



IEEE BULLETIN

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Institute of Electrical and Electronics Engineers, Inc.*

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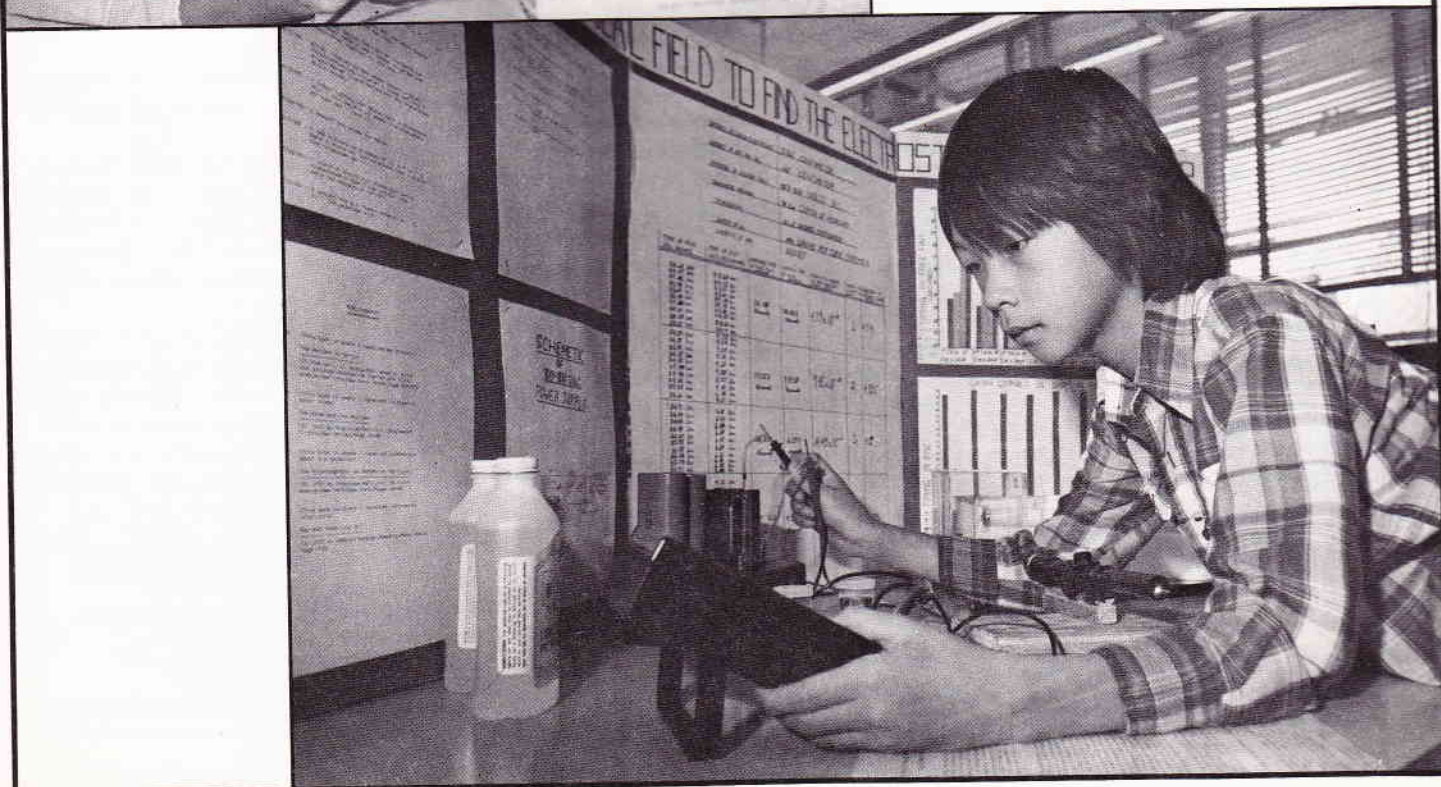


FUTURE SCIENTISTS, TODAY

← Eighth grader Sandra Banks from Crozier Junior High tested her Speech Synthesis project at the third annual Science Fair competition sponsored by TRW and Inglewood Unified School District.

The Science Fair was held on Saturday, April 23rd at the Inglewood Civic Center located at One Manchester Boulevard.

Huy Nguyen, eighth grade student from Crozier Junior High, demonstrated his home-made laser in the 1983 Future Scientists of America Science Fair competition sponsored by TRW and Inglewood Unified School District.



Mailed May 25

LEGAL CONSIDERATIONS AND PATENT RIGHTS IN ENGINEERING

Legal considerations and patent rights is the topic of a talk to be given by Robert P. Egermeier at the June 16, 1983, meeting of the San Fernando Valley Section.

Two areas of interest account for most of the employed Engineer's professional concern with the Law. The first of these concerns intellectual property (patents and trade secrets) law, and related employment agreements. Product liability (or product safety) is receiving increased attention because of a growing tendency to scrutinize the individual's responsibility for design of a product. Both the Engineering profession and the legal profession are actively engaged in evaluating the interactions of the law, society, and technology. Mr. Egermeier will discuss as-

pects of intellectual property law, product liability law, and the rights and responsibilities of the employed engineer.

Mr. Egermeier earned his B.S. in Engineering Physics in 1951, and an M.S.M.E. in 1957. He subsequently held a number of engineering management positions prior to earning the LLB in 1976. He practiced law with the firm of Alberi and Radke prior to rejoining Hughes Aircraft Company in 1981. He is currently employed in Hughes' Missile Development Divisions as a Senior Scientist and maintains a limited practice in patent, trademark, and copyright law.

Mr. Egermeier is a Registered Professional Engineer, a member of the California Bar, and admitted to practice before the U.S. Supreme Court and the U.S. Patent and Trademark Office. He has been active in IEEE, ASME, and AIAA throughout his career, and holds membership in a number of organizations concerned with science, technology, and the legal profession.

The meeting will take place on Thursday, June 16, 1983, at 6:30 p.m. in the Plaza Suite Restaurant located at 18460 Roscoe Blvd., Northridge, CA. For reservations and more information, call Kim or Sergene (213) 885-2190.

AUTOMATIC TESTING OF POWER AND AUDIO TRANSFORMERS BY MICROCOMPUTER SYSTEM

Mr. Arthur Zuch, President, Optimized Devices Inc., Pleasantville NY, will speak on Automatic Testing of Power and Audio Transformers by Microcomputer System at the Wednesday 15 June 1983 meeting of the Los Angeles Chapter of the IEEE Magnetics Society. He will demonstrate the testing machine as interfaced to an IBM-PC. The ease of use and easy program recall make the system ideal for testing short runs as well as long runs. Program set-up is simplified by the use of English language statements and sample programs. Testing of a single prototype is quicker with this machine than "running around from machine to machine to test by hand".

Testing of transformers, especially for high reliability programs, is an important, tedious and labor intensive task, particularly where different transformers call for different tests and different test parameters. Characteristics like turns ratio, high-pot, inductance, core loss, winding resistance and intrinsic impedance may be requirements for any transformer. The capability to test these parameters on one machine is a significant improvement in manufacturing capability and economics. The history of Mr. Zuch is not available with this writing.

The discussion will take place Wednesday 15 June 1983, 8:00 p.m. at #14 Steele Hall, Bldg 61, California Institute of Technology, Chester St., Pasadena, CA. Park South on Chester from Del Mar St.

Dinner at 6:00 p.m. at ONE WEST RESTAURANT, One West California St. ("hidden" at the corner of California & Fair Oaks) Pasadena. Menu prices from \$6.95. Reservations: Phil Massie (213) 839-6498 or Art Grinnell (213) 988-2600 X6949 by Tuesday Noon 14 June 1983.

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Volume 45

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DEADLINES FOR THE IEEE BULLETIN

The final deadline for the next issue of the IEEE BULLETIN is to be at 12:00 noon on the last workday of the month, two months preceding the month of intended publication. This deadline applies to both editorial material, and advertising. For camera ready advertising, a firm commitment to pay for the space of given dimensions must be received by the above deadline. If the advertiser so desires, the advertising copy may initially consist of dummy material such as the company's name. Then camera ready copy of the agreed upon dimensions may be substituted for the original material if received at the Engineer's Secretarial Service office no later than 12:00 noon on the seventh (or nearest workday) of the month immediately preceding publication. Articles and meeting notices should be submitted typed with the calendar section on a separate sheet.

ADVERTISING POLICY

The publication of an advertisement in the IEEE Bulletin does not in any way represent an endorsement by the IEEE or its Los Angeles Council or any related organization of the products or policies of the advertiser.

FREQUENCY STABILITY: IMPLICATIONS FOR STATE-OF-THE-ART MICROWAVE SYSTEM PERFORMANCE

State-of-the-art requirements for improved C/I, Radar, Navigation, Communications, and EW Systems are forcing system designers to specify time and frequency sources with better performance than ever before. Do you wonder why? What is Allan Variance and how does it relate to a given microwave system? Why does the metrology department need that Cesium oscillator? When does my spread spectrum communication system need a super stable reference source? Why does GPS require such a tight specification on frequency stability? Do I need to consider a better reference source for my microwave system? These and many more questions will be discussed at our June meeting.

The basic circuit configuration for crystal and atomic oscillators will be shown. Starting with the crystal oscillator as the basic precision oscillator, the presentation will describe rubidium, cesium, and hydrogen based devices. A general comparison of physical and performance characteristics for these devices will follow. The comparison will address airborne as well as ground environments. Applications for navigation and communications systems along with comments upon some possible radar system uses will be covered.

Our speaker is an experienced hardware engineer who will emphasize practical aspects. He received a BSEE degree from Northwestern University in 1954. He has done extensive radar design work at GE

and he has been involved in the design of both analog and digital communications systems. He is currently the Applications Engineering Manager at the Efratom Division of the Ball Corporation.

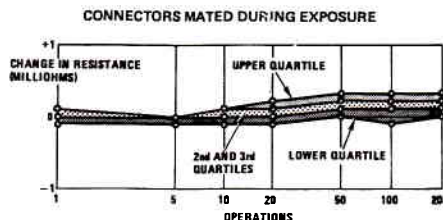
The meeting will be held Tuesday, June 21, at the Officer's Club, Los Angeles Air Force Station (formerly SAMSO), Building 120 (see map). Access to the meeting place after 6:00 p.m. will be through a manned gate. Please bring with you, for purposes of identification, a copy of this notice or a copy of the MTT flyer announcing the meeting. The technical meeting, which starts at 8:00 p.m. is preceded by a Social Hour (6:00 to 7:00 p.m.) and Dinner, served at 7:00 p.m.

If you plan to attend, reservations for both the dinner and/or the meeting are mandatory. Cost of the dinner \$9.00. Both the dinner and the meeting will be at the Daedalion Room. For reservations, please call Chuck Swift at (213) 989-1133 by June 17.

RELIABILITY OF ELECTRONIC CONNECTORS: TECHNIQUES & EXPERIENCE IN FINDING RESISTANCE TRANSIENTS

Electronics designers know that thick gold plating provides the most reliable contacts. However, gold contacts can fail from surface contamination, or from corrosion products that creep across plated surfaces from exposed base metals. Tin plated contacts can be reliable in select applications but can form oxides that increase resistance hundreds of milliohms. Are such contacts reliable, or may these degraded contacts assume a very high (open) resistance even for an instant?

The speakers will discuss high resistance excursions (transients) that have been observed in degraded electrical contacts, along with the measurement techniques that are necessary to identify rapid resistance changes in contacts. The conditions that have been found to cause transient contact behavior will be discussed, along with the factors relevant to predicting the worst case performance of a contact system.



LOAD MANAGEMENT

The Power Engineering and Industry Application Societies' Chapter of the IEEE Orange County Section will sponsor a technical meeting on Load Management. The technical presentation will be given by two well-qualified speakers:

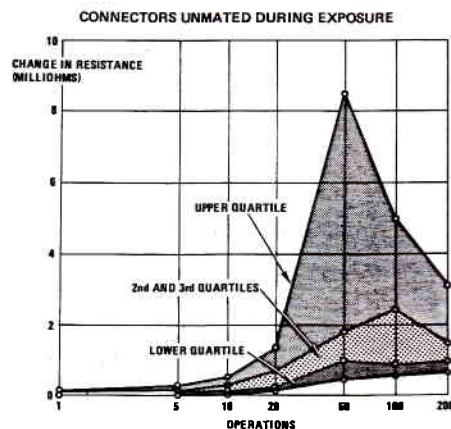
1. Geoff Bales, Manager of Load Management Systems for Southern California Edison, will discuss the utility approach to Load Management for residential, commercial, industrial, and agricultural applications.

2. Robert E. Owen, Ph.D., Manager of Operation and Marketing of McGraw-Edison/Altron, will discuss the Broadcast Radio System for Distribution Control and Load Management Communications.

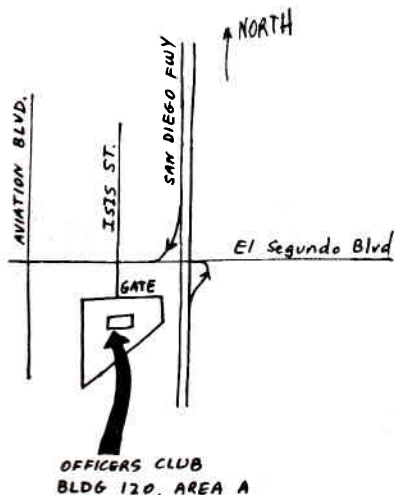
The meeting will be held Tuesday, June 21, 1983, at Saddleback Inn, 1660 E. First Street, Santa Ana. Cocktails will begin at 6:00 p.m., followed by a dinner at 7:00 p.m. The presentation will begin at 8:00 p.m. Reservations are requested by June 14, 1983 with payments no later than June 17, 1983. The cost of dinner is \$13.00.

For reservations, please call Khalil Zadeh (714) 838-0511 (work) or (714) 974-5912 (home). Please make your check for dinner reservations payable to IEEE, Orange County Section. Checks should be mailed to Khalil Zadeh, 18542 Villa Drive, Villa Park, CA 92667.

IEEE Orange County Section and Saddleback subsection members with an interest in the industrial and power fields are invited to join the new IEEE Power Engineering and Industry Applications Societies Chapter in Orange County, and indicate their areas of interest so that the new chapter may serve IEEE members more effectively. Members of the PES/ISA Chapter are invited to participate in administrative committees.



Resistance changes of gold-plated contacts after exposure to corrosive environment of 100% relative humidity at 60°C with the presence of sulfur. The operations were made BEFORE the one time exposure, then the contact resistance was measured (after Van Horn).



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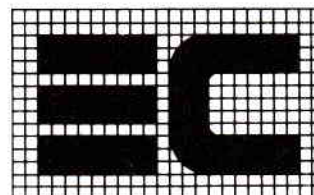
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INTERNATIONAL ART COMPETITION WILL COMMEMORATE CENTENNIAL OF INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS

Grand Prize of \$4,000 Will Be Awarded For Winning Painting

An international art competition has been announced by The Institute of Electrical and Electronics Engineers, Inc. (IEEE) which will observe its 100th anniversary in 1984. The IEEE, headquartered in New York City, is transnational in scope and is the world's largest technical professional organization with more than 234,000 members in over 100 countries. The grand prize for the winning painting will be \$4,000; second and third place prizes will be \$2,000 and \$1,000, respectively. All entries must be postmarked no later than August 31, 1983.

Artists worldwide, including IEEE members, are urged to create a painting in oil, watercolor, acrylic or mixed media that commemorates the centennial of the Institute and one of its predecessor organizations, The American Institute of Electrical Engineers. The painting can be any size up to a maximum of 30 inches by 36 inches and, whether representational or abstract, should communicate or comment upon the significant contributions which electrical and electronics engineers have made to society during the past century.

Initial submissions should be in the form of 35mm color transparencies; color slides will be used in preliminary judging. The entry fee is \$2.00 per slide. An entry form plus a copy of the official contest rules can be obtained by writing to IEEE Centennial Art Contest, ATTN: F.X. Timmons, 345 E. 47 Street, New York, N.Y., 10017; or by calling (212) 705-7450.

Subject matter for paintings is left entirely to the discretion of the artist, according to Dr. John Ryder, Chairman of the IEEE Centennial Task Force. "The artist can choose to depict materials, people

— or both," Dr. Ryder comments. "Subjects can involve electricity, electronics, other aspects of electrotechnology or may be of a more abstract or personal nature. We believe the artist should be free to explore and innovate in much the same way that engineers during the past century have combined imagination with new knowledge and techniques to create technological breakthroughs."

Finalists will be asked to submit original works to IEEE Headquarters in New York for final judging and for exhibition at the United Engineering Center. The prizewinning paintings will become the sole property of the Institute and may be used for reproduction in connection with Centennial literature. The distinguished judges for the art courses include Will Barnet, renowned American artist whose work is represented in the collections of many leading U.S. museums; M. Stephen Doherty, editor of *American Artist* magazine; and Christian Rohlfing, former Assistant Director and Curator Emeritus of the Cooper-Hewitt Museum of the Smithsonian Institution, New York.

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ELECTION OF OFFICERS FOR SANTA MONICA BAY SECTION IEEE SANTA MONICA BAY SECTION OFFICERS BALLOT 1983-1984 TERM

1. Cut out ballot along dashed line.
2. Validate the ballot by placing your signature and membership number on the back flap of the ballot in the space provided. The Teller Committee will check the name and number before the ballot is opened. To ensure privacy, the signature will be removed from the ballot before it is opened.
3. Fold along line indicated with the postage address facing outward. Place two staples in the indicated positions to hold ballot closed and insure privacy.
4. Ballots received at the Council office after 5:00 p.m. on July 15, 1983 WILL NOT BE COUNTED.
5. Where more than one candidate is listed for an office, the names are listed in alphabetical order. This does not indicate an order of preference.
6. Those eligible to vote are Section Associate Members, Members, Senior Members and Fellows in good standing.

INSTRUCTION FOR MARKING BALLOTS

(single transferrable voting system)

For each office, place an 'X' next to the name of the person who is your choice for the office.

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*Write-in candidates must submit a statement indicating the office for which they are running and a statement of willingness to serve.

NEW PES/POWER GENERATION COMMITTEE HEAD



Bob Zweigler

R. (Bob) Zweigler, SM, Metro Section, of Bechtel Power Corporation has been named chairman of the IEEE/PES/Power Generation Committee for 1983-1984. This committee, with its subcommittees and working groups comprises over 450 executive and senior engineering staff members from electric utilities, government agencies, equipment manufacturers and engineer-constructor organizations. The Power Generation Committee's scope of activities includes development of standards, guides and recommended practices for all forms of electric power generation as well as presentation of technical papers and panels at national and international technical forums.

The Power Generation Committee currently has responsibility for 35 standards projects including such as "Recommended Practice for Unique Identification in Power Plants and Related Facilities", "Guide for Content of Technical Manuals", and "Design and Installation of Cable Systems in Nuclear Power Generating Stations".

Prior to this nomination Zweigler served as vice-chairman of the committee which required technical session sponsorship and coordination for the annual IEEE/PES winter and summer meetings and the Joint Power Generation Conference. He served as Technical Program Chairman for the latter in 1982. He has also been chairman of the Station Design Subcommittee (1975-1978) and Wire and Cable Systems Working Group (1972-1974).

FROM THE TRENCHES: CONGRESSIONAL FELLOW REPORTS

By Orin E. Marvel

Since I am currently an IEEE Congressional Fellow in Senator Denton's office, "ya'll" must consider this a first quarterly report. Instead of writing about experiences, I decided to perform the work association test to relate my "real time" feelings. During this test, the major words that came to mind were:

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SANTA MONICA BAY SECTION

- a. Overwhelmed
- b. Inexperienced
- c. Communications

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

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

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

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

SOFTWARE COST/ RELIABILITY TRADEOFFS



Dr. Barry Boehm

A special dinner meeting culminating three days of joint meetings of the Computer Society Software Reliability Measurement Working Group and the Reliability Society Software Reliability Technical Committee will be held at the Hacienda Hotel on June 30, 1983. Dr. Barry W. Boehm will address this meeting with a presentation on software costs and their relationship to reliability.

Does reliable software cost more? How do errors get into software and how much does it cost to get them out? What are the most cost-effective techniques for finding and fixing software errors? This talk will summarize the available information on these and related questions about the tradeoffs between software costs and software reliability. In addition to Dr. Boehm's talk, a summary of the results to date will be provided by Irv Doshay of the Computer Society Working Group and Reliability Society Technical Committee, on software guidance documents in progress.

Barry Boehm is currently Chief Engineer of TRW's Software and Information Systems Division. He was previously Head of the Information Sciences Department at Rand Corporation, and Director of the 1971 Air Force CCIP-85 study. His responsibilities at TRW include direction of TRW's internal software development policy and of the TRW Software Productivity System, an advanced software engineering support environment.

Dr. Boehm received his B.A. in Mathematics from Harvard in 1957 and his M.A. and Ph.D. from UCLA in 1961 and 1964, respectively. During 1978-79 he was a Visiting Professor of Computer Science at USC; he is currently also a Visiting Professor of Computer Science at UCLA. He serves on the Governing Board of the IEEE Computer Society, and on the editorial boards of several journals. His most recent book, *Software Engineering Economics*, was published by Prentice-Hall in September 1981.

A full course Prime Rib dinner will be served at 6:30 p.m., prior to the talk. Those wishing to attend should send \$11.50 (including tax and tip) to Los Angeles Computer Society, P.O. Box 1285, Pacific Palisades, California, 90272. Call Sam Lehr at (213) 535-2905 for further information.

THE KITTY HAWK YOUTH AWARD

In 1964 the "Kitty Hawk Awards" were established by the Los Angeles Area Chamber of Commerce to commemorate the historic flight of the Wright Brothers on 17 December 1903. The awards were conceived to honor military and civilian personnel who have contributed notably to our heritage of flight through their dedication or service to the aviation/aerospace field of endeavor. Specifically, the recipient must have performed, contributed or demonstrated a:

- (1) distinguished period of achievement, or
- (2) specific and noteworthy contribution, or
- (3) recent conspicuous act of valor.

continued on page 11



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IEEE MEETINGS CALENDAR

ACOUSTICS, SPEECH AND SIGNAL PROCESSING SOCIETY (S1)

Reservations & Information: Douglas F. Elliott (714) 632-2340

AEROSPACE AND ELECTRONICS SYSTEMS SOCIETY (S10)

Reservations & Information: William P. Hartman (213) 615-8432

ANTENNAS AND PROPAGATION SOCIETY (S3)

Reservations & Information: Lee J. Cooper (213) 347-5446 ext 219

Thursday June 16

BUENAVENTURA SECTION

Place: Community Room.
Oaks Mall, Thousand Oