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THE NEWSLETTER OF IEEE PROFESSIONAL ACTIVITIES COMMITTEES

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—B. J. Leon

HOW TO TESTIFY BEFORE A CONGRESSIONAL COMMITTEE
—L. Young
—M. Lunch

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WRITING TO CITY & COUNTY GOVERNMENTS AS AN AUDIENCE
—R. Kelton

HOW ENGINEERS INFLUENCE LEGISLATION
—W. Herrold

Just a few of the topics that are on the program of the IEEE/PC 1981 Washington Conference. Keynoter R. Fischell of JHU Applied Physics Lab asks "Are the **Now** Engineers Shaping our Future Society?"

USAB BUDGET PAGES 6-7-8

"ENGINEERING" TECHNOLOGY RESOLUTION IMPLEMENTATION REQUIRES LOCAL ACTION

At the PAC Workshop last year, a resolution was introduced and passed stating that the IEEE should work toward eliminating the degree title, Bachelor of Science in Engineering Technology. The word, "Engineering," should be deleted and Technology degrees should be referred to as degrees in Electrical, Electronic, or Computer Technology. The word, "Engineering," should not appear in the degree title or in the name of the department that offers the degree. Subsequently, the U.S. Activities Board and the Regional Activities Board passed the resolution.

The Educational Activities Board has been struggling with the misunderstanding concerning the relation between technology programs and engineering programs for several years. The EAB, through its representatives on the Accreditation Board for Engineering and Technology has tried to find a way to show that technology programs are different from engineering programs. So far, they have not been terribly successful.

If USAB and RAB are to succeed, there must be much more dialogue between our local representatives and the schools in their locale. Each PAC should make contact with the schools in the particular section territory where technology programs, especially the four-year bachelors' programs in technology, are offered. The technology department heads are now organized under EAB. The EAB office in New York can get the names of the department heads in each region, so that the PAC chairman, and possibly the Section chairman, can meet with the department head to discuss the problem.

In addition to the problem between the schools and the IEEE organization, we must also get information to employers. The major problem is actually that many employers of technologists call the technologists engineers. A second problem is that many people with engineering degrees are now employed in jobs as technologists. It may be that these are under-utilized engineers. It could also be that many of these individuals really prefer employment as a technologist. We must get grass roots support from each section, especially the section PACs, if we are to get a program and a procedure for distinguishing between technology programs, which train individuals for operation and maintenance of high technology systems, and engineering programs, which train individuals for design development and research on products services and systems.

As the former Vice President for Education, I can help any PAC that wishes to get started in this area. I am sure the present Vice President for Education, Professor Ed Ernst of the University of Illinois, would also be willing to help. The primary issue, as we see it, is that high school students, who are starting their college career, are not really well informed on the difference between engineering and technology education and the ultimate job opportunities for the graduates of each program. The modifier "engineering" and the title of technology programs is confusing. We must find a better way to distinguish programs that train for operation and maintenance from those that train for design and development.

—B. J. Leon

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As *IMPACT's* circulation has increased over the past year, a number of members have advised the Washington Office of duplicate mailings. The chief source of the problem appears to be duplications among the various mailing lists used for *IMPACT* distribution. Such lists are set up by individual Boards and Committees for their individual requirements. *IMPACT* maintains only one supplementary list for those members not covered by the other Board and Committee lists which it uses.

Steps are being taken to eliminate these duplicate mailings. If you receive duplicate mailings, kindly return both of the mailing labels, along with your correct member number, to the Washington Office. In the meantime, why not pass along the extra copy to an IEEE friend?

If you know of others who would like to receive *IMPACT*, tell them to send their requests to the Washington Office and include their member numbers. ■

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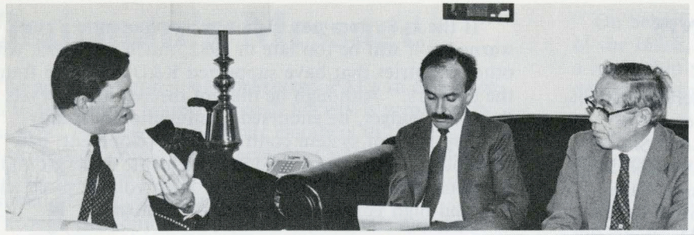
USAB IN WASHINGTON



IEEE President Damon (l.) pays a constituent visit to Congressman James Shannon (r.), accompanied by IEEE Washington staff member Tom Suttle.

Rep. Cooper Evans (r.), one of few engineers in Congress, discusses IEEE legislative positions with (l. to r.) his Legislative Director Jack Seum, IEEE Professional Programs Manager Tom Suttle, and IEEE President Richard W. Damon.

Meeting with Rep. Walgren (r.) are two IEEE constituents, Bob Weiler (l.) and Howard Hamilton.

Joel Snow distributed DOE's 1982 Budget in Brief at the IEEE Briefing on Federal R&D Funding, showing detailed breakdown of programs and funding levels to be continued.

Prior to Walgren visit, IEEE Congressional Fellow Fred Twogood (l.) and USAB Government Activities Council Chairman Russell C. Drew meet on Hill for quick review of legislative status.

Following the March 5th, hearing, Rep. Flippo (r.) exchanges views with IEEE witness John Clark.

Robert F. Allnut told IEEE at its Federal R&D Briefing that while the space shuttle was preserved, all new program initiatives in space science were eliminated or delayed.

A last-minute program change resolved by (l. to r.) Harvey Nathanson of the IEEE R&D Committee, Bill Herrold, Manager of Public Affairs Programs at the IEEE Washington Office, and Dr. Russell C. Drew, Chairman of the USAB Government Activities Council.

Prior to the House subcommittee hearing on space science, IEEE witness John Clark (r.) talks with fellow witness James A. Van Allen, discoverer of the earth's radiation belts.

Now an interested member of the public, former Congressman Mike McCormack listened to John Clark's testimony and attended an earlier hearing of the energy research subcommittee that he headed while in Congress. McCormack is continuing his work on energy issues, particularly fusion power, and staying in Washington, DC, rather than returning home. He was the recipient of the IEEE/USAB Distinguished Public Service Award in 1979 for his advocacy of engineering solutions to energy problems.

SUBSTANTIAL ENERGY INVESTMENTS NEEDED, IEEE TELLS CONGRESS

"Electrical energy is destined to play an increasingly important role and will be critical to the achievement of energy independence," according to Dr. J. Leon Shohet of IEEE's R&D Committee. He testified on March 25 before the House Subcommittee on Energy and Water Development. A similar statement was submitted to the Senate Subcommittee on Energy and Water Development on April 21.

The hearing focused on DOE's FY/82 budget request, which had followed new Administration guidelines that favor Federal support for programs that are considered high-risk, long-term, high-payoff ventures. On behalf of the IEEE Committee, Dr. Shohet agreed with the guidelines but clarified the terms in stating, "By high risk, we mean in an economic, not a safety sense, and by high payoff, we mean those projects that offer a substantial advantage in economics, safety and environmental factors." Six specific programs were endorsed:

- Magnetic Fusion: support for main-line programs, establishment of a Center for Fusion Engineering, and development of the torsatron/stellarator as a viable alternate concept.
- Nuclear Fission: support development, but not yet commercialization, of the liquid metal fast breeder reactor (LMFBR).
- Solar: support increased funding for photo-voltaics and thermal systems.
- Electric Energy Systems: support increased funding in systems analysis and high voltage transmission.
- Energy Storage: support of present programs, including superconducting magnetic energy storage.
- Basic Energy Sciences: support of ongoing programs to avoid knowledge-base deficiencies in the future.

"Effective Federal involvement in research requires a substantial investment in new knowledge and technology development," Dr. Shohet said. He is professor of electrical and computer engineering and director of the Torsatron/Stellarator Laboratory at the University of Wisconsin. ■

IEEE GIVES ELECTRIC ENERGY TESTIMONY TO HOUSE COMMITTEE

IEEE continued its effort to give Congressional budget committees significant technical information on budget matters with a recent appearance by a representative from the Energy Committee. On March 16 Robert F. Lawrence told the House Subcommittee on Energy Research and Production that it is right and proper for the Department of Energy to support long-term, high-risk projects in electric energy systems.

Lawrence, manager of Transmission and Distribution Systems Engineering at Westinghouse in Pittsburgh, told the subcommittee that right now private industry "cannot support long-term projects and realize the necessary return." If frontiers are to be explored and new solutions found to energy problems, support must come from Federal sources.

—More—

"If the U.S. does not sustain technology now," he warned, "it will be too late in 1982, much less 1990, when other countries that have supported R&D will have found the answers." Although he did not discuss dollar levels in the DOE budget, he endorsed continuation at steady funding rates of system control and development, new technology integration, load management, underground transmission, electric field effects, high voltage direct circuit and high voltage alternating technologies. ■

GET INTO THE THICK OF IT AT "WHAT'S WORKING TO ENRICH ENGINEERING CAREERS"

USAB and its Task Force on Career Maintenance and Development will conduct a national conference on:

"What's Working to Enrich Engineering Careers" on Thursday and Friday, October 22 and 23, 1981 (Saturday, October 24, 1981: Optional Workshop) at Stouffers' Inn, Denver, Colorado

This Conference will focus on the large majority of those million-plus engineers in the U.S. who are not in management but are working as technical contributors. Because most of them will continue in technically anchored work, this Conference will place special emphasis on features necessary to a long and satisfying career for those engineers. Career success in the hierarchial mode will also be considered.

The program includes descriptions of industrial practices which have been supportive of successful engineering careers. Social scientists will present their viewpoint of engineering career needs and how they can best be met. Practicing engineers will talk about career development policies and practices they believe are on target for maintaining their careers.

Following the Conference there will be a "Career Strengthening Workshop," taking place on Saturday, October 24. This Workshop can be held in any location and will appeal not only to those seeking career advice now, but also to attendees who will want to bring the Workshop to their own areas.

