of Congress welcome and need all of the best technical and professional help they can get. It is amazing how far we can go if we give them adequate data, the pros and cons of an issue, and are pointed in the right direction.

Anthony L. Rigas
Another outgrowth of my fellowship year has been my involvement in the IEEE Engineering Committee, which I task with the responsibility to prepare position papers, review entity position papers, and prepare testimony for Congressional hearings on energy-related issues. This year, I have been elected to chair the energy committee, so my involvement with Federal legislation and my contact with Congress continues to be active.

I am frequently asked to give talks at IEEE meetings (local sections, society chapters, regional, and national), on the subject of the Fellowship program. I do this enthusiastically, because I truly believe that this program is one of the most professionally enriching investments an electrical engineer can make.

Theodore R. Simpson

Theodore R. Simpson (1981): Someone supposedly once asked Willie Sutton why he robbed banks. Willie is said to have replied: "Because that's where the money is." For the same reason, but in pursuit of a more legitimate goal, I became an IEEE Congressional Fellow. I was disturbed by the decline in Federal support for aerospace R&D in general, and NASA in particular. In the spring of 1983, I thought then, and still do, that Federal funding for R&D is an investment in our nation's future. The effects of neglect would be devastating, not only to the scientists and engineers involved, but to the nation as a whole. In order to get some idea of what NASA's problems really were, I decided to work on the staff of the Senate Subcommittee on Science, Technology, and Space where I covered NASA's budget and other policy issues involving the civilian space program. One of the things I found was that there is no vocal, articulate support of any consequence for the U.S. space program. There are individuals who occasionally speak out, some with more success than others, but the space program is in a real sense a nonissue. The reason for this is probably obvious. The people who could, and should, lead this effort are scientists and engineers. They are the ones who understand the value of research and development, and if the space program is anything, it is a gigantic R&D program.

Unfortunately, most scientists and engineers are either apathetic or have other jobs with little or nothing to do with politics. They seem to be unable to make the connection between their current and future work and the Federal Government. Finding for R&D. The connection to me is quite obvious — no funding, no jobs. The 1983 Congressional Fellows (l-r): Jack Lubowsky, Orin Marvel, and Doyle Satterfield at a recent meeting with USAB Chairman Edward J. Doyle.

One of the valuable byproducts of the IEEE Congressional Fellows program is that we are gradually educating a group of EE's about how Congress operates and which members of Congress support Federal funding for R&D. We ought to take this process one step further and ask the PACE membership to help re-elect those Congressmen who support R&D. Perhaps if PACE had gotten involved in last year's election, two strong supporters of R&D, Senator Howard W. Cannon and Senator Harrison J. Schmitt, would not have been defeated. I worked closely with both of these gentlemen. Their presence in the Senate will be missed.

EH Fromm (1981): Being an IEEE Congressional Fellow for a year was an exciting, broadening experience during which I concurrently contributed to my profession, the legislative process, and my personal fulfillment. Much of that success must be attributed to my fortunate selection of assignment. As a member of the Science, Research and Technology Subcommittee of the House Committee on Science and Technology I worked with dedicated professionals on a broad range of significant issues in a participative management style. They all quickly gained my respect, and I was accepted as a team member. The assignment involved me in many issues of long-term significance to the science and technology community in an interactive policy analysis, compromise and formulation environment. Furthermore I witnessed a time of significant transition (Sept. 1980-Sept. 1981) thereby participating in a wide diversity of philosophical discussion and policy impact. Thus both the process of being a Fellow as well as the issues will have lasting personal impact.

The experience also benefits IEEE. In the short term, of course, the assistance to Congress brings a perspective on issues then under consideration, as well as a contact point for expressing the IEEE position, both informally as well as formally. In the long term these contacts remain important, as well as bring additional perspective into the IEEE volunteer leadership. I was an active IEEE member in Technical Activities prior to my year as a Fellow and my responsibilities within IEEE have increased since. While I don't believe this continuing role and responsibility level as an IEEE active volunteer is the result of my year as a Fellow (I would have continued in the same direction anyway) the perspective I offer in these roles is now a good bit different.

