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NATIONAL CAPITAL AREA COUNCIL

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Volume 10, No. 5

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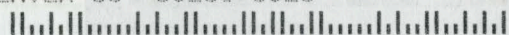
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Obituary of Dr. George Abraham

It is with great sadness that I report the death of George Abraham while he was on vacation in Maine with his family.

If you were fortunate enough to have known George, chances are that he has helped you, directly or indirectly, in your career or in your professional life.

A native of New York, he received his formal education at Brown, Harvard, MIT, and the University of Maryland.

In the IEEE, George has been a Life Fellow since 1984; his write-up in the IEEE membership directory covers three quarters of a column, and is worth reading.

His professional experience started as a radio engineer for RCA, and continued in the Naval Research Lab in Washington, DC, where he advanced rapidly through various engineering and research management positions. His talents were used at the highest level of NRL, where his responsibilities included assessment of all R&D programs, technology transfer, and technology policy guidance.

His primary research areas were in communications, electronics and radar, and he became a recognized authority in microelectronics, solid-state electronics, and physics.

He has over fifty technical papers and formal technical presentations to his credit, was elected to eleven Honorary Societies, owns over twenty patents, is a "Fellow" in four major technical organizations, a winner of the prestigious

Diamond Award, the Edison Award from the Naval Research Lab, the Desert Storm Science and Engineering Award from the Navy, is a member of the prestigious Cosmos Club, and is listed in nine "Who's-Who" type publications.

But he was also a devoted family man. He and his late wife Hilda had four children. In spite of his hectic schedule, he always found time to engage in at least some of their favorite hobbies which included sailing, skiing, mountaineering, scuba-diving, music and travel.

He is survived by one son, Dr. Edward H. Abraham, two daughters, Alice J. Abraham and Dorothy J. Abraham, and two grandchildren. Dorothy has been George's devoted housekeeper for many years.

George Abraham will be remembered as a successful engineer, a dedicated teacher, a devoted father and grandfather; and for those of us who had the privilege of knowing him well, a trusted friend and a challenging inspiration.

The family is planning a memorial service to be held in the Washington area in late September or early October. For details as to exact time and place, as well as contributions to a charitable or educational institution, call George's son, Dr. Edward Abraham, at 301/496-5457.

Tom Doepfner

Former IEEE President Passed Away

Dr. F. Karl Willenbrock, 1979 IEEE President, died recently. He received a B.S. degree from Brown University in 1942, and a Ph.D. from Harvard University in 1950. He was a

member of the National Academy of Engineering, a Gold Medal Winner in the Department of Congress, a Fellow in the American Association for the Advancement of Science, and the Cecil & Ida Green Professor of Engineering Emeritus at Southern Methodist University.

Calendar of Events

Attendance at IEEE Meetings. IEEE meetings are open to members and guests. When meetings are combined with meal functions, it is not mandatory — although desirable — to attend the meal functions. Please make timely reservations for all meetings (cancel early, if necessary). Any IEEE member may attend Council and Section Administrative Committee (ADCOM) meetings.

Announcements. Calendar information should follow the format used in this Calendar of Events. The calendar item listing includes the abbreviation for the managing section after each society chapter listing. In the case of joint chapters, the managing section is listed first. A diamond (◆) preceding the event in a calendar item indicates that further information on that event is provided in the

"Diamond Stories" Department of that issue. Articles for the "Diamond Stories" Department should be limited to 150 words, and include a synopsis of the talk or event, and a biosketch of the speaker which lists, if available, his or her academic background, current position, and IEEE as well as other professional societies memberships, if any.

All announcements, diamond stories, and other material to be printed in an issue of the SCANNER must be sent or faxed to the Editor-in-Chief in time to arrive on or before the 25th of the second month preceding the month of desired publication. The deadline for camera-ready material (e.g., ads) is the first workday of the month preceding the month of desired publication.

OCTOBER 1995

Tue Oct 3 **◆ NCAC Steering Committee, Washington Section ADCOM, and Northern Virginia Section ADCOM Meetings**

Place: The Tower Club, African Room, 8000 Towers Crescent Drive, Suite 1700 (change elevators on the 14th Floor), Vienna, VA at Tyson's Shopping Center across street from Tyson's Marriott Hotel; Dress "Casual Upscale Business" (No bluejeans, T-Shirts, etc.)

Time: 7:00 pm to 9:30
Contact: Rex Klopfenstein 703/883-6862; Nino Ingegneri 301/838-6609; Nicholas Vlannes 703/280-1186; or Charles True 703/448-7622

Tue Oct 3 **◆ Consultants' Network: Networking/Business Meeting and short discussion on program scheduling tools**

Sponsors: NCAC PACE Consultants' Network (W/NV)
Place: Dinner — Sir Walter Raleigh Restaurant, Gatehouse Road, Falls Church; meeting at Virginia Tech, Falls Church

Time: Dinner 5:30 pm; meeting 7:00
Contact: For details and reservations call 301/774-8120 by noon, Oct 2

Tue Oct 10 **◆ Microwave Systems for the 21st Century: The Future of Microwave Systems and Technology**

Sponsor: Microwave Theory and Techniques Society (W/NV)

Speaker: TBD
Place: University of Maryland Adult Education Center University Blvd & Adelphi Road, Adelphi, MD

Contact: For dinner reservations and information: Dave Hinzl, 703/729-6000, x3737 by Oct 4

Tue Oct 10 **◆ Future Federal Support for Research and Development: Technology and Economic Growth: The Government's Role**

Sponsor: The 1995-96 MIT Seminar Series
Speakers: Dr. Charles Vest, President of MIT, and others
Place: University Club, Mary Gradon Center, The American University, Washington, DC
Contact: Dr. Kenneth Gordon, 301/469-9240

Tue Oct 17 **◆ Access Car**

Sponsor: Vehicular Technology Chapter, Land Transportation Committee (W/NV)
Place: University Club, George Washington University, Marvin Center, 3rd Floor, 800 21st St NW, Washington, DC
Time: Lunch (\$17.00): 11:30 am; Meeting: 12:30 pm

Contact: For lunch reservations, Lou Sanders, 202/898-4086, or Tom Guins, 202/639-2259

Tue Oct 17 **◆ Consultants' Network Workshop: How Will Clients Find Me??**

Sponsors: NCAC PACE Consultants' Network (W/NV)
Place: Dinner — Seven Seas Restaurant, College Park, MD; Meeting — Univ of MD College Park Campus, AV William Engineering Bldg, Room 2460. Route 1 South from I-495; Right onto Campus Drive and immediate right onto Stadium Drive. 1 1/2 blks to Eng Bldg on right. Park on left in lot G.