This Conference will be useful to practicing engineers, social scientists, corporate managers of engineering, and managers of human resources. Participation by this spectrum of principals will provide a rich exchange of knowledge and experience for enriching engineering careers. There will be a registration fee for this Conference and for the Workshop, which will also cover the cost for the Conference Record. Further information may be obtained from the IEEE Washington Office. ■

Chairman's Message

The need for strong, well-organized PACs in every Section in the United States and each Society is greater now than ever. The awareness of our members to the needs of our profession continues to increase. Continued growth in the PAC program is essential to meet the increasing professional needs of our members.

Through the combined efforts of our PACs and our task forces, breakthroughs in important legislation dealing with pensions, patents, innovation, and the federal R&D budgets have occurred. Activity with members of Congress, both in Washington and in the home districts, has increased in volume and effectiveness. The most important lobbyists are not only the dedicated professionals on our Washington staff, but the army of volunteer members working through Professional Activities Committees who keep in close contact with their Members of Congress in home districts.

The many segments of the USAB program have become increasingly important in a coordinating role to the other Boards, Committees, and entities of the IEEE. USAB members, and in particular PACs, are seen as experienced professional action people to help effect needed change for our profession.

Our associations with RAB, TAB, and EAB continue to grow stronger. Recently, I sent a letter to all PAC leaders asking them to develop effective campaigns in their Sections and Societies to work with RAB and EAB to help eliminate the use of the word "engineering" in the title of Bachelor of Engineering Technology (BET) programs. As is true with Congressional lobbying, the local membership has the most influential voice in effecting such change. We will continue to work on the national level with educationally oriented national professional bodies for their endorsement of the removal of the word "engineering" from the title of BET programs, but there can be no doubt that the most effective effort will occur when local PACs work with their Sections to encourage the leaders of the educational programs in their communities to remove "engineering" from Bachelor of Engineering Technology programs. Special credit is due to George Starr for his tenacious leadership in bringing this effort to the attention of USAB. I ask that each PAC leader work to identify the appropriate persons to contact to bring about the removal of the word "engineering" from Bachelor of Engineering Technology programs in all colleges throughout the United States.

I urge that in preparation for our 1982 program all PAC leaders come to the national PAC workshop prepared to give guidance to USAB in identifying those projects that have the highest priority of interest with our members. It is important to identify the programs of highest member needs so that we can coordinate national, regional, and local efforts to meet these needs.

We must expand the funding base available for USAB programs. There is a need to increase the regional assessment in 1982 to provide additional program funding. But funding alone cannot achieve needed change. Change will occur only as we identify larger numbers of members who understand the needs of our profession and are prepared to work effectively to bring about change. We need both additional leaders and additional funding.

—More—

On behalf of the over 175,000 United States members of the IEEE, I thank you for your willingness to serve in a leadership position in guiding the development of our professional activities program.

—R. J. Gowen

EDITOR:

In the April Issue of IEEE *IMPACT*, Mr. Benjamin J. Leon indicated that NASA's budget would not be cut by the Reagan Administration. Unfortunately, this hasn't turned out to be the case.

After a 15 year period of decline, NASA finally got a proposed budget with some real growth in it this January. At that time, President Carter proposed that NASA's budget for Fiscal Year 1982 be $6.7 billion. In March, President Reagan reduced this amount by $604 million to $6.1 billion. As a result, NASA's decline will continue.

In June 1965, NASA's work force peaked at 410,000 workers. By last September it had declined to 135,000 workers. As a result of President Reagan's budget cut in Fiscal Year 1982, NASA will lose about 18,000 jobs—almost all of which will be from the aerospace industry. The Reagan Administration also eliminated all new program starts during the five year period from 1981 through 1985. This could lead to a further decline after 1982.

Due to the long range importance of the civilian space program, not only for our economic well-being, but also for our national security, I think that it is quite proper for the IEEE to support NASA.

—Theodore R. Simpson
11713 Indian Ridge Road
Reston, Virginia 22091

Theodore R. Simpson is presently serving as an IEEE Congressional Fellow, on leave from Mitre Corp. He is a Professional Staff Member of the Senate Subcommittee on Science, Technology and Space, a member of the IEEE Aerospace & Electronic Systems Society, and former PAC Chairman of the Washington Section.

NCEE TELLS ENGINEERING STUDENTS TO BEGIN REGISTRATION NOW

The National Council of Engineering Examiners (NCEE) advises engineering seniors that they may begin the process of professional registration with the Fundamentals of Engineering exam during the closing months of the undergraduate engineering program. "It's no secret," reads the student advisory leaflet, "that the best time to take the FE is . . . when problem-solving techniques for a variety of subjects are fresh in mind." The subsequent Principles and Practices exam completes the process.

Interested students or practicing engineers should contact the Board of Registration in their states of residency. Fifty-four states and/or territories of the U.S. have enacted individual legislation and requirements. Certain job opportunities in government and private practice may require registration; others in industry or education may encourage it. The U.S. Activities Board of IEEE encouraged registration of engineers in a recent position statement. ■

NOTES FROM THE USAB TREASURER

PAC leaders attending the 1980 Workshop requested that the USAB budget for 1981 be published in advance of the 1981 PAC Workshop. This year's budget deliberations and publication of the data were more complex because of a deficit in 1980.

Below you will find a comparison of the 1981 USAB Budget adopted by the Institute's Board of Directors at the December 1980 meeting, and the USAB 1981 Financial Management Plan. The latter was prepared by USAB OpCom on April 13, 1981, in accordance with instructions from USAB of February 11, 1981.

The USAB Budget has three major components: *Overhead/Facilities*, the expenses associated with maintaining a physical office, e.g., rent, office equipment, telephone, stationery, etc.; *Staff Support*, e.g., 17 full-time employees, temporary help, consultants; and *Direct Expenses* incurred by the volunteers in implementing the program plan. With the exception of the Congressional Fellows Program (funded in part by the Institute's Technical Societies), the NRC/IEEE Liaison (a self-supporting, contracted activity) and the Salary Survey (results are marketed), USAB income is limited to the Regions 1-6 Assessments.

USAB policy requires annual expenses to be less than the sum of the projected income plus prior years accumulated reserves. The revision in the Financial Management Plan reflects two considerations:

1. 1980 USAB expenses exceeded income plus accumulative reserve (121.4K January 1, 1980) by about $10.0K, and
2. Funding was required to administer the four council structures adopted by USAB.

Consequently, various line items had to be reduced to meet the "Balanced Budget" objective. These reductions were negotiated by the USAB Finance Committee (Chm: USAB V-Chm, R. J. Backe; Mbrs: USAB Treasurer and the four Council Chairmen) and approved with modification by USAB OpCom.

Budget reductions are always unpleasant and a cause for debate, particularly by those experiencing cuts in their projects. The plan adopted by USAB OpCom is the result of careful deliberations and deserves full support by the USAB volunteer leadership.

The principal source of USAB income is the Regions 1-6 assessment levied against the higher grade members. Their number grows at approximately 4% per year. Due to inflation USAB expenses grow at about 15% per year (travel/meeting expenses grow at 25% per year). Hence, stringent controls are required to keep the USAB 1981 Financial Management Plan on target.

To balance the budget, the direct expenses in the following projects were adjusted as shown:

	MAC		GAC		CAC		TAC	
	4000	0	4015	0	4030	(17%)	4051	0
	4001	(6%)	4016	0	4031	(22%)	4052	0
	4002	0	4017	0	4032	0	4053	0
	4003	(6%)	4018	0	4033	0	4054	0
	4004	(21%)	4019	0	4034	0	4055	(100%)
	4005	(100%)	4020	(62%)	4035	(36%)	4056	(37%)
	4006	0	4097	0	4036	0	4057	0
	4007	100%			4037	0	4058	0
					4038	(9%)	4059	(100%)
					4039	(18%)		
					4040	0		
					4041	0		
G&A-	4007	100%	4021	100%	4042	100%		
	MAC	(18%)	GAC	25%	CAC	(23%)	TAC	(17%)

USAB Admin.—no change. USAB-ABET/AAES—no change.

Source: USAB—Report of Treasurer
April 12—OpCom

1981 USAB BUDGET BY PROJECTS/COUNCILS

NOTES:

(1) USAB Administration $ are spread equally amongst all 4 Councils.

(2) Overhead/Facilities $ are spread in proportion to Sub Total Expenses for each Council.

(3) Overhead/Facilities exceptions are projects:
4033 Region/Division Fund
4034 Direct. Discret. Funds
4057 NRC/IEEE
4071 New Projects
4082 AAES Participation

(4) Net Zero Expense Projects:
4057 NRC/IEEE—Estimated Expense of $234.0 is balanced by NRC Contract Income.
4082 AAES Participation—Estimated Expense of $250.0 is balanced by 1-1-81 $2.00 Dues increase for U.S. Members.

(5) Grand Total USAB—Direct Expense:
4091 Prior Year Adjustments ('80 Accruals)—Will be subtracted from Direct Expense when applicable.

1981 USAB BUDGET BY PROJECTS/COUNCILS

Project	Project #	Direct Expenses	Staff Support	Sub Total Expenses	Overhead/ Facilities	Total Expenses	Income	Net
Member Activities Council (MAC)								
Salary Survey	4025	$ 33.2	$ 12.0					
PAC	4031	90.0	22.0					
Region/Division Fund	4033	66.0			(3)			
Direct.Discret.Funds	4034	12.5			(3)			
IMPACT	4035	21.0	15.0					
USAB Awards Committee	4045	4.5	3.0					
Opinion Survey	4065	21.0	7.0					
	Sub Total	$ 248.2	$ 59.0					
USAB Administration(1)		20.6	25.7					
SUB TOTAL Member Activities Council	MAC	$ 268.8	$ 84.7	$ 353.5	$ 96.0	$ 449.5	$ 20.0	$429.5
Government Activities Council (GAC)								
Proj. Dev./Exploration	4005	$ 7.5	$ 5.0					
Government Affairs	4006	9.0	8.0					
Legislative Newsletter	4036	8.5	22.0					
Congressional Fellows	4046	60.0	5.0					
Inter/Ext. Com.	4061	14.0	21.0					
New Projects	4071	40.0(4)			(3)			
AAES Participation	4082				(3)			
	Sub Total	$ 139.0	$ 61.0					
USAB Administration(1)		20.7	25.9					
SUB TOTAL Gov. Activities Council	GAC	$ 159.7	$ 86.9	$ 246.6	$ 72.3	$ 318.9	$ 0.0	$318.9
Caree Activities Council (CAC)								
Service Contracts	4011	$ 24.0	$ 8.0					
Pensions	4012	53.5	12.0					
Patent Rights	4014	19.4	7.0					
Manpower Activities	4021	9.0	5.0					
COMPOW	4023	5.0	3.0					
Age Discrimmination	4024	14.0	4.0					
Employment Assistance	4026	3.0	2.0					
Occupantional Handbook	4027	2.0	2.0					
Ethical Conduct Activities	4043	11.0	3.0					
Licensure and Registration	4044	11.0	3.0					
Professional Sch. of Engineering	4047	1.2	1.0					
Career Maintenance	4048	10.0	7.0					
	Sub Total	$ 163.1	$ 57.0					
USAB Administration(1)		20.6	25.7					
SUB TOTAL Career Activities Council	CAC	$ 183.7	$ 82.7	$ 266.4	$ 92.8	$359.2	$ 0.0	$359.2
Technology Activities Council (TAC)								
R&D Innovation in U.S.	4051	$ 4.3	$ 16.0					
U.S. Energy Program	4052	9.0	10.0					
Telecommunications	4053	2.5	3.0					
Health Care Tech.Policy Com.	4054	4.5	3.0					
COMAR	4055	1.4	1.0					
U.S. Tech. Policy	4056	23.7	12.0				$ 12.0	
NRC/IEEE	4057	(4)			(3)			
Fedl. Budget Analysis	4058	15.0	17.0					
	Sub Total	$ 60.5	$ 62.0					
USAB Administration(1)		20.6	25.7					
SUB TOTAL Tech. Activities Council	TAC	$ 81.1	$ 87.7	$ 168.8	$ 58.9	$ 227.7	$ 12.0	$ 215.7
TOTAL FOR FOUR COUNCILS		$ 693.3	$ 342.0	$1,035.3	$ 320.0	$1,355.3	$ 32.0	$1,323.3
USAB Administration(1) Detail								
Administration USAB	4002	$ 75.0	$ 58.0				$1,250.0	
USAB Secretariat	4003		40.0					
Financial Planning	4004	7.5(1)	5.0(1)					
	Sub Total	$ 82.5(1)	$ 103.0(1)				$1,250.0	
Overhead/Facilities(2)								
Washington Office	4001	$ 320.0(2)						
Net Zero Expense Projects(4)								
NRC/IEEE Liaison	4057	$ 234.0					$ 234.0	
AAES Participation	4082	250.0					250.0	
	Sub Total	$ 484.0				$ 484.0	$ 484.0	
GRAND TOTAL USAB All Income & Expense		$1,497.3(5)	$ 342.0			$1,839.3	$1,766.0	$ 73.3)

As Adopted by BoD, 12/80

USAB 1981 FINANCIAL MANAGEMENT PLAN (In K$)
Approved USAB OpCom 4/13/81

Project	Proj No*	Direct Expenses	Staff Support	Subtotal Expenses	Overhead/ Facilities	Total Exp	Income	Net
Member Activities Council (MAC)	(Darrell Vines (806) 742-3536/Sandra Blair)							
Salary Survey	4000	33.2	11.0				20.0	25.2
PAC	4001	85.0	20.0					
Region/Division Fund	4002	66.0	0					
Direct Discret. Funds	4003	10.5	0					
IMPACT	4004	17.0	13.0					
USAB Awards Committee	4005	4.5	5.0					
Opinion Survey	4006	0	0					
MAC Administration	4007	5.0	5.0					
	Subtotal	221.2	54.0	275.2			20.0	
Government Activities Council (GAC)	(Russell Drew (703) 522-5770/Edith Carper)							
Proj Dev/Exploration	4015	7.5	4.5					
Government Affairs	4016	9.0	6.0					
Legislative Newsletter	4017	8.5	16.0					
Congressional Fellows (USAB Share)	4018	60.0	4.5					
Investment Income	4018							
Inter/Exter Com	4019	14.0	19.0					
New Projects**	4020	36.0	0					
AAES/ABET	4097	(See Affiliate Activities)						
GAC Administration	4021	5.0	5.0					
	Subtotal	140.0	55.0	195.0				
Career Activities Council (CAC)	(Bob Barden (516) 585-1512/Thomas Suttle)							
Service Contracts	4030	20.0	7.0					
Pensions	4031	41.5	9.0					
Patent Rights	4032	19.4	6.0					
Manpower Activities	4033	9.0	4.0					
COMPOW	4034	5.0	3.0					
Age Discrimination	4035	9.0	4.0					
Employment Assistance	4036	3.0	2.0					
Occupational Handbook	4037	2.0	2.0					
Ethical Conduct Activities	4038	10.0	3.0					
Licensure and Registration	4039	9.0	3.0					
Professional Sch of Engineering	4040	1.2	1.0					
Career Maintenance	4041	10.0	6.0					
CAC Administration	4042	2.0	2.0					
	Subtotal	141.1	52.0	193.1				
Technology Activities Council (TAC)	(Jack Doyle (201) 649-2095/William Herrold)							
R & D Innovation in US	4051	4.3	10.0					
US Energy Program	4052	9.0	7.0					
Telecommunications	4053	2.5	2.5					
Health Care Tech Policy Com	4054	4.5	2.5					
COMAR	4055	0	0					
US Tech Policy	4056	15.0	8.0					
NRC/IEEE (USAB Staff Support)	4057	200.0	34.0				234.0	
Federal Budget Analysis	4058	15.0	9.0					
TAC Administration	4059	6.0	5.0					
	Subtotal	256.3	78.0	334.3			234.0	
Subtotal MAC + GAC + CAC + TAC		758.6	239.0	997.6				
USAB Administration (Admin)	(Dick Gowen (605) 394-2256; P. Rusche (517) 788-7028/L. Fanning; Flo Pretts)							
USAB Administration	4065	75.0	58.0					
USAB Gen Fund Dues Income	4065						1,250.0	
USAB Secretariat	4066	0	40.0					
USAB Financial Planning	4067	7.5	5.0					
Washington Office	4070							
G & A (Institute Services	(Beginning in 1982 the Institute is expected to allocate G & A)							
Investment Income								
Miscellaneous Income	(Use of USAB office space for Public Relations Activities)						6.0	
	Subtotal	82.5	103.0	185.5	320.0	505.5	1,256.0	
Councils + USAB Administration	Subtotal	841.1	342.0	1,183.1	320.0	1,503.1	1,510.0	6.9
Affiliate Activities	(Dick Gowen (605) 394-2256; P. Rusche (517) 788-2088/L. Fanning; Flo Pretts)							
ABET - Dues	4097					65.0	65.0	
AAES - Dues	4097	(Includes $18K in 1980 Start-up Costs)				153.0	153.0	
ABET/AAES Admin	4097					32.0	32.0	
Investment Income	4097							
	Subtotal					250.0	250.0	0
Grand Total		841.1	342.0	1,183.1	320.0	1,753.1	1,760.0	6.9

1981 year beginning reserve (based on audited financial statement) ($10.2K) -( ) Deficit.

*For accounting purposes, project account numbers have been changed.
**Administered by USAB.

SHORTAGE OR SURPLUS?

We can not fail to notice the many statements in the media to the effect that there is a shortage of engineers. These are generally presented without credible evidence.

On the other hand, many members believe there is not a shortage. Two PAC Chairmen who have recently commented in their section publications on the subject are Dick Tax of North Jersey and Al Barauck of Santa Clara Valley.

Dick's observation was as follows:

> Boeing Company has been crying for engineers and other technical people. However, they are offering temporary positions with a per diem rate of $112.00 per week or $16 per day. Prior to 1960 the per diem rate was $56 per week or $8 per day. With the inflation over the past 20 years, the $56 rate would amount to approximately $224 per week or $32 per day.
>
> What a coincidence! I only checked on the per diem rate for government employees about two years ago. Then it was $35 per day or $245 per week. In some major cities it was $55 per day or $385 per week. Government employees per diem rates have kept up with inflation.
>
> In today's market you can't rent an Outhouse for $16 per day, and the $35 per day rate is quite reasonable. You will find the $16 rate nationwide for engineers on temporary status, and Boeing is not alone. The recruiting agencies say that their client companies fix the P.D. rate. If the jobs are for the government, why aren't the rates the same?
>
> Why are engineers per diem rates less than half the federal rates? Perhaps there really is a surplus of engineers. Would someone please send me a list of the Boeing commercial aircraft? I just hate to fly with the lowest bidder. I hear IBM, GE, and McDonnell Douglas are offering the same low $16 rate for engineers on temporary assignments.

Al notes:

> We are all aware of layoffs (of engineers) occurring here and there. We also know that in spite of increasing competence, the typical engineer's buying power does not increase proportionally year after year.
>
> When I began my engineering career almost forty years ago, a beginning salary of $2,000/year was considered good. Within five years I was able to buy a house. With beginning salaries now of $2,000/month, engineers cannot afford to do what I did after five years. Salary surveys and graphs show the rise in income, but none show the relationship to buying power. Is it because we mistakenly think we are living in Nirvana that we believe the professional activities should only be for the bad times?

Readers may want to continue this discussion by sending in their own observations. Do the symptoms you notice support the shortage or surplus point of view?

—Frank Lord

INDUSTRY GROWTH PLAN OFFERED FOR MICHIGAN BY SILA ORGANIZATION

On March 20, the Michigan Council of Professional, Scientific and Technical Associations (MCPSTA) unveiled a 15-point "white paper" designed to lure rapid growth, high technology industries to recession-racked Michigan. The Council, which represents 13 societies within the state, was formed to serve as a forum for discussion and development of policy positions on professional, technical, scientific and environmental design issues that affect the citizens of Michigan.

The Council's suggestions were as follows:

- Setting up various planning and coordinating bodies and establishing a privately financed state Research and Technology Center to work full-time keeping Michigan industry abreast of new technology and luring new industry there.
- Tailoring higher education to meet the anticipated need for future technical skills, and establishing a television network through state universities so experts can offer government and industry training updates on the latest in science and technology.
- Going after high-tech industries related to current Michigan production capacity, such as automotive computer systems or agricultural engineering equipment.
- Promising high-tech industries tax credits for research and development either done on their own or bought from state universities; for using alternatives to conventional manufacturing energy, and state pursuit of federal funds to aid industry.
- Establishing a business data cable network and data bank, making sure laws to protect employees from injury are fair and generally demonstrating that Michigan will be "a helpful business partner."

"Through the cooperation of the Legislature, business, academia and the professional, scientific and technical segments of our population, the goal of introducing new, expanding, high technology industry into Michigan will be achieved," said Ron Fredricks, a Lear Siegler Company engineer [and USAB National PAC Chairman] who presented the paper. Dr. Fredricks was acting as a representative of IEEE, one of the engineering societies affiliated with MCPSTA.

—M. J. Diedzic
PAC Program Facilitator

NEWSLETTER EDITORS: THIS IS FOR YOU

Editors of IEEE publications are invited to reprint any stories appearing in *IMPACT* in their own Section, Society, or other IEEE publication. Simply credit source.

While we no longer print a special editors' clip edition, the regular *IMPACT* printing has changed to black ink, which should prove helpful.

NATIONAL PAC CHAIRMAN'S CORNER

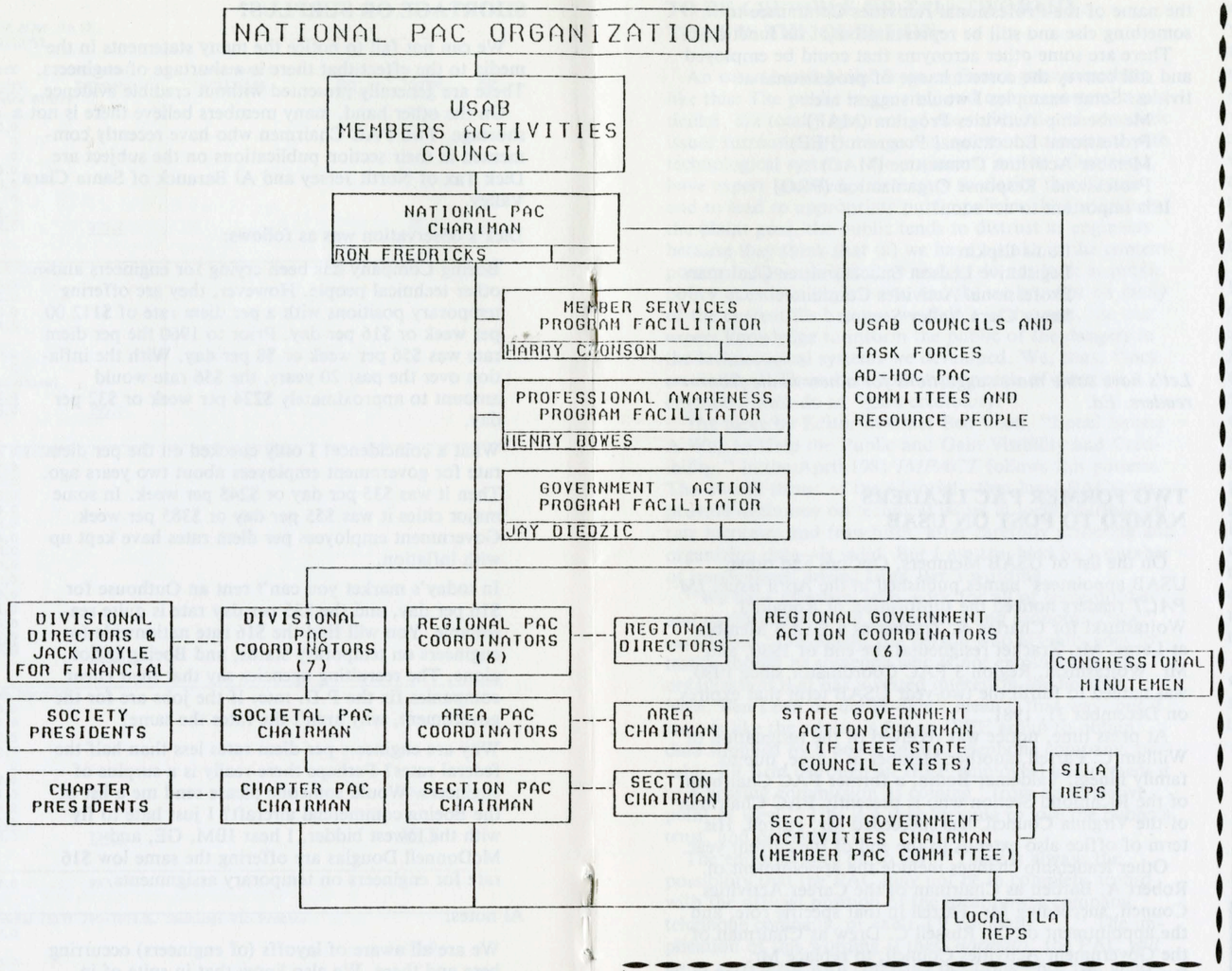
Those of you who read my February *IMPACT* "epistle" will remember I tried to encourage involvement by all of our U.S. members in Professional Activities, if we are to make our $12 assessment effective. Then, in my April *IMPACT* column I suggested several important professional programs which PACs in the various sections and societies might wish to undertake. This month I would like to review the way the national PAC structure is organized for 1981, and in particular, just who reports to whom. I will be brief (not normal for me) as this is one of the sessions we will present at the July 10-12th National PAC Workshop in Minneapolis (see story in this issue on page 20).

The National PAC organization chart really states it all as far as our current structure goes. Functional PAC communication channels are shown as solid, while IEEE line organization reporting and approval channels are shown as dotted. For example, a society PAC Chairman is probably appointed by his society president and hence must secure his approval for any financial commitment by the society or any activity undertaken in the name of the society. At the same time, though, the Chairman might secure financial help and certainly advice from his Divisional PAC Coordinator. Note the triple tie at the section level between a chapter PAC chairman, a local/state section government activities chairman and the section PAC chairman. Normally, the section PAC chairman would be the lead individual here and the others would be members of his PAC committee.

The coordinators normally interact directly with me. I have requested them to prepare quarterly short synopses of the PAC activities in the Regions and Divisions, which means they should be contacting the various society, area and state PAC chairmen for status updates again this month. If, for example, no area coordinators exist, then the Regional PAC Coordinator would have to pulse the section people directly. Similar situations pertain for the Divisional PAC and Regional Government Action Coordinators.

I hope, though, that our communications are much more frequent than four times a year. Informal communication lines can be established between any two nodes of our organization chart; for example, directly between a section government activities chairman and the Government Action Program Facilitator, or between a section PAC chairman and the chairman of a particular task force. The formal communication structure is there only to insure that PAC programs do not fall into cracks. Useful results, ideas and information must get to all those who might undertake similar programs, or to the national task forces addressing related issues.

The three facilitators are my right-hand men. Formally, the PACs communicate with me via their coordinators. As PAC programs unfold, the facilitators reduce my workload by tying up all the loose connections among the PACs, and between the PACs and USAB Councils and Task Forces.



Well, I'm starting to run away at the pen again. We'll discuss this organizational concept more in Minneapolis and perhaps modify it somewhat with your suggestions. After all, PACs are dynamic and therefore so should be the national PAC organization. I hope to see as many of you as possible next month.

—Ron Fredricks
National PAC Chairman

"JOBS HOTLINE" CONNECTED BY S. E. MICHIGAN SECTION

Paul Schwarz, PAC Chairman of the S.E. Michigan Section, has set up an "IEEE Telephone Newsline," a recorded message of information on job openings and important meetings for IEEE members. The number is (313) 977-3566.

Job openings in Michigan and other states will be carried on Newsline. Messages are changed weekly.

Companies and recruitment agencies with job offerings may advertise on Newsline at a cost of $10 per week for a three sentence description, plus telephone and/or address contact. There is no cost to job seekers for the Newsline service, other than the cost of a telephone call, of course. Paul may be reached at Ford Motor Company, Climate Control Div., Bldg. 4, Rm. G070, 2000 Rotunda Dr., Dearborn, M I 48121; telephone (313) 323-2302. ■

IEEE WITNESS ASKS FOR CONTINUED STEADY FUNDING OF NASA PROJECTS

The $521 million reduction in NASA budget authority for FY 1982 postpones or eliminates such new and almost-new starts as the gamma ray observatory, the Venus orbiting imaging radar project and spacelab experiments. Most new space applications programs would be deleted, and reductions are proposed for space remote-sensing techniques and satellite missions, research related to weather and climate, and research on advanced space communications technology.

The Administration decision to assure continued shuttle funding coincides with the issuance of a USAB document on civilian space policy (February 11). The position calls on the government to maintain its leadership position in space in the 1980s. "We believe," it continues, "that a balanced space program will yield important benefits through new commercial services, increased scientific knowledge, and improvement in the level of technology."

IEEE views on space were reinforced in testimony presented by Dr. John F. Clark to the House Subcommittee on Space Science and Applications on March 5. The position statement, which he introduced into the hearing record, noted that past space missions have produced major advances in electronic technologies, including computers, communications, guidance and control, and remote sensing systems. Clark asked that the government provide funds at a steady rate for new communications satellite systems. "Industry alone cannot pay the bill," Clark said . . . "The risk is simply too high."