Orin E. Marvel (1983): I decided to perform a word association test to relate my "real time" feelings about the Fellows program. During this test, the major words that came to mind were: (a) Overwhelmed; (b) inexperienced; (c) Communications.

I have been overwhelmed by the competence and dedication of the staff people that I have been associated with. Their technical and theoretical understanding of the key issues facing the U.S. is exemplary. The long hours and personal commitments required are taken in stride.

On the flip side, the average staff member is young and inexperienced. In a lot of cases, the implications of implementation are not understood, and a lot of confusion is caused by new policy. I would wish for understanding, dedication, and experience; but I am probably a dreamer. I have been very impressed with the contributions of the IEEE Congressional Fellows program to strengthen this experience base in the Congress.

The toughest job for any Legislative Aide within Congress is communications. To most people I have met, communications is talking; and we all need to learn to listen more. Most people miss the fact that communications is a closed loop process. I believe that most systems engineers and technicians are talking to each other. We all need to communicate is to speak, listen, modify what was said, etc.

I am still learning a lot. I currently have a bill that is just entering the legislative process and am excited about seeing it through.

Doyce Satterfield (1983): After only three months on the floor, "Hill," my reaction is appreciation to the IEEE for the opportunity to experience a year of viewing of the legislative process from the inside. The program is every bit as rewarding as I had hoped it would be.

In my application for the Fellowship, I stated that I would like to emulate a Congressional staff and see Congress from that perspective. Thanks to Senator Hefflin.
I have been able to utilize some of the most extensive information sources in the world, the Library of Congress with its experts and documents extending over virtually every area, and the resource which is the people of the United States who respond with their expertise to questions from a senator's staff. That is the input side.

On the output side, there is the potential for action, although one very quickly learns to appreciate the difficulty of sculpting legislation and getting it passed. Unlike engineering or mathematics, it is not possible for one person to create something. It is an amazing process: The contact among staff, the forming of coalitions, and other activities that comprise the orchestration of a legislative effort. It is rather like watching the indicators on a computer, knowing full well that the activity which can be seen is only an indication of the far more complex process that runs beneath. Playing a part in that underlying process is giving me an education I'll not forget.

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IEEE CONGRESSIONAL FELLOWS
1973-1983

<table>
<thead>
<tr>
<th>Year</th>
<th>Fellow</th>
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<tbody>
<tr>
<td>1973</td>
<td>Ronal Larson</td>
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<td>1974</td>
<td>Lloyd B. Craine, Willis D. Smith</td>
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<td>1975</td>
<td>Anthony L. Rigas</td>
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<td>1976</td>
<td>Diane W. Drehoff, Leonard D. Weiss</td>
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<td>1978</td>
<td>Balraj G. Sokkappa, John B. Wallace</td>
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<td>David C. Lewis, Ian Whyte</td>
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<td>1980</td>
<td>Thomas L. Fagan, P. Gene Smith</td>
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<td>1981</td>
<td>Eli Fromm, Theodore R. Simpson, Frederick J. Twogood</td>
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<td>1982</td>
<td>Glenn R. Heidbreder, Feisal S. Keblawi</td>
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<tr>
<td>1983</td>
<td>Jack Lubowski, Orin E. Marvel, Doyce E. Satterfield</td>
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A LOOK AT
IEEE WASHINGTON OFFICE ACTIVITIES TODAY

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Staff Director, Professional Activities
The Institute of Electrical and Electronics Engineers, Inc.
Washington, D.C.

ABSTRACT

This paper discusses: (1) how the IEEE United States Activities Board (USAB) can serve as a mechanism facilitating contributions to the formulation of future policy directions; and (2) how individual engineers as well as IEEE units can interact with USAB. It begins with a brief overview of USAB's involvement in the public policy process, then describes USAB's organization. Finally, it examines specific opportunities for interacting with USAB.

INVolVEMENT IN PUBLIC POLICY PROCESS

As we consider USAB involvement in the public policy process, perhaps each of you will ask yourselves: What local and national decisions affect me? How will R&D funding decisions affect the direction of my work or life? Are there public policy decisions which can increase or lessen my job effectiveness? How much of my work is affected by Federal regulations? What technical contributions are needed for the development of these regulations? How can my talents, and those of my peers, be most effectively utilized?