Time: Dinner 5:30 pm; Meeting 7:00
Contact: For further details and reservations, call 301/774-8120 by noon Oct 16

Wed Oct 18 **Power Supply Reliability**
Sponsor: Reliability Society (W/NV)
Speakers: James Gucinski and Robert Saum, NSWC Crane
Place: Dinner: Anchor Inn, University & Georgia Ave, Wheaton, MD; Meeting: Vitro Corporation, Intersection of Aspen Hill Road and Connecticut Ave, Silver Spring, MD; Enter off Aspen Hill Road (immediately behind Shell Station) into Parking Lot of Bldg 4 (park anywhere); sign in at guards station; meeting will be held in main Conf Room
Time: Dinner 6:00 pm; Meeting 8:00
Contact: For more information and reservations, call Ron Combs, 703/553-1733, or Harry Ascher, 301/762-4779

Thu Oct 19 **◆ Overview of the Globalstar Communications System**
Sponsor: Communications Society (W/NV)
Speaker: Dan Smith, Globalstar
Place: George Washington University, Academic Center (22nd & I Street, NW) Room T-640, EE Dept. One block from Foggy Bottom Metro. Parking across from the Academic Center.
Time: Lunch 11:45 am (bring your own brown bag); Registration 12:00 noon; Presentation 12:15 pm to 1:00
Contact: Robert J. Hollingshead, 301/464-8900

Thu Oct 19 **◆ Elevator Control and Monitoring System: Presentation and Tour**
Sponsor: Industry Applications Society (W/NV)
Speaker: Schindler Elevator Corporation
Place: AARP Headquarters, 601 E Street, NW, Washington, DC (near Gallery Place Metro Station)
Time: 6:00 pm
Contact: Bill Regotti, 202/789-4453, or Ron Aasen, 202/205-8088

Thu Oct 26- Fri Oct 27 **◆ Science Information Management and Data Compression Workshop**
Sponsors: NASA Goddard Space Flight Center and Geoscience and Remote Sensing Society (W/NV) (See also ad on page 7)
Co-Chairs James C. Tilton and Robert F. Crump, NASA GSFC
Place: Bldg 3 Auditorium, NASA Goddard Space Flight Center, Greenbelt, MD
Time: Oct 26 9:00 am to 5:00 pm; Oct 27 9:00 am to noon

Contact: Ms Sandra Johnson, Jorge Scientific Corp, e-mail sam@ltpmail.gsfc.nasa.gov. Phone 301/220-1701; fax 301/220-1704. Registration fee: \$55.00 through Oct 6; \$70.00 after Oct 6. Foreign nationals **MUST** register by Oct 6.

NOVEMBER 1995

Wed Nov 1 **◆ NASA's Autonomous Ground Services and LEO-T Program**
Sponsor: Aerospace & Electronics Systems Society (W/NV)
Speaker: Ron Ticker, NASA Headquarters
Place: Computer Sciences Corporation, 1110 Aerospace Road, Lanham-Seabrook, MD, Room 24 F/G
Time: 11:30 am to 1:30 pm; pizza and soda will be provided at \$5.00 per person (optional), or bring your own lunch
Contact: NCAC Office, 703/803-8701 for information and reservations, or Joe Toro at 301/794-1568

Fri Nov 3 **Seminar: "Information Technology: IT/IS Tomorrow"** (See ad on page 11)
Sponsors: NCAC, Capitol College, AFCEA
Place: Capitol College, 11301 Springfield Road, Laurel, MD 20708
Time: 8:00 am to 4:30 pm; Cost: \$79 (IEEE and AFCEA members: \$60) includes lunch
Contact: For further information and registration: 301/953-0060 x276 by October 23

Tue Nov 7 **NCAC Steering Committee, Washington Section ADCOM, and Northern Virginia Section ADCOM Meetings**
Place: The Tower Club, African Room, 8000 Towers Crescent Drive, Suite 1700 (change elevators on the 14th Floor), Vienna, VA at Tyson's Shopping Center across street from Tyson's Marriott Hotel; Dress "Casual Upscale Business" (No bluejeans, T-Shirts, etc.)
Time: 7:00 pm to 9:30
Contact: Rex Klopfenstein 703/883-6862; Nino Ingegneri 301/838-6609; Nicholas Vlannes 703/280-1186; or Charles True 703/448-7622

Tue Nov 7 **Consultants' Network: Networking Business Meeting**
Sponsors: NCAC PACE Consultants' Network (W/NV)
Place: Dinner — Sir Walter Raleigh Restaurant, Gatehouse Road, Falls Church
Time: Dinner 5:30 pm; Meeting Virginia Tech @ Falls Church
Contact: For further details and/or reservations, 301/774-8120 by noon, Nov 6


Tue Nov 14 **Microwave Systems for the 21st Century**
For specific topic and related information, see "Diamond Story" on same subject for Oct 10
Place: Univ of MD Adult Education Center, University Ave & Adelphi Road, Adelphi, MD
Time: Cocktails 5:30pm; Dinner 6:30; Meeting 7:30
Contact: For information and dinner reservations: Dave Hinzel 703-729-6000, x3737 by Nov 8

Wed Nov 15 **Reliability, Maintainability, Supportability Standards Partnership**
Sponsor: Reliability Society (W/NV)
Speaker: Dr. R. Vacante, Army Staff Management College
Place: Vitro Corp., Intersection of Aspen Hill Road & Connecticut Ave, Silver Spring, MD. Enter off Aspen Hill Road immediately behind Shell Station) into Parking Lot of Bldg 4 (park anywhere); sign in at guard station; meeting will be in Main Conf Room
Time: Dinner 6:00 pm; Meeting 8:00
Contact: For more information and reservations: Ron Combs (W) 703/553-1733, or Harry Ascher (W/H) 301/762-4779

Speaker: Julius Knapp, Federal Communications Commission
Place: Fred's Place Restaurant, 2d Floor, Holiday Inn Crystal City; two blocks north of Crystal City Metro stop; Some free parking in garage; stop at front desk for parking permit.
Time: Registration/cash bar: 11:30 am; Lunch (optional, but encouraged, \$ 14.00) 12:00 noon; Meeting 12:30 pm
Contact: For information: Mike Violette, 301/417-0220 for lunch reservations (required): IEEE NCA Office, 703/8701, by Wed Nov 15

Tue Nov 21 **◆ Consultants' Network Workshop: SBA — What Can it Do for Consultants?**
Sponsors: NCAC PACE Consultants' Network (W/NV)
Place: Dinner — Seven Seas Restaurant, College Park, MD Meeting: Univ of MD College Park Campus, AV William Eng Bldg, Rom 2460. Take Route 1 from I-495; right onto Campus Drive and immediate right onto Stadium Drive. 1-1/2 blocks to Eng Bldg on right. Park on left in lot G
Time: Dinner 5:30 pm; Meeting 7:00
Contact: For further details and reservations, 301/774-8120 by noon Nov 20

Thu Nov 16 **◆ FCC Proposal to Speed Approval for Personal Computer Equipment**
Sponsor: Electromagnetic Compatibility Society (W/NV)



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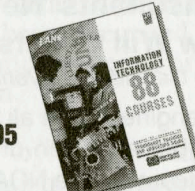
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Course 65, Thursday, October 26


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Course 60, Friday, October 27



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◆ DIAMOND STORIES ◆

This Department of the SCANNER provides short abstracts and biosketches to accompany those calendar items which show a diamond (◆) before the item's subject or event.

Microwave Systems for the 21st Century

(See Calendar of Events, Tuesday Oct 10)

"The Future of Microwave Systems and Technology" will be an introductory lecture for this season's series of courses. The Microwave Theory and Techniques Course for the 1995-6 season will feature systems and supporting technologies for the 21st century. The seven-lecture course begins with a presentation of the future of microwave systems and technology. The remaining six lectures will feature wireless communications, vehicular systems, CAD/CAM, etc., on the second Tuesday of each month from

November through April. All lectures are held at the Univ of MD Adult Education Center, Adelphi, MD, beginning at 7:30 pm. For additional information about the course and directions contact Roger Kaul, 301/394-4775 voice, 301/394-4703 FAX, or e-mail rkaul@arl.mil.

Future Federal Support for Research and Development Technology and Economic Growth: The Government's Role

(See Calendar of Events, Tuesday Oct 10)

The 1995-96 MIT Seminar Series begins on October 10 with a lecture on Technology and Economic Growth: The Government's Role. Seminars in future months will cover changes in federal support and the impact on research universities and corporations. Speakers will include Dr. Charles Vest, Present of MIT. There will be one Tuesday evening seminar each month from October through March. This is the 14th annual MIT Seminar Series. Like the previous series, it will consist of six dinner meetings held at the University Club of the Mary Gradon Center at The American University, Washington, DC. The cost for the series is \$185. For further information on subscribing to the series, call Dr. Kenneth Gordon at 301/469-9240.

Consultants' Network Workshop: How Will Clients Find Me?

(See Calendar of Events, Tuesday Oct 17)

We engineers are all highly trained in our technical specialties, but are often untrained in business. To address this shortcoming, the NCAC Consultants' Network presents this Consultant Workshop Series.

This session addresses ways of making your company known. Directories: What are they, how do you get listed, what should you put in, how much does it cost, who uses them? — Advertising: Trade journals to yellow pages; how do you do it, how much does it cost, and does it work? Should you put a "page" on the Internet? How else can you get a little publicity? Learn what's new and share your experience.

Overview of the Globalstar Communications System

(See Calendar of Events, Thursday October 19)

Globalstar is a \$2 billion commercial venture to provide world-wide mobile voice and low-rate data communications. Globalstar's constellation of 48 low-earth orbiting satellites will be launched beginning in 1997 to allow the use of handheld cellular type phones anywhere. This presentation will give an overview of the Globalstar program and review some of the many technical challenges involved in a system of this magnitude. Challenges range from launching 12 satellites at a time to operating 48 satellites with a minimal staff, to working with the FCC for licensing and CDMA bandsharing.

Dan Smith is the Principal Engineer of the Globalstar Satellite Control Center. He has over 15 years experience in developing satellite control centers, was the technical lead for the Hubble Space Telescope control center, and the program manager for NOAA's GOES weather satellite control centers.

Elevator Control and Monitoring Systems: Presentation and Tour

(See Calendar of Events, Thursday, Oct 19)

This presentation by a Schindler engineer from the company's HQ in Morristown, NJ, will discuss the new developments



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and applications of elevator control and monitoring systems for real-time use and for gathering historical data for performance analysis. A tour and demonstration of the Schindler elevator control and monitoring system installed at the AARP headquarters will also be included.

Science Information Management and Data Compression Workshop

(See Calendar of Events, Thursday, Oct 26 to Friday, Oct 27)

This workshop explores promising computational approaches for handling the collection, ingestion, archival and retrieval of large quantities of data in future Earth and space science missions. Scheduled are fourteen presentations covering a range of information management and data compression approaches that are being or have been integrated into actual or prototypical Earth or space science data information systems, or that hold promise for such an application.

For an advance program and registration materials contact Ms Sandra Johnson at one of the numbers shown in the Calendar of Events. (You may also find this information under "Upcoming Events" in the World-Wide-Web URL <http://sdcd.gsfc.nasa.gov/ISTO/AIS/ais.html>.)

NASA's Autonomous Ground Services and LEO-T Program

(See Calendar of Events, Wednesday Nov 1)

NASA will significantly reduce the cost of providing telecommunications services to less-expensive Low Earth Orbiting (LEO) missions by using autonomous, commercially available small ground stations and providing user access via commercial dial-up services. Direct scheduling of the stations and return of data via file transfer using commercial services will reduce the infrastructure traditionally associated with ground networks, and provide more flexibility in the user-to-spacecraft interaction.

The Wallops Flight Facility of NASA's Goddard Space Flight Center will utilize 5-meter class LEO-Terminals (LEO-T) to provide this new class of services. These stations will build upon experience gained from a proof-of-concept demonstration begun at the Jet Propulsion Laboratory in 1994. These assets are highly mobile, require limited support infrastructure, and facilitate low-cost upgrades. The first missions to use the station(s) will be the Student Nitric Oxide Explorer (SNOE) project, one of the Student Explorer Demonstration Initiative (STEDI) missions scheduled for launch in early 1997, and the Lewis spacecraft built by TRW.

Mr. Ronald L. Ticker, an IEEE member, is the Program Manager of Deep Space Network Systems for NASA Headquarters.

FCC Proposal to Speed Product Approval for Personal Computer Equipment

(See Calendar of Events, Thursday Nov 16)

The Federal Communications Commission (FCC) has ten-

dered a new proposal to deregulate the equipment authorization requirements for digital devices. The proposal is in partial response to an industry request to replace the current requirement for certification of personal computers with a Declaration of Conformity (DoC). It is estimated that the proposed changes may save the computer industry \$250 million annually. The Notice of Proposed Rule Making (NPRM) has been the subject of much discussion among those involved in testing and certification of personal computer products.

The speaker, Julius Knapp, is an IEEE member and a very active participant in the activities of the Electromagnetic Compatibility Society, both locally and nationally. He is the Chief of the Equipment Authorization Division in the Federal Communications Commission, and has the reputation as one of the few government employees who consistently projects a "can do" attitude toward applicants and petitioners. (TWD, Editor-in-Chief)

SBA — What Can it Do for Consultants?

(See Calendar of Events, Tuesday Nov 21)

The Small Business Administration (SBA) is the major interface between the Federal government and small businesses throughout the country. This organization has a lot of interesting and relevant programs directed toward the consultant. A representative of the SBA will talk about some of these programs, including such areas as financing and marketing.

Science Information Management and Data Compression Workshop

NASA Goddard Space Flight Center, Greenbelt, MD
October 26-27, 1995

This Workshop seeks to explore promising computational approaches for handling the collection, ingestion, archival and retrieval of large quantities of data in future Earth and space science missions. Fourteen presentations will cover a range of information management and data compression approaches that are being or have been integrated into Earth or space science data information systems, or that hold promise for such an application.

This Workshop is sponsored by the National Aeronautics and Space Administration in cooperation with the Washington/Northern Virginia Chapter of the Institute of Electrical and Electronics Engineers Geoscience and Remote Sensing Society.

For more information contact Ms. Sandra Johnson, Jorge Scientific Corp., 7500 Greenway Center Drive, 11th Floor, Suite 1130, Greenbelt, MD 20770. Phone: 301/220-1701. (The registration fee for this Workshop is \$55.00 through Oct. 6 and \$70.00 after Oct. 6. Foreign Nationals MUST register by Oct. 6.)

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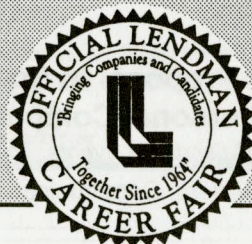
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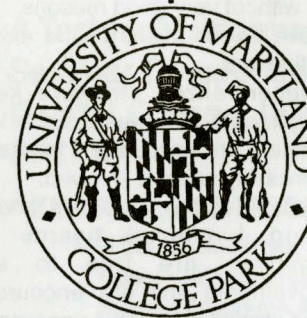
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THE IEEE -- HOW SHOULD IT BE ORGANIZED?

Merrill Buckley, 1992 IEEE President

One of the most vexing problems now confronting the IEEE is its organization. Should it be changed? In what way? Does it need a substantial rework? Does it need a complete restructuring? Should it be left alone? All of these options have been proposed, but which is the wisest choice? First some background.

In 1992, when I was president, the IEEE (using its Strategic Planning Committee) initiated a far reaching study to prepare the Institute for the next century. A Corporate Vision, Mission Statements, Critical Issues, Goals and other supporting documents were developed with inputs from many individuals, committees and boards. This process has, for the most part, been completed and results were published in The Institute for members to review and provide comments. Work is now in process to implement many recommendations. The one exception is the keystone concept of how the IEEE should be organized for the future. The overriding concern is, of course, what structure will best accomplish what the Strategic Plan calls for. Unfortunately, there is a great deal of disagreement on this topic.

For the past two years this subject has engaged the attention of over 80 volunteers as direct participants in the Strategic Planning Committee task forces and many others who have contributed their comments. There is so much disagreement because of the complexity and diversity of the activities performed by the Institute and the many so called constituencies (academic, industrial, government, continuing education, standards, conferences, publications, local meetings, students, professional activities, etc.), all of which have their own specific interests.

Initially, the strategic planning process developed seven different models of organization and is now concentrating on what are believed to be the best three. You may have noticed the discussion and description of the models printed in a recent issue of The Institute.

To really put all of this in perspective, it is a good idea to review the existing organization and how it came into being. As a long-time IEEE volunteer with eight years on the Board of Directors, the subject of organization is not new to me. The present organization is based on the fact that all members have two basic orientations: the geographical area in which they work and their technical specialties.

Geographically, with members in over 130 countries, we are truly global. For convenience each person is considered to be a member of the Section responsible for his/her work location. This gives us approximately 270 Sections, which encompass the globe. Sections serve several purposes, not the least of which is permitting engineers at the local level to come together for technical meetings, social functions, award banquets, etc. The leadership of each Section is elected locally.

With so many sections, it is necessary to group them into regions. There are 10 Regions, 6 of which cover the USA. Each Region elects its own leaders from the Section leadership. One person from each Region is elected by all members in that region to be its Director, and this person is automatically a member of the IEEE Board of Directors (BOD). Each Section and each Region pretty much run their own business within broad IEEE guidelines.

Technical specialties is the other primary member orientation. Sixty percent of our membership, in addition to their basic membership, belong to one or more of the 37 Societies. Societies are also autonomous in that they elect their own President and Board of Governors and manage their own affairs. If each of the 37 Society Presidents was a member of IEEE's Board, Societies would be over represented. For this reason the 37 Societies are grouped into 10 Divisions. The Divisions elect one member to be the Division Director who then represents the interest of its Societies on the BOD.

While Sections, Regions, Societies, and Divisions encompass a majority of IEEE's activity, our membership has also requested services encompassing education, standards, special publications, (Spectrum, The Institute, etc.) and a serious involvement in professional activities as well as providing individual member benefits (insurance, investment opportunities etc.).

To do all of this our volunteers need the help of approximately 500 full time employees. To fill in the BOD, the 20 Region and Division Directors (the Assembly) elects a Treasurer, a Secretary and six Vice Presidents (Regional Activities, Technical Activities, Standards, Publications, Professional Activities and Education) that oversee and direct the employees. The membership elects the President-Elect who along with the President and the Past

President completes the full Voting Board.

The President is the CEO and Chairman of the Board. The IEEE is a non-profit corporation equivalent to a business of approximately \$110 million per year. Should this organization be changed? Let me give you my opinion. It seems to me, having witnessed up close how IEEE works over a number of years, that the present organization which has successfully seen us become the largest professional technical society in the world should not be materially changed without very good reasons.

I believe the strengths of the existing organization are:

1. It's decentralized structure keeps management at the lowest practical level. Volunteers are encouraged to assume responsibility and get involved.
2. Sections, Regions, Societies and the existing functional boards and committees are free to seek improvements and are encouraged toward excellence without unnecessary interference.
3. Election to the BOD requires a demonstration of leadership, accomplishment and participation in our volunteer lead organization.
4. Members elected to the BOD provide a good balance of different interests and geography. It has been stated that the BOD is too large. Using some other method of election could very easily reduce the number but it could also give us a Board out of touch with the members. Cost is not a significant factor since the BOD members are volunteers. My experience is that the BOD is not too large and provides a balanced forum.
5. The number of hierarchal levels in the present organization is about as small as practical. This has proven to be a key factor in productivity and efficiency.
6. The present organizational relationship between the members, the volunteers and the staff works very well.

In summary, it should be obvious I that have not been persuaded that any of the recently proposed organizational models will improve the IEEE organization and could very easily give us a lot of trouble. Some minor adjustments such as electing the V.P. of IEEE/USA by U.S. members may be wise but let's stop there. **What do you think? Do you have some suggestions? Call, write, fax, or email VP Joel Snyder at address in NCAC Chairman's Message.**

INFORMATION TECHNOLOGY: IT IS TOMORROW

A Look at the Rapidly Changing Technology of Information Systems

FRIDAY, NOVEMBER 3, 1995
9:00 A.M. - 4:00 P.M.

A Technical Information Seminar Co-sponsored by: Capitol College, IEEE, and AFCEA

• KEYNOTE ADDRESSES BY:

Ana Sol de Gutiérrez,
Deputy Administrator for Research and Special Programs Administration
Department of Transportation
Milton Cooper
President, Systems Group
Computer Sciences Corporation

• TOPICS:

Virtual Community • World Wide Web
Satellite and Mobile Satellite Communications
Object-Oriented Design • Network Architecture
Cellular Radio • Advanced VSAT Technology
Network Architecture

• PRESENTORS/EXHIBITORS:

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CHAIRMANS' CORNER

Elections and the proposed IEEE reorganization should be on your minds as we near the end of the year.

Have you voted yet? Your 1995 Annual Election Ballot must be filled in and sent so it will arrive by noon on 1 November 1995. If you haven't voted, please take some time to review the Candidate Biographies and Statements pamphlet that was sent with the ballot.

We are in Region 2, which includes the Washington Section, the Northern Virginia Section, and 29 other sections to the east, north and west. Dan Benigni, current Past Chair of the NCAC, is now serving a two-year term as the IEEE Director from Region 2. Your ballot contains the names of three candidates who are running for Director-Elect of the region. Read their statements; read their rebuttals; choose. Your vote for the IEEE President-Elect for 1996 is important. The winner will become President of the IEEE on January 1, 1997.

If you are a member of one or more technical societies, your ballot will contain extra parts. Each part allows you to choose a Director-Elect for the Technical Division that contains your society. Vote and be counted!

The proposed IEEE reorganization has generated a spirited debate. Elsewhere in this issue, Merrill Buckley, 1992 IEEE President presents some of the arguments surrounding the proposed reorganization and provides his viewpoint. For other opinions, read the back issues of the Institute, and the September issue of the SCANNER. What are your views?

A plenary session on reorganizations was held during the IEEE-USA PACE Conference over the Labor Day weekend, attended by the NCAC and Section PACE Chairman as well as other local representatives. The three current plans were presented and discussed. Since there had previously been considerable concerns expressed about the three plans, an additional task force to produce a plan for making revolutionary changes to the organization was formed, with Joel Snyder, VP for Professional Activities and Chair of the U.S. Activities Board, as chairman.

There was almost unanimous agreement that any reorganization be done incrementally over a period of several years, and then only after approval of each change by the entire membership.

Joel Snyder has asked that comments and recommendations be sent to him as soon as possible, but not later than the early part of October. Due to our local involvement in professional activities since inception, I encourage your participation. The Board of Directors will vote on two or more of the plans at its December meeting. Approval of a plan requires a two-thirds majority, since a change in the Bylaws is required. Send your comments and recommendations to Vice President Joel Snyder, Strategic Planning Committee, IEEE Operations Center, 445 Hoes Lane, P.O. Box 1331, Piscataway, NJ 0885-1331; e-mail: oi.reply@ieee.org; fax: 908/981-9515.

Rex Kloppenstein

Chairman, National Capital Area Council

YOUR LOCAL REPORTER

Lasers and Electro-optics (LEOS) Chapter Presents Full-Year Meetings Schedule!

The LEOS Chapter, one of our few consistently well organized chapters, gives all of us a lesson in planning. Here is that chapter's list of dates, speakers and titles:

Sep 26	(Several)	Professional Networking in Photonics
Oct 17	P. Zory	Blue Green Quantum-Well Lasers
Nov 14	N. Dutta	Optical Interconnection Technology for Large Computing and Switching Systems
Dec 12	D. Gauthier	Controlling Chaos in Fast Optical Systems
Jan 9	K. Spring	Applications of Electro-Optics Technology to Fluorescence Microscopy
Feb 13	J. Lee	Recent Applications of Acoustic-optic and Electro-optic Devices
Mar 19	E. Wolf	Spectral Changes due to Free-Space Propagation
Apr 9*	L. Hesselink	Digital Holographic Data Storage
May 7 or 21	K. Bergman	Pulsed Squeezing in Optical Fibers

Put those dates on your calendar today!

*Exact date uncertain

Help the IEEE to Help You!

What is the Problem? In the last three years, the number of local active members (including students and affiliates) has dropped at an alarming rate. The reasons for this decline may be related somewhat to local conditions causing job insecurity or job loss. In order to provide information and assistance, this issue of the SCANNER is being sent to all 19,590 local members, including those who have not paid their dues and those who have resigned in the last three years. This is being done in order to advise them of the benefits of continuing to be an IEEE member, and to encourage them to be reinstated as an active member.

Application for Reinstatement of Membership. The two-page 1996 Application for Reinstatement of Membership is reproduced on pages 13 and 14. Members are encouraged to be reinstated as active members by filling out all applicable sections of the form and returning it with appropriate payment to the IEEE Operations Center at the address shown on the form. Members who wish to be placed immediately on the mailing list to receive the SCANNER may send a copy of the form to the NCAC Office shown in the upper left-hand corner of page 2 of the SCANNER. A reinstated member will then receive a notice of reinstatement and a form to apply for society membership, society publications, and other IEEE publications. The information in the following paragraphs is provided as a guide in determining interest in IEEE programs and activities.

Employment Assistance. During the last year, the National Capital Area Council has been a co-sponsor for six Lendman Group Career Fairs, with up to 40 companies interviewing around 1,200 electrical and electronics engineers and computer scientists at

each event. Although many IEEE members attend the job fairs, only a small percentage who visit our NCAC Membership Desk at that career fair indicate that they are unemployed and leave their resumes for our NCAC job bank.

Members Express Satisfaction.

According to the article by Gerry Gordon which reviewed the results of the IEEE 1994 Member Opinion Survey (excerpted on Page 15), IEEE members are satisfied with being members, and gave high ratings to many of the programs supported by IEEE-USA. Over 100 local members participate in IEEE-USA activities.

IEEE Financial Advantage Program. The recently-expanded IEEE Financial Advantage Program offers financial products and services for IEEE members only. The program was publicized in recent issues of The Institute. As stated in the booklet that describes the program, "This exclusive program, which is designed to help you and your family take control of your financial future, makes available a number of quality products with special cost-savings and other value-added benefits that non-IEEE members simply cannot get."

NCAC Programs and Activities. The NCAC, with the Washington and Northern Virginia Sections, supports 29 society chapters. These chapters sponsor a variety of technical programs and meetings, which are valuable for their technical content and for the opportunity of meeting with other members. Many continuing education programs are also available. Members may also volunteer to participate in professional activities programs sponsored by IEEE-USA.

Advances in the IEEE Member Data Diskette Program Help the NCAC Help You!

Member Data Base Applications. The Membership Data Diskette Program has been used for several years to generate labels for the SCANNER. Due to the talents of Bob Hunt, our data base manager, the data base recently has been converted from a five-digit ZIP code to "ZIP-code-plus-four with barcode." This conversion is not only saving us around 30% in postal rates, but also speeds up delivery. With the latest update of the data base, we are not only able to provide many selections of members in such categories as grade, society membership, and telephone numbers, but also provide listings alphabetically by home and office telephone numbers. Label sets may even be produced in Zip code order for society chapters.

Member Data Base Information. The information in the IEEE Member Data Diskette Program has been improved significantly in the last six months and now contains all of the data which has been submitted by members. However, there are still many incomplete or inaccurate entries in the most recent edition, which records data as submitted by members. When you receive your 1996 membership dues notice, you will be requested to review and correct all entries. In particular:

1. Home address, telephone number, fax number.
2. Office address, telephone number, and fax number. If you are a self-employed consultant, include your company name. Please delete any obsolete information if you are no longer with a company. An accurate office address is particularly important in order to establish where our members are employed.
3. Indicate preferred mailing address.



IEEE OPERATIONS CENTER

THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, INC.
Mail to: IEEE MEMBERSHIP, 445 HOES LANE, P.O. BOX 459, PISCATAWAY, N.J. 08855-0459, U.S.A.
TELEPHONE (908) 981-0060 FAX (908) 981-0225

APPLICATION FOR REINSTATEMENT OF IEEE MEMBERSHIP (not to be used by a Society Affiliate joining IEEE)

Applicant's Name _____ (print)
(If last name entered is not family name (surname) please circle first letter of family name to insure proper alphabetic sorting in Member Data Base and directories.)

INSTRUCTIONS TO APPLICANTS

When filling out this application:

- 1) Type or print.
- 2) Complete both sides of the application.
- 3) Mail completed application to: IEEE MEMBERSHIP, IEEE OPERATIONS CENTER, 445 Hoes Lane, P.O. Box 459, Piscataway, NJ 08855-0459
- 4) Indicate your choice of reinstatement option by checking the appropriate box.

REINSTATEMENT OPTIONS

Option 1: Paying IEEE Dues and required Assessment fee for the current year.

I enclose payment in the amount of \$ _____ for reinstatement of my IEEE membership and optional items which I have checked below.

Option 2: Paying all dues in arrears, in which case the IEEE membership will be recorded as uninterrupted. The total number of years of IEEE membership will be considered when calculating eligibility for Life Membership (40 total years) in the IEEE. Do not send payment under this option. IEEE will invoice you for the amount due.

I wish to pay all dues in arrears to restore my continuity of IEEE membership. Please invoice me for the items which I have checked below.

Option 3: Minimum Income Provision. A reduction in IEEE membership dues is granted to an applicant for IEEE membership, above Student grade, who certifies that his/her prior year's annual income did not exceed \$8,600 (U.S. Funds). Those applying for this minimum income provision are requested to submit written certification with IEEE membership application, and the appropriate payment.

My prior year's annual income did not exceed \$8,600 U.S. Funds).

Check (✓) a box	Sept. 1 - Feb. 28 Pay Full Year Residence	Mar. 1 - Aug. 31 Pay Half Year Total Amount
United States	\$113.00 <input type="checkbox"/>	\$56.50 <input type="checkbox"/>
Canada*	\$107.00 <input type="checkbox"/>	\$53.50 <input type="checkbox"/>
Africa, Europe, Middle East	\$ 97.00 <input type="checkbox"/>	\$48.50 <input type="checkbox"/>
Latin America	\$ 90.00 <input type="checkbox"/>	\$45.00 <input type="checkbox"/>
Asia, Pacific	\$ 91.00 <input type="checkbox"/>	\$45.50 <input type="checkbox"/>

Prices subject to change without notice.

- IEEE Membership Dues \$ _____
- Subscription to the Proceedings of the IEEE (complete codes* †below) \$ _____
- Enrollment in the following IEEE Societies (complete codes* † below) \$ _____

S Code	PUB. ID	S Code	PUB. ID	S Code	PUB. ID
□□□	□□□□	□□□	□□□□	□□□	□□□□

†Refer to IEEE Societies Membership and Periodicals brochure for code numbers and fees. TOTAL \$ _____

*Canadian Residents must pay 7% GST Tax on all IEEE Society fees only. IEEE dues has GST Tax included. Residents of Wash., D.C., pay 6% tax on publications not received as part of IEEE/Society membership services. See Society membership brochure for additional details.

METHODS OF PAYMENT

- Credit Card — American Express, Visa, MasterCard,
- Check • Bank Drafts • Money Orders
- UNESCO Coupons • Corporate Purchase Orders
- Wire Transfer —

To: First Fidelity Bank, 550 Broad Street
Newark, NJ 07102, USA, ABA #031201467,
Account #1130673841;
you must include your member number.
Add \$15.00 for bank fees to the total amount you wire.

1. Delay mailing or faxing application until you receive verification from bank of the transaction completion.
2. Include copy of verification with your application and transfer number given by bank to identify your payment.

NON US Dollar Payments

The local currencies accepted by IEEE (in the equivalent amount of US dollars) without additional fees/charges are: The Australian dollar, CFA franc, Deutsche mark, East Caribbean dollar, French franc, Swiss franc, Norwegian krone, pound sterling or yen, as well as the local currencies of these countries;

Algeria	Cayman Isl.	Greece	Kuwait	Netherlands	Singapore
Argentina	Chile	Guatemala	Luxembourg	Netherlands	Solomon Isl.
Austria	Columbia	Hong Kong	Malawi	Antilles	South Africa
Bahamas	Cyprus	Iceland	Malaysia	New Guinea	Spain
Belize	Denmark	Indonesia	Maldives	New Zealand	Sweden
Belgium	Dominican Republic	Ireland	Republic	Panama	Tanzania
Bermuda	Finland	Italy	Malta	Paraguay	Thailand
Bolivia	Gibraltar	Jamaica	Mauritius	Peru	Tunisia
Burundi	Gilbert Isl.	Korea	Mexico	Philippines	Turkey
Canada		Republic of Morocco		Portugal	Zambia

Check (✓) a box

Check, bank draft or money order enclosed. (Make payable to IEEE.)

UNESCO Coupons Corporate Purchase Order

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Charge Card Number _____ Exp. Date _____ Mo./Yr. _____

Full signature of applicant _____ Date _____

EDUCATION

A. Name of Educational Institution _____ Campus _____ City,State/Province _____ Country _____
 Program/Course of Study _____ Highest Technical Degree Received _____ Date Degree Received _____

B. Name of Educational Institution _____ Campus _____ City,State/Province _____ Country _____
 Program/Course of Study _____ First Professional Degree Received _____ Date Degree Received _____

PRESENT OCCUPATION

Title or Position _____ Company or Organization Name _____
 Street/City _____ State/Province _____ Country _____ Postal Code _____

MEMBER AUDIT INFORMATION (ABC/BPA)

A. The primary end product (or service) performed at your plant, and the product (or service) that is your own work. (Insert number code in each box even if the same.)
 Plant Your own work

1. Computers
 2. Computer peripheral equipment
 3. Software
 4. Office and business machines
 5. Test, measurement and instrumentation equipment
 6. Communications systems and equipment
 7. Navigation and guidance systems and equipment
 8. Consumer electronics / appliances
 9. Industrial equipment, controls and systems
 10. IC's and microprocessors
 11. Semiconductors, components, sub-assemblies, materials and supplies
 12. Aircraft, missiles, space and ground support equipment
 13. Oceanography and support equipment
 14. Medical electronic equipment
 15. Companies within OEM incorporating electronics equipment in their end product (not elsewhere classified)
 16. Independent and university research, test and design laboratories and consultants (not connected with a manufacturing company)
 17. Government agencies and armed forces
 18. Companies using and /or incorporating any electronic products in their manufacturing, processing, research or development activities
 19. Telecommunications services, telephone (including cellular)
 20. Broadcast services (t.v., cable, radio)
 21. Transportation service (airlines, railroads, etc.)
 22. Computer and communications data processing services
 23. Power production, generation, transmission, and distribution
 24. Other commercial users of electrical, electronic equipment and services (not elsewhere classified)

25. Distributor (reseller, wholesaler, retailer)
 26. University, college / other education institutions, libraries
 27. Others (allied to this field)

B. Your principal job function. (Insert number code)

1. General / corporate management
 2. Engineering manager
 3. Project leader, project manager, project engineer
 4. Research and development manager
 5. Design / development engineering manager
 6. MTS
 7. Research and development engineer
 8. Design / development engineer
 9. Software engineer
 10. Basic research
 11. Computer scientist
 12. Scientist / physicist / mathematician
 13. Marketing, sales and purchasing
 14. EE Engineer (not elsewhere specified)
 15. Engineer (not elsewhere specified)
 16. Dean / professor / instructor
 17. Engineering / computer science student (including graduate study)
 18. Retired
 19. Other (explain) _____

C. Your principal responsibility. (Insert number code)

1. Management other than engineering
 2. Engineering and scientific management
 3. Engineering design
 4. Engineering / Physicist / Scientist
 5. Software management
 6. Software scientist/engineer

D. Your Title. (Insert number code)

1. Chairman of the Board
 2. President/CEO
 3. Owner/Partner
 4. General Manager
 5. V.P. Operations
 6. V.P. Engineering/Dir. Engineering
 7. Chief Engineer/Chief Scientist
 8. Engineering Mgmt./Scientific Mgmt./MTS
 9. Design engineer
 10. Engineer / Scientist (incl. software)
 11. Other Professional/Technical (explain) _____

ADDRESS FOR IEEE MAIL

First Name _____ Middle Initial _____ Family Name _____
 Street Address _____
 City _____ State/Province _____ Country _____ Postal Code _____

DATE OF BIRTH _____ **SEX:** Male Female
 Month/Day/Year

My membership became inactive _____ Year _____

Membership Grade previously held _____

Membership number (if known)

CONTACT INFORMATION

Office Phone _____ Home Phone _____
 Office Fax _____ Home Fax _____
 E Mail _____

I hereby make application for reinstatement of my IEEE membership in the same grade I held when my previous membership became inactive. If readmitted, I will be governed by the Constitution of the IEEE as long as I continue membership. Furthermore, I agree to promote the objectives of the IEEE as far as shall be in my power.

Full Signature _____
 Date _____

2 2 8 8 2

TRACKING CODE

PROMO CODE

[Excerpts from Gerald W. Gordon's Article entitled "Our Survey Rates influencing Tech Policy Most Important to U.S. Members" were reprinted from vol 19 Number 3, May, 1995, with permission from IEEE United States Activities, copyright 1995 by the Institute of Electrical and Electronics Engineers, Inc.]

Our Survey Rates Influencing Tech Policy Most Important to U.S. Members

by Gerald W. Gordon, Chair,
 IEEE USA 1994 Member Opinion Survey Committee

IEEE's 1994 Member Opinion Survey

Survey was international in scope; however, this article will center on U.S. member responses, with some non-U.S. results offered for comparison. It suggests that, overall, our members in the United States are satisfied with their membership; consider influencing U.S. technology policy our most important activity; and rate enhancing pension portability and engineers' image as most significant to them on a personal and professional level, respectively.

Members Express Satisfaction

Overall, U.S. members responded that they were satisfied or very satisfied with IEEE membership, and 65 percent feel that IEEE should be an international organization. Of 14 aspects of IEEE membership, respondents considered receiving Spectrum magazine as the most important benefit (68%), followed by the IEEE's influence in technology policy decisions (67 percent) and engineers' careers policy decisions (67 percent).

Hard Copy is Preferred

When asked about interest in receiving IEEE information electronically or by hard copy, members chose hard copy by significant percentages in all categories. Given a choice between electronic publishing and hard copies, only 14 percent prefer the electronic version alone, while 27 percent prefer hard copy alone and 43 percent prefer both.

Rating IEEE Activities

In rating the importance of various IEEE activities, participants placed influencing U.S. technology policy first (85 percent), followed by improving employment opportunities (79 percent), engineering ethics (77 percent), and pensions (76 percent).

Interest in IEEE Politics

Only five percent of the respondents expressed interest in the IEEE presidential race. In response to a question concerning selection of the USAB Chair, 36 percent supported direct election by the U.S. membership. The same percentage supported the current method of election by IEEE's General Assembly, which is composed of both U.S. and non-U.S. members elected to IEEE offices.

More Information

Copies of the 23-page Opinion Survey can be obtained electronically at opinion.survey@ieee.org, or by contacting Bill Anderson at our IEEE-USA Office (202/785-0017)

ELSEWHERE IN OUR PROFESSION

[The following items are excerpted from IEEE and National Institute of Standards and Technology (NIST) news sources and — starting with this issue — from the Aerospace Technology Committee of the National Air and Space Museum, Smithsonian Institution]

New Survey Shows Electrical Engineering Salaries Slightly Up, Unemployment Down

Income for electrical, electronics and computer engineers increased 5.9 percent during the past two years, outpacing the rate of inflation.

Those working in their primary specialty in 1995 had total incomes averaging \$71,900, according to a biennial survey of U.S. members conducted by the U.S. Activities division of the IEEE. Two years ago, average income was \$67,900. Between 1993 and 1995, the consumer price index rose 5.6 percent. Highest incomes were recorded in the Northeast; the lowest in the Midwest.

According to Robert S. Duggan, Jr., chairman of the IEEE-USA Survey Committee: "After the major economic disruptions of the past several years, the results of this survey should prove encouraging to the beleaguered engineering workforce. We find that the income pie is getting a little bit larger, and there are also more slices to go around."

The IEEE-USA survey shows more retired electrical engineers and fewer EEs working full-time. Part-time employment registered 4 percent, and retirement accounted for 15.4 percent of respondents. Nearly 70 percent were employed fulltime in their primary specialty, and another 7.5 percent were working fulltime outside their fields. Among the remaining, 2.3 percent were involuntarily unemployed, down from a record high of 2.7 percent in 1993.

The poll provides extensive statistical data regarding engineering income by industry sector. The highest median incomes were reported by engineers in communications (\$70,138), computers (69,929), and aerospace (\$69,500), while the lowest were reported in the automotive industry (\$62,000) and transportation (\$60,000). By job function, engineers in general management have the highest income, those in manufacturing and production the lowest.

A minority of respondents, 20.1 percent, are registered professional engineers. Another 13.3 percent qualify for Engineer-in-Training status. The most commonly held degrees are the Bachelor of Science in electrical engineering, or in electrical and computer engineering.

Almost all (94.9 percent) respondents were men, and 88.2 percent identified themselves as non-Hispanic white. Asian-Americans represented the largest minority group with 7.6 percent.

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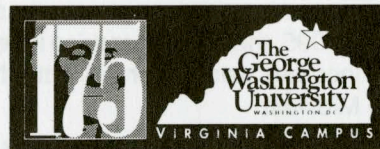
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There is no charge for this program.

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