Clark, who formerly headed NASA's Goddard Space Flight Center, was given a warm welcome by Rep. Ron Flippo, the chairman, and other members of the subcommittee. ■

WOMEN ENGINEERS PUBLISH GUIDANCE COLORING BOOK

The Boston Section of the Society of Women Engineers has published a coloring book to introduce elementary school girls to engineering careers and to encourage them to study math and science.

Entitled "Terry's Trip," the book tells the story of a little girl who visits her aunt, an engineer, and tours the toy factory at which she works.

On her trip, Terry is introduced to civil, mechanical, structural, environmental, electrical, chemical, and industrial engineering, and to the importance of math and science for all engineers.

Copies are available for $1 from Judith Nitsch Donnellan, P.E., Freeman Engineering Co., 178 N. Main St., Attleboro, Mass. 02703.

CONGRESSIONAL FELLOWS FUND RECEIVES ADDITIONAL CONTRIBUTION

The Electromagnetic Compatibility Society of IEEE has added significantly to the contributions received by the Congressional Fellows Fund so far. The Congressional Fellows Committee has expressed its gratitude for the generosity of the EMC Society and other contributors that will enable future expansion of the Fellows Program.

Anyone wishing to contribute to the Fund or needing additional information should contact the IEEE Washington Office. ■

IS IT ABOUT TIME TO "PAC" IT IN?

During this past year, I have observed a problem in using the acronym of our Professional Activities Committee (PAC). This has arisen when contacting legislators. Political Action Committees (PACs) have been formed at all levels of the political spectrum.

To someone outside of our committees or not affiliated with IEEE, the use of the acronym PAC has the connotation of a Political Action Committee, whose primary function is that of raising funds, lobbying, and influencing legislators and legislation. This is a totally different organization from the Professional Activities Committee. In discussing the projects of our committees with someone not within IEEE the perception of the PAC (Political Action Committee) is always present; repeated explanations do not seem to alleviate this impression, since Political Action Committees are specifically organized to work in the sphere of politics and legislation, whereas our Professional Activities Committees do some work in this area, but this is not their primary function.

Of late the PACs have been subject to some exposure in the press and on TV as potent forces in the shaping of policy and promoting political causes and candidates, with the implication that they influence legislators far beyond their voter representation. Laws have been enacted to limit the contribution that a PAC can make to a single candidate to $10,000 (up from $1,000), and PACs are now a part of the organization of labor unions, and oil, utility and transportation companies, as well as special interest and single interest groups. The following is a partial listing of some PACs that contributed funds in a local election for an Assembly seat in California:

California Automobile Dealers PAC
California Manufacturers PAC
Pacific Telephone PAC
California Medical Association PAC
California Restaurant Association PAC
Bankers Responsible Government Fund
Citizen Savings
Evergreen Association (Lumber)
Mining Industries PAC
California Real Estate PAC
Apartment Association PAC
California Association of Winegrape Growers PAC
Institutional Ventures Associates

In addition, I have received some stockholders' literature that strongly suggested that the holders of the company stock form PACs to promote the interests of the company and the industry in general.

The idea of a PAC as a Professional Activities Committee is being lost in the confusion; if you have the name, you will probably have to join the game.

USAB should seriously consider changing the designation for our Professional Activities Committee so there can be no misunderstanding of their purpose and function. To delay is to aggravate a deteriorating situation.

In dealing with outsiders who are not familiar with IEEE the first impression is important, and misconceptions are difficult to change. A bad stratagy is to be defensive about the use of the acronym PAC; no one likes to say he is sorry, nor likes to hear it. A much more productive posture is not to be forced into the situation initially. Within USAB it should not be difficult to change the name of the Professional Activities Committee to something else and still be representative of its functions.

There are some other acronyms that could be employed and still convey the correct image of professional activities. Some examples I would suggest are:

Membership Activities Program (MAP)
Professional Educational Program (PEP)
Member Activities Committee (MAC)
Professional Response Organization (PRO)

It is important to act soon!

—Louis Lipkin
Legislative Liaison Subcommittee Chairman
Professional Activities Committee
Santa Clara Valley Section

Let's have some more suggestions for a new name from readers. Ed.

TWO FORMER PAC LEADERS NAMED TO POST ON USAB

On the list of USAB Members, OpCom and other USAB appointees' names published in the April issue, *IMPACT* readers noticed the substitution of Ronald J. Wojtasinski for Charles A. Zracket as a USAB Member-at-Large. Mr. Zracket resigned at the end of 1980, and Mr. Wojtasinski, Region 3 PAC Coordinator since 1980, was named to fulfill the two-year USAB term that expires on December 31, 1981.

At press time, notice was received of the resignation of William C. Farrell, another Member-at-Large, due to family illness. Valdemar Bodin, a former PAC Chairman of the Richmond Section who is presently PAC Chairman of the Virginia Council, has succeeded Mr. Farrell. His term of office also extends to the end of the current year.

Other leadership changes include the appointment of Robert A. Barden as Chairman of the Career Activities Council, succeeding Mr. Farrell in that specific role, and the appointment of Dr. Russell C. Drew as Chairman of the Government Activities Council, to replace Mr. Barden. ■

PATENT POLICY—The debate on patent policy reform is continuing in the new Congress. Sen. Charles McC. Mathias, Jr. (R-MD) has introduced a bill which would provide full patent rights to an inventor during the time the federal government is testing the product. Currently, a product cannot be marketed until testing is completed, but a patent with a life of 17 years is usually granted before the invention is ready for marketing. Mathias's bill is scheduled for hearings by the Senate Judiciary Committee. Contact the committee at 2226 Dirksen Senate Office Building, Washington, DC 20510; (202) 224-5225.

TO BE CREDIBLE OR TRUSTWORTHY: THAT IS THE QUESTION

An often heard plaint from engineers goes something like this: The public in general, and news reporters in particular, are totally ignorant of the technical and economic issues surrounding public policy questions concerned with technological systems. We engineers, on the other hand, have expert knowledge necessary to clarify these issues and to lead to appropriate public policies. Unfortunately, the plaint goes, the public tends to distrust us engineers because they think that (a) we have a stake in the contemporary forms of technology and so do not look at public policy questions objectively, and (b) we brought on many of the current ills because we didn't in the past, use our expert knowledge to inform the public of the dangers in the technological systems we developed. We, thus, "lack credibility." Then there follow proposals of what we engineers must do to "gain credibility."

The piece by Editor-in-Chief Ben Leon, "Local Issues: A Way to Help the Public and Gain Visibility and Credibility," in the April 1981 *IMPACT* follows this pattern. The overall thrust of the editorial—that local PACs can provide testimony on technical issues at local hearings on rate increases and franchises, after carefully gathering and organizing data—is valid. But I am troubled by a number of implications arising from Ben's wording.

"We have members who work for all of these utilities and could gather good engineering and economic data," says Leon. "Obviously, the person who actually goes to testify should be someone who is not employed by an organization that has a vested interest in the hearing." Now, Ben Leon no doubt didn't mean it that way, but it sounds like the advice is for an IEEE group to obtain data supplied by a power utility, telephone company, or cable TV firm (through an IEEE employee) and present it to a hearing commission as coming "from an objective point of view." This is a sure formula to lose the public's trust, and deservedly so.

The editorial goes on to say: "There is always the possibility that the PAC may not be in complete accord with the official position of the local power company, telephone company, or cable TV company . . ." The implication of this wording is that, *normally*, the PAC *will be* in agreement with company positions—not just generally, with reservations, but *in complete accord*—and only rarely will there be an off-chance that, maybe, there might be a slight possibility of less than total harmony! For this to be true requires one of two things: either (a) it is objectively true that the private interests which the companies are pursuing invariably coincide with the public interest, and the PAC—being objective—cannot fail to be in complete accord; or (b) the private corporate interest is not the same as the public interest, and the PAC sides with the corporate interest, with "always the possibility," remote as it may be, "that PAC may not be in complete accord." Can anyone believe the first? Can anyone tolerate the second?

There is a vast difference between *credibility* and *trustworthiness*. What is needed to be credible is appearance, in order to get other people to believe you, whether or not they are justified in the belief. Credibility is something *others* bestow on *you* as a result of their *perceptions* of your actions. To be worthy of trust, on the other hand, is an intrinsic property of how you conduct *yourself*. It is not something others confer on you, it is what you yourself earn. Lyndon Johnson made himself credible to many voters in 1964 when he proclaimed: "We are not about to send American boys 10,000 miles across the seas to do what Asian boys should be doing." People believed him and voted accordingly. But did his actions shortly thereafter—namely, sending hundreds of thousands of American boys 10,000 miles across the seas—show him to be worthy of trust?

What engineers need, should crave, and seek to achieve by their actions, is not credibility but trustworthiness. Not only should they not *appear to be* mere mouth pieces for special economic and class interests, they should not *in fact* be such. If engineers want to contribute to the understanding of technical issues confronting the public, they should act as autonomous professionals. The dictionary definition of a profession is: *a pursuit requiring specialized knowledge and advanced study*. But this is hardly adequate; it deals with the *preparation* for doing, what goes on *before* the practice of the profession, not how the practice is carried out. Beyond the notion of specialized knowledge and expertise, in accordance with which they make decisions and take actions in the normal course of their work, professionals must possess at least two other characteristics: independence of judgment and consciousness of personal responsibility for the consequences of their activities.

Until engineers demonstrate these characteristics, they will justifiably be viewed by the public as no more than special pleaders whose claims deserve no more attention than any other group's.

—Norman Balabanian
Editor
IEEE TECHNOLOGY & SOCIETY

PENSION REFORM—A number of bills have been introduced which would increase the availability of individual retirement account (IRA) use by mobile professions like engineering. The Senate Finance Subcommittee on Savings, Pensions and Investment Policy recently held hearings on two such bills. One, introduced by Sen. Robert Dole (R-KS), would permit an individual to make a tax-deductible contribution of up to $1000 to an IRA even if the individual is covered by an employer-sponsored retirement plan. Another bill, introduced by Sen. John Chafee (R-RI), would increase allowable IRA contribution levels, permitting tax-deductible contributions of up to $2000 a year and non-deductible contributions of up to $8000. Contact the subcommittee at 2227 Dirksen Senate Office Building, Washington, DC 20510; (202) 224-4515.

REP. ROSTENKOWSKI SUPPORTS TAX INCENTIVES ENCOMPASSING LERA MEASURE; PAC SUPPORT URGED

In a speech before the Chicago Association of Commerce and Industry on April 9, Congressman Dan Rostenkowski, Chairman of the House Ways and Means Committee announced a tax proposal that he said "creates a much healthier climate for investment and productivity, preserves the spirit of the President's tax plan, and strikes an essential political and economic balance to pass Congress."

The three major sections of plan are individual tax cuts, savings and investment incentives, and tax cuts to stimulate business growth. Specifically, in the savings section, the bill would:

- Increase the IRA limit from $1500 to $2000, and increase the percentage limit from 15% to 100%.
- Extend IRA coverage to those already covered by pension plans, with a $1000 limit on contributions (LERA measure).
- Increase the Keogh limit from $7500 to $15,000.
- Provide a dividend reinvestment plan for public utilities.

Individual tax cuts would be provided in the following ways:

- Reduce top marginal tax rate from 70% to 50%.
- Reduce marriage penalty.
- Reduce taxes at lower income brackets, with modest liberalization of standard deduction and earned income credit.
- Reduce marginal tax rates and/or widen brackets at all levels, but especially for taxpayers in the $20,000-$50,000 range.

Business would benefit by:

- Increases in depreciation and rehabilitation tax credits.
- Productivity incentives for small business.
- R&D incentives for incremental increases.
- Extension of time period for unused investment tax credits.

He termed the expansion of IRAs, including its extension to those already enrolled in pension plans, "highest on the list." He favors targeted incentives, where "we get a much stronger guarantee that a tax-cut dollar is headed toward a productive end."

The collective effect of the cuts is focused on those earning between $20,000 and $50,000. This segment of the workforce makes up 43% of all taxpayers—and pays 50% of all individual taxes. Rostenkowski is also concerned that the proposal address the critical capital needs of such distressed industries as autos and steel.

He claimed that the proposal is a "consensus package," not unanimously supported by the Committee, "but it does have enough support among Democrats and Republicans to pass . . . and that, by my training, is the final measure of any proposal."

PACs are urged to support the plan and communicate their views to their Congressmen and women, especially those on the House Ways and Means Committee. If you require assistance, get in touch with the IEEE Washington Office. ■

USAB DEVELOPS "CONGRESSIONAL ACTION KITS" FOR PAC LEADERSHIP

PAC Coordinators attending a March 30 meeting got their first view of a Congressional Action Kit that will be distributed to the PAC leadership throughout the U.S. The Kit contains six Regional maps showing the correlation among the IEEE Regions and Sections and the U.S. Congressional Districts and state and county lines.

More than a colorful display, the maps were developed as a tool for local leaders to facilitate joint lobbying efforts, to enable possible council formation, to target mailings to selected areas, and to aid overall in marshalling the resources of IEEE to bear on legislative issues.

The Kits also contain a list of Geocode assignments for IEEE Regions, Councils, Sections and Subsections in the U.S. USAB Legislative Alerts were targeted last year to members residing in the Districts of U.S. Representatives on the House Ways and Means Committee and to members residing in the states of Senators on the Finance Committee, with excellent results. Also included in the Kit is the numerical distribution of IEEE members in all Congressional Districts in the U.S., plus state totals.

More information on the new Congress is being developed for inclusion in the Kits and will follow the initial distribution. ■

IEEE VOICE HEARD IN NATIONAL ENERGY POLICY FORMULATION

National Energy Plan III was the subject of a hearing at DOE on April 17, at which IEEE was represented by its Energy Committee Chairman John A. Casazza. Basic criteria to be used in policy formulation and several specific recommendations for resource development were outlined by Mr. Casazza. The criteria concern:

- Government subsidies, which, it was stated, should support research into long-term, high-risk projects that would not become commercially viable for such long periods of time that private enterprise will not do the needed basic research. Because the marketplace ultimately determines the selection of various energy technologies, those which depend on continuous government subsidies or tax breaks should not be relied on for commercial use in providing for national energy needs.
- Energy independence, or the capability of national survival must be provided for by policy, in the event of prolonged interruption of foreign oil imports. How a national energy plan will meet this requirement should be spelled out, and the public should be told the steps required, if such severe curtailment occurs.
- Electrical capability and its importance in reducing oil requirements must be acknowledged through increased development and application.
- Physical, economic and environmental constraints must be recognized in selecting the mix of resources and technologies to meet national needs.

In making specific recommendations, Mr. Casazza outlined the IEEE positions on conservation and renewable resources, municipal solid waste, solar energy, nuclear power, cogeneration, breeder reactors, and fusion power. ■

MORE ABOUT STUDENT "PROFESSIONAL AWARENESS" IN REGION 1

To publicize the plight of working engineers, the Schenectady Section sponsored a "professional awareness" seminar at RPI in Troy, N.Y. on November 1, 1980 for students at local universities. The purpose of the program was to give students a "balanced" view of the engineering profession with respect to patent agreements, pensions, ethics, salaries, and many other topics.

Hans Cherney, Region I director, arranged for an outstanding array of speakers highlighted by George Low, President of RPI, who offered introductory remarks. Also on the program was Bob Barden, former USAB national PAC chairman, who gave a most informative talk on establishing one's own engineering business. John Guarerra of California State University and Hans Cherney described USAB legislative work. Jim Fairman, an attorney from Washington, DC, made a presentation on ethical problems in the course of engineering employment. Larry Dwon, a career development consultant and former AEP design engineer, gave an entertaining presentation on his experiences in the field of personnel development. All these speakers combined to make the one-day program most informative and educational. Unfortunately, since the job market for starting engineers is so good, most students felt that professional awareness is not worth investing much time in, especially on Saturdays.

Despite the enticement of free food, the turnout was disappointing relative to the number of students in the Capital District who could have benefited. However, those who did attend were most receptive to the topics presented. Many thanks are due to Professor Dave Gisser of RPI who accepted the bulk of responsibility for organizing the program.

—Michael P. Perry, PAC Chairman
Schenectady (NY) Section

(also see related story in *IMPACT* Feb. 81)

IEEE Professional Communication Society's 1981 CONFERENCE

for
Scientists • Engineers • Government
Communicators • Management • Educators

Crystal City Marriott
Arlington, Virginia
September 16-18, 1981

The Conference Purpose

President Reagan has avowed to improve productivity and cost effectiveness in our TECHNICAL REVOLUTION. The IEEE PCS Conference, further explores the contributions communicators make toward effecting a NEW TECHNICAL VITALITY that will enhance his commitment and America's prosperity and future.

REGISTRATION DATA AND DETAILED PROGRAM INFORMATION IS OBTAINABLE BY CONTACTING EITHER

Dr. Della Whittaker, Program
Harry Diamond Laboratories
2800 Powder Mill Road
Adelphi, Maryland 20783
(301) 394-1507

Ms. Lois K. Thuss, Publications
The Johns Hopkins University
Applied Physics Laboratory
Laurel, Maryland 20810
(301) 953-7100

NSF Launches Drive For More Women In Engineering

The National Science Foundation is creating a committee to encourage the participation of women and minorities in engineering, technical, scientific, and other professional fields. To be composed of from 12 to 15 members, the new Committee on Equal Opportunities in Science and Technology will also study the impact of these specialities on women and minorities. Two subcommittees are to examine specific issues and opportunities available to both groups for education, training, and research.

IEEE PRESIDENT DAMON VISITS WASHINGTON, CALLS ON CONGRESS

In two days of visits during March, IEEE President Damon and IEEE Washington Office staff members called on Congressmen James Shannon, Cooper Evans, Edward Markey, Silvio Conte and Congresswoman Margaret Heckler, and met with aides to Congressman Edward Boland and Senator Paul Tsongas. Dr. Damon presented a number of IEEE position papers on energy issues and pension reform, calling attention to IEEE's legislative interests and its expertise in technical issues before the Congress.

Rep. Cooper Evans, who is an engineer and one of only few Members of Congress with any scientific or technical training, was receptive to the work of IEEE on technological policy issues and its efforts in the legislative arena.

Congressman Shannon, who is the elected representative from Dr. Damon's home district, had met IEEE constituents previously on home ground in Concord, MA, for a more thorough discussion of the LERA concept in pension planning. Dr. Damon also advised his representative that IEEE strongly supports legislation to increase real growth in R&D through tax incentives. Endorsement of two bills with similar aims was given to Shannon's bill, H.R. 1864, to provide a 25% tax credit for corporate funding of research performed at universities, and the Vander Jagt-Pickle bill, H.R. 1539, to provide similar tax credits for increases in industrial R&D above a stated base level. Both bills are being considered by the House Ways and Means Committee.

Support was also indicated for H.R. 2472, to provide greater tax deductions for equipment donated to universities. The bill would encourage development and expansion of corporate donation programs and thereby improve and update university facilities used for teaching and research. These issues were tied to support for Ways and Means Committee Chairman Rostenkowski's support for tax incentives, including expansion of IRA plans to incorporate the LERA concept. An IEEE position paper supporting tax incentives to step up R&D and spur industrial innovation is in progress. ■

IEEE VISITS NEW CHAIRMAN OF CONGRESSIONAL SUBCOMMITTEE

USAB recently sent two IEEE volunteers from Pennsylvania to see their Congressman, Rep. Doug Walgren, a three-term Democrat from Pittsburgh who has taken over the chairmanship of the Subcommittee on Science Research and Technology. Rep. Walgren succeeded Rep. George E. Brown (D-CA), who had taken over another committee.

The two volunteers, Bob Weiler, a specialist in standards at Westinghouse, and Howard Hamilton, electrical engineering professor at the University of Pittsburgh, discussed the number of IEEE members in Rep. Walgren's District (about 250) and the heavy concentration of engineers in the western Pennsylvania area.

Accompanying the group was Dr. Russell C. Drew, USAB Government Activities Council Chairman, who discussed USAB's legislative interests, ranging from economic issues, such as pensions, to public policy issues, such as national technology policy. Although Walgren's committee assignments do not relate to pensions, he expressed interest in the legislation and sought details of particular bills. He was also advised of IEEE's expertise in technical issues, especially those within the purview of his committees.

One of IEEE's two Congressional Fellows in the House, Dr. Fred Twogood, joined the group in Walgren's office. Dr. Eli Fromm, the second House Fellow, is assigned to Walgren's subcommittee staff.

For the record, Rep. Walgren wanted to clarify remarks attributed in the press to his predecessor, Rep. Brown, when he left the chairmanship of the subcommittee. The implications were that Brown had received little help from the scientific and engineering community in his re-election, when, in fact, he was pleased with the help he had received and undoubtedly with the election results. Howard Hamilton, a member of USAB and chairman of its Awards Committee, told Walgren of the work of the committee, noting that when Rep. Brown was presented with the IEEE/USAB Distinguished Public Service Award, the ceremony took place in California in order to give Brown maximum public exposure. ■

BRIEFING ON FEDERAL R&D FUNDING HELD IN WASHINGTON

With a new Administration cutting away at the Federal budget, USAB arranged for an afternoon briefing to be sponsored by the IEEE R&D Committee to see where in fact R&D projects had been trimmed, or indeed left full of holes.

On March 23, officials of OMB, NSF, NASA and DOE told an audience of nearly 60 IEEE members, reporters and staff of the Federal Budget Office guidelines they were required to follow in slashing programs, such as:

- Government should limit itself to funding only high-risk long-term, potentially high-impact R&D that the private sector is unlikely to support.
- All new civil sector projects should be deferred.
- Ongoing projects in the basic physical sciences should be supported.

"These points were not negotiable, said Robert F. Allnut, associate deputy administrator of NASA, "but we had flexibility in how we took the budget cut."

According to Joel Snow, senior associated scientist at DOE's Office of Energy Research, DOE developed its own proposal for cutbacks, with overall guidance from the Budget Office in days of back-and-forth discussion.

NSF had little input into the budget process because of time pressures to produce the cuts, according to Jack Sanderson, assistant director of NSF's Directorate for Engineering and Applied Science. While engineering fared well, education programs were axed.

DOD's director of electronics and physical sciences, Office of the Undersecretary of Defense for Research and Engineering, was slated to tell how the cuts affected DOD R&D, but had to cancel at the last minute. Harvey Nathanson, chairman of the IEEE R&D Committee's subcommittee on defense, stood in for the DOD official. Although the military's technology base may be in trouble

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AUDIENCES

Will you take my word for it that there are audiences "out there" who are eager to hear from us? You probably will. Nobody has taken me to task for anything I've said in this column yet, except for one instance in which I mistook VLA to stand for very large antenna instead of very large array. Sometimes I imagine Brian Cowan is pulling a fast one and I'm the only person receiving this column. He's putting a centerfold of a nude printed circuit board in this space in all the other copies.

I'm going to devote this issue to personal experiences that convince me of the existence of a vast, unfulfilled audience for the things we ought to be talking about. I see no harm in this apparent egotism (excessive use of the first person singular personal pronoun, according to Webster), since I may only be talking to myself anyway.

At a meeting of a Toastmaster's Club in Washington, DC, it was my night as featured speaker and I had chosen to tell the other members—all executives and administrators: not a technical head in the bunch—how the telephone companies were screwing the residential telephone subscribers by charging big businesses lower prices for using the same circuits, in return for high-volume usage. I was primed for the subject since I had recently been involved with ARINC in an investigation of telephone tariffs. (ARINC is the organization set up by the domestic airlines to lease from the telephone companies the facilities that make up the airlines administrative communications networks.) My speech was deliberately nontechnical—except in the economic sense.

It was a moderate success. The audience applauded politely and the demerit counter gave me only a small number of demerits for "er's" and "ah's," throat-clearing, nose-scratching, and losing my place. He said my eye-contact was good, hand gestures were adequate, and the speech itself well organized.

It was only after the meeting, when most of the members gathered around me and began asking me how telephone systems work and what lay in store for the future of communications, that I realized I had spoken on the wrong topic. If I had told them about central office switching systems, microwave radio transmission, and what was then still in the early stages of development—fiber optics and the attendant laser or LED emitters—my speech would have been a glittering success instead of a mediocrity.

Nowadays, there is a burning interest in solar energy. Some of you will recall the November Joint Power Engineering Society—Section Meeting at which Dr. John Cummings of the Electrical Power Research Institute spoke on status of solar energy R&D. During the cocktail period, I talked to Dr. Cummings at length—not on the subject of solar energy, but about you, the audience. Dr. Cummings expressed a very real concern that many of the engineers in the audience would feel he were talking down to them if he spoke in the vein he had become accustomed to after addressing a majority of nontechnical audiences. But he also realized that the audience included some people who were not power engineers, or even engineers at all, and he wanted to hold their attention as well.

I backed him up in the conclusion he had already reached: to keep the talk at a fairly nontechnical level. Those of you who were present witnessed the result. A couple of engineers, apparently experts on the subject, repeatedly threw questions at him that forced him into greater and greater technical detail, leaving behind the unenlightened among us. The result was evidenced by yawns and squirming in seats.

This experience tells us something else. While audiences are genuinely interested in "savoring the engineering creations of the world," they cannot do so if they don't understand them. "I knew it would be over my head," they say and throw up their hands in disgust. No wonder they listen to Jane Fonda, who not only speaks their language, but looks good doing it.

Here's a third type of audience. This type involves people who have a need to know what the engineers are doing, but don't know how to find out. A company of my acquaintance recently employed a brilliant engineering-physicist to design a certain rather complex device—the first of its kind. The company had uncovered a need for such a device and intended to fill that need.

The engineer designed the device, almost while they were explaining to him what it was supposed to do. Then he explained to the people involved how it worked. Nobody understood him. They called me in to act as "translator." I didn't understand him either. He spoke in jargon, but that wasn't my problem. It was a jargon I understood. Why couldn't I understand what he was trying desperately to make me understand, talking in a language I understood? Then it dawned on me. While talking, this genius was actually thinking "in parallel" and speaking in "bytes." Not bytes of bits, mind you. These were, after all, analog speech waveforms and speech is a serially organized process. The bytes were just large chunks of tightly packed information.

I decided that what was needed here was not a translator, but a parallel-serial converter. So I convinced my nontechnical friends to let me take a crack at putting the design description in writing for them. They agreed, realizing they could use the same writeup for a patent application. So the two of us engineers—one genius and one relative dummy—went off to my office where we sat down at a table and poured over block diagrams and flow diagrams. The design engineer continued to transmit information to me in "bytes." I had him repeat each byte as I picked a "bit" of information out of it each time. If we could assume 8-bit bytes, it meant that he theoretically had to repeat each byte eight times for me to glean all the information it had in it. In practice, the bytes varied in length. Also, I was often able to absorb some information in parallel and store it for later conversion.

One more experience and I'm done. Remember last issue (unless your copy had the other centerfold) when I talked about being exploited by the popular media? I though it would be a good idea to show that it could indeed be done. So I made an article proposal to Tucson Magazine and got an assignment to do an article for the May issue.

Once I had the assignment, I felt a moment of panic. How am I going to write an article on an aspect of high technology for a city magazine in a city whose population is mainly interested in the Tucson Unified School District politics, large real estate deals, four-wheel drives and Mercedes's, and the high crime rate? The magazine will never buy it.

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AUDIENCES—*(Continued from page 17)*

Imagine my surprise when the art director told me, "This is just the kind of thing everyone's been wanting to know," referring to what the electronics industry here is up to. I was even more surprised when the taciturn photographer waxed enthusiastic and began dreaming up compeling photograph ideas to illustrate what always looked to me like a lackluster world of people bent over benches and peering through microscopes. When at length I turned the final manuscript over to the editor, her practiced eye took in the lead, then jumped to the guts of the article. To my amazement, she said, "What a great idea for explaining something people have always wanted to know about." When she said that, I knew I had to tell you about it.

The public wants to hear from us. They thirst for knowledge of what we're doing. They know that it directly affects them and often their pocketbooks. They almost cry out for us to "talk to" them. But we have to do it on their own terms—in their own language.

—Walter Holzer, PAC Chairman
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"Audiences" is reprinted from BEEET, the IEEE Tucson Section bulletin.

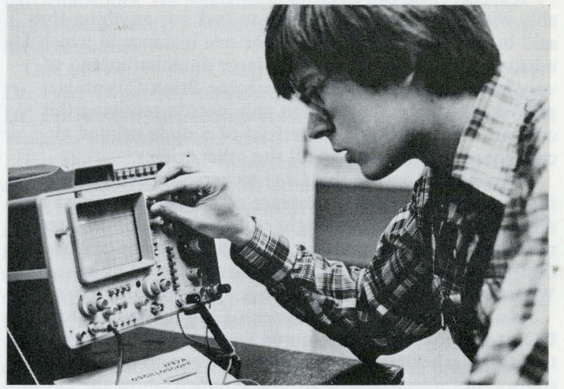
PAC PARTICIPATION URGED IN LEADERSHIP SELECTION PROCESS

The Operating Committee of the United States Activities Board has called for the adoption and implementation of procedures to elect the chairman of the four USAB activities councils. These procedures provide for a nominating committee with broad membership from the many entities of the USAB program to select key leaders for the operation of USAB.

A new USAB Nominations and Appointments Committee will be expected to nominate two persons for each council chairman position. Under the proposed procedures, the council chairmen will be selected for the following year during the last meeting of the current USAB. This procedure would provide much needed continuity in the USAB program. The selection of the chairman of USAB will continue through the IEEE assembly process. The proposed changes in procedure have been prepared as modifications to the IEEE bylaws and will be presented to the Board of Directors for their approval this summer.

PAC leaders are urged to work with USAB Task Force leaders to identify persons who are willing to participate actively in the leadership of the USAB program. The next issue of *IMPACT* will carry additional information on how you can participate in the nomination and appointments process for the 1982 USAB leadership. ■

ENGINEERING STUDENTS IN PROFESSIONAL ACTIVITIES



Brad Frieden is 1980-81 Chairman of the IEEE Student Branch at Texas Tech University in Lubbock. His paper, "Professionalism in Engineering," won first place in the local IEEE Student Paper Contest and placed second in the Area Contest. ■

PROFESSIONALISM IN ENGINEERING

Understanding the concept of professionalism is important to an engineering student soon to become active in the engineering profession. In professionalism there lies the possibility for rewarding benefits to one's self, as well as to others. The term professionalism can be used to describe the methods, manner, character, or spirit of a profession. Defining more clearly the aspects of professionalism that will apply to one's future becomes a worthwhile goal.

An individual in his quest toward professionalism must actively strive to maintain a standard of knowledge acquired through experience in his profession and through continued education. Truly it is an engineer's responsibility to himself to uphold a current outlook on changing technology. Active participation in professional societies is one important outlet for exposure to advances in one's profession.

Standards of personal conduct also contribute to professionalism. The professional has a sense of responsibility to other members of his profession, as well as to individual members of society. He is to be admired for his accountability, reliability, sense of duty, and sense of trust. He is familiar with and conforms to the code of ethics set down for his profession.

Finally, professionalism develops in the individual who has a sense of social concern and public service. An active goal of the professional engineer should be to solve problems of society to the extent that his expertise will allow. The culturally motivated engineer can truly be a benefit to mankind.

—Brad Frieden

PRODUCTIVITY—A STATE OF MIND

Professional societies, on behalf of their memberships,[1,2] have called for remedial action to alleviate many perceived injustices or inequities inflicted upon society, and consequently their members. Such inequities are easily described by the symptoms of (a) double digit inflation, (b) reduced sales, (c) inadequately educated engineers, (d) ineffective policy of research and development expenditures, (e) and a host of other related tangible and intangible quantities.

IEEE, through the strategic programs of USAB, established task forces to study R&D practices in the world and to identify apparent reductions in innovation and productivity. The members of the task forces, all of whom are engineers or technically educated people, have used their talents to analyze the national[5,6] and international[3,4] problems as perceived by the task force leaders/members. The quality of the study in each area has been characteristic of the professional attitude of engineers who are doing the work. Specifically, a wide cross section of articles have been copied, evaluated, and circulated among task force members and a number of interested readers. A two-year summary of the articles seem to imply that almost any author can find someone to blame[7,8,9,10] for all the perils experienced or observed in professions, society, government, etc.

Specifically, corporate executives can blame universities for inadequately preparing students for today's tasks. An educator, on the other hand, accuses industry of having abdicated its role in research and development expenditures. Managers of research and development are inclined to accuse the Federal Government for misplacing research funds. Manufacturers are upset because engineers, technicians and other employees are not as productive as in old days, or as the Japanese or German employees are now. Corporate executives are accused of making decisions based on a short-term return on an investment rather than looking far into the future to support a well-developed engineering design. It seems clear that the entire nation is upset; so we *all* are accusing others for our misfortunes. Does there exist a solution, or will we disintegrate and never know why?

I believe that the future is bright and that there can be a new approach to solving problems. Even a cursory review of the suggestions will assure the reader that I am not original, but the engineers, technicians and all employees and/or professionals should prepare themselves to be as competent as possible. But that is not enough! Competence and skills are what we have now. The one new ingredient that must be a part of each worker is SACRIFICE.

Sacrifice may not be necessarily a bitter pill to swallow. Sacrifice may lead to better job satisfaction when one really does a good piece of work for personal satisfaction rather than working for an immediate reward. Specifically, rather than leaving academia, an educator may acknowledge a calling to stay in the classroom or research lab and remain a part of a long-term investment in our country's future. Likewise, a corporate executive may choose to persuade his investors to allocate significant funds to long term R&D projects for which the pay off would come 10 to 15 years later, as opposed to investing in projects that will provide a modest return on a near-term basis. Investors may decide to change their expectations of Wall Street by selecting stocks which have strong, long-term payouts as opposed to selecting stocks that pay a dividend (capital gain) next week. Managers of mature industries may choose to invest in new machine tools and modernization to be competitive with other manufacturers of similar products. Surely each of us can find at least one part in the entire complex struggle, a part in which we can sacrifice, or suffer or enjoy, or win! Surely there is hope that things can be better for all of us. Can sacrifice indeed lead to a realization of the benefits that "hope" promises? Aren't local, state, and federal governments just reflections of us as individuals? Are the typical investors in stocks, silver, and gold typical people like you and me? Do corporate executives, educators, engineers, typists, and laborers pay taxes, eat, sleep, and try to earn a good life for those around them? If your answer has been "yes" to the questions above, then it is clear that *we* can make a difference.

In summary, all members of today's society suffer because of some inequity. The reaction of suffering tends to be the identification of the cause of the ill and elimination of the problem. My evaluation is that the attitude of each of us who wants an immediate reward for a job done is the primary cause of people's present discomfort. Thus, a change in attitude and expectations of rewards may lead to higher worker satisfaction on the short term, and may lead to a higher quality of life for all people in the long term, and finally the cure will have been administered.

—Darrell L. Vines
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Darrell L. Vines is 1981 Chairman of the USAB Member Activities Council. He served as Coordinator of USAB's Strategic Programs in 1980.

NATIONAL PAC WORKSHOP SET FOR JULY 10-12

WHEN?

Begins Friday evening, July 10 through Sunday noon, July 12

WHERE?

Minneapolis, Minnesota; Radisson South Hotel

WHAT?*

Friday evening will feature an "Introduction to PAC and USAB," especially designed to bring our new PAC people (or any section chairmen or society presidents attending) up-to-date on where IEEE is coming from and what it hopes to accomplish in professional activities for its U.S. members and for this country as a whole. Also, that first evening, informal parallel "Meet Your Coordinator" sessions will be held, which will allow PAC people in a given Region or Division to become better acquainted.

On Saturday morning the 1981 USAB Program Plan will be reviewed. Presentations will then be made by representatives from each of the four USAB councils to examine in more detail what their activities are. Finally, the national PAC structure will be thoroughly discussed, with special attention to how the PACs relate to the Council activities.

MORE?

An awards luncheon featuring a guest speaker, as well as our honored members, begins the afternoon program. Lunch will be followed by short presentations by various task force leaders and PAC program facilitators on national USAB activities that are inherently dependent upon major assistance from the PACs. Examples include Pensions, Unemployment, Age Discrimination, Career Maintenance & Development, Wage Busting, Energy Advocacy, participation in State and Local Inter-Society Legislative Advisory (SILA) bodies, and the Congressional Minuteman program. Then, after a short break, parallel workshops will be held on each of the above subjects. The workshops will be divided into two sessions so that each of us will be able to attend at least two.

On Saturday evening an outdoor cookout session is in the works with the USAB OpCom also invited (they meet on Sunday afternoon) for more informal discussions.

Sunday morning features a review and critique (by you) of the tentative USAB 1982 budget. Also on Sunday morning, we plan to choose some PAC members-at-large to sit on a newly created USAB nominating committee and, hopefully, solicit some initial nominees for various 1982 positions in USAB (we are revising our bylaws to accommodate this process). Finally, on Sunday morning we shall have reports given on all the recommendations and ideas coming out of the workshops held on Saturday.

WHO?

PAC Chairmen (current or incoming or their representatives), SILA and/or local governmental action chairmen, and interested section chairmen and society presidents.

HOW MANY?

National PAC funds are available to cover travel costs for approximately nine people from each Region and four from each Division. Included in these numbers are the Professional Activities and Governmental Action Coordinators. Travel for USAB speakers and for the National PAC Program Facilitators will be taken care of separately. Others may attend over and above these numbers (indeed we expect this to be the case) by using Regional or Divisional PAC funds and/or by cost-sharing with the Sections and Societies.

All volunteer leaders who plan to attend the Workshop and other meetings are being urged to economize on travel costs. Shop around for the best deal, particularly in air travel. These days, it is possible to find wide variations in point-to-point fares, as well as "package" offers that combine two or more destinations before a flight home. Contact your local travel agent or airline ticket office, or ask the Washington Office to refer you to the agents they use.

All requests for funding to attend the Workshop should be directed to your Regional or Divisional Professional Activities Coordinator or your Regional Government Action Coordinator. Attendance reservation forms and the latest version of the agenda can be requested from Carol Thompson or Jill Gerstenzang at the Washington Office, if you have not aready received one in the mail.

ANY OTHER QUESTIONS?

Contact your PAC Coordinator or Sandra Blair at the Washington Office or Ron Fredricks at 616/241-7722.

Overheard at the 1980 PAC Workshop: "An optimist is a PAC leader who brings his bathing suit to a PAC Workshop."—Ed.

*Schedule as of April 30.

BRIEFING *(Continued from page 16)*

downstream, if R&D dollars are sacrificed for military readiness, DOD's budgetary worries are negligible compared to those of the other agencies.

Hugh F. Loweth, deputy associate director of the Energy and Space Division of OMB, said that while cuts affected all agencies, science and technology came out ahead. "The cuts are expected to increase innovation by controlling inflation, changing tax laws for depreciation, and reducing the regulatory burden," he said.

Details of program cuts have been reported in *The Institute* (May 1981). The budget question is now in the hands of Congress. ■