Based on a vote of the IEEE membership, the IEEE Board of Directors incorporated professional activities into IEEE's mission by supporting the promotion and improvement of the economic well-being of the membership as well as the promotion of scientific, literary, and educational activities. USAB and the IEEE Washington Office were designated as focal points for member interaction with the Congress and Executive Branch of Government. Consequently, the Board of Directors requested the Technical Activities Board (TAB) to develop specific programs in technological fields, many of which have become joint TAB-USAB activities.

Since the establishment of USAB in 1973, the IEEE has interacted with the U.S. Government on a broad range of issues, including:

- In 1973, USAB initiated the IEEE Congressional Fellows Program coordinated with the American Association for the Advancement of Science and a dozen different societies. Over the last decade, 21 IEEE Congressional Fellows have worked with Congress reviewing proposed legislation from an engineering and scientific perspective; identifying qualified witnesses for legislative hearings; serving as liaisons to executive departments and agencies as well as the engineering/scientific community.
- In 1973, USAB began seeking passage of widespread pension reform, beginning with support of the Employment Retirement Income Security Act (which became law in 1974) creating individual retirement accounts (IRAs). USAB assumed the lead in supporting expanded eligibility for IRAs, promoting the retirement security of all Americans as well as providing an important source of capital for industrial expansion. Thus, a major professional goal was realized with the enactment in 1981 of the Economic Recovery Tax Act. In addition to promoting retirement security for those holding IRAs, under this new law, the 120,000 non-student members of IEEE could realize more than $35 million in new and increased tax benefits for 1982.
- In 1977, TAB and USAB held the first of five conferences on U.S. technology policy. The fifth such conference, held in 1982, included sessions on energy, innovation, and information policy. These conferences have proven to be a valuable tool for educating IEEE leadership on public policy issues, as well as communicating IEEE views to Government officials. Following the IEEE 1982 Conference on U.S. Technology Policy, then-IEEE President Robert E. Larson addressed Congressional staff in the U.S. Capitol on "Developing a More Coherent U.S. Technology Policy Through Consensus-Building."
- In 1978, USAB began to testify actively before Congress on such subjects as telecommunications, Federal energy/R&D policies, and reducing capital gains taxes as a means of increasing capital formation in high technology industries. The availability of IEEE Position Papers and USAB Entity Position Statements has assisted volunteers and staff in giving Congressional testimony, enabling them to represent the organization on previously agreed upon positions. There are currently some 30 IEEE Position Papers, USAB Entity Position Statements, and pending Subject Statements.
- In 1979, after the nuclear accident at Three Mile Island, the TAB/USAB Energy Committee identified major nuclear safety and reliability issues to be considered by Congress. At the same time, the TAB/USAB Telecommunications Policy Committee presented its views on a major rewrite of the Communications Act of 1934. Most recently, the IEEE was one of three organizations receiving requests to testify before the House on the effect of
telecommunications legislation on research and development at Bell Labs, IEEE President Richard W. Damon questioned whether H.R. 5158 could result in a lack of R&D funding at Bell Labs, and whether the bill would be restricted from the Labs or to the nation's communications industry.

In 1980, USAO cooperated with the Nuclear Regulatory Commission (NRC) in sponsoring a conference on "Advanced Electrotechnology Applications to Nuclear Power Plants." With the success of this event, USAO was asked again in 1981 to assist the NRC in developing a draft guidebook on the application of probabilistic risk assessment to nuclear power plants.

• In 1981, USAO convened a "Conference on Engineering Manpower Supply and Demand," assembling government, industry, and association representatives to share and evaluate manpower data.

• In 1981 and 1982, USAO leaders met on many occasions with the Presidential Science Adviser, Dr. George A. Keyworth, continuing a long-standing dialogue with the Office of Science and Technology Policy. Key concerns were discussed such as industrial innovation, national productivity, the national laboratories, Federal support of technology transfer, manpower, and engineering education.

• In 1981, the TAB/USAO Energy Committee held a briefing on photovoltaics for 18 congressional staff members of scientific and technical committees, prior to a Senate hearing on the Department of Energy's photovoltaics program. Senator Pete V. Domenici had met with the Energy Committee at the beginning of the day. In the same year, the Energy Committee also completed (and is now updating) a slide presentation, entitled "Energy in Perspective," available in English and Spanish. The Spanish has been widely distributed in the U.S. and abroad.

• In 1982, USAO sponsored a site at the U.S. Capitol for Congressional staff and Congressmen interested in viewing the IEEE short course on robotics broadcast live via satellite. The presentation on Capitol Hill attracted almost 100 Congressional aides and media.

USAO ORGANIZATION

Turning now to USAO's organization, it should be noted that the Board is divided into four councils: (1) the Member Activities Council; (2) the Government Activities Council; (3) the Career Activities Council; and (4) the Technology Activities Council. Activities for all of these councils during 1982 are included in the USAO 1982 Report, available from the Washington Office.

SOURCES OF INFORMATION ABOUT USAO

I would like to outline briefly the many sources of information about USAO's involvement in the public policy process: (1) the USAO Program Plan; (2) the USAO Directory; (3) USAO Operating Committee and USAO meeting summaries; (4) IEEE Position Papers and USAO Executive Statement on Governmental Impacts; (5) the Legislative Report; and (6) the Legislative Alert, issued intermittently. All are available on request to the Washington Office.

SPECIFIC OPPORTUNITIES FOR INTERACTING

Now, let us consider specific opportunities for interacting with USAO on an individual or group basis:

• Your Divisional or Regional Director may be a member of USAO. This individual could be approached to present action items, resolutions, and position statements to USAO.

• You can examine the USAO Program Plan or USAO Directory as to whether there are representatives on committees or task forces of interest. Incidentally, all IEEE societies may provide representatives to the Energy and R&D Committees.

• Your Divisional Regional Professional Activities Committee for Engineers (PACE) Chairmen are knowledgeable about USAO's diverse activities. These individuals can obviously be approached for background information on volunteer actions.

• You can participate in USAO-sponsored or -supported conferences, forums, and briefings, such as the Technology Policy Conference, the American Association of Engineering Societies' Public Affairs Forum, the briefings on Federal R&D funding, the PACE Workshops, and others listed in the IEEE Technical Activities Guide.

• You and your colleagues can participate in the IEEE Congressional Fellows program through the selection process or through the Congressional Fellows Fund.

• It is, of course, volunteer to serve on any number of USAO's many committees and/or task forces.

CONCLUSION

USAO can provide a mechanism for facilitating contributions to the formulation of future national policy directions, but it relies on individuals such as yourselves to set the policy. USAO activities reflect the continuing emphasis on communication with volunteer leaders, volunteer members, and other constituent members. These activities also indicate a concern for decentralized decision-making with PACE assuming a large responsibility for initiating and implementing activities responsive to local member needs. And they reflect a continuing desire to offer maximum member benefits for volunteer time and money invested.

Dear Sir:

I am writing to the membership committee chair- man, he asked me to write to you, "If I am temporarily in financial difficulty, I am. So, here goes! I have lost all my sources of income another by another, by fall in prices of my accumulation of stocks and failures to receive dividends, etc. These mishaps have brought my nose close to the grindstone.

I will be 83 years of age next July. While I have the physical ability to do certain kinds of expert engineering work, age seems to be a matter of consideration with possible employers. Simply, I am unable to pay my dues to the Institute, at present, at least. But I have promises of employment as soon as financial and other business become better, or normal.

In thinking over my connection with the Institute, . . . my labors in getting together . . . members, and of the considerable amount of time, which I have contributed to it . . . the year, I often wonder if I have never received any formal recognition of my services. Be that as it may, I am a member of the Institute in the hands of the In- stitute, and, of course, will abide by its judgment. Accept my cordial thanks and personal regards. —Name withheld

Do the problems sound familiar? The letter was written in 1921 by a member of one of the predecessor Institutes that formed the IEEE. Only the identifying phrases were, of course, changed. Although many of the programs the Institute recognizes the services and achievements of members who so distinguish themselves. But there are larger problems, matters of public policy, still to be resolved.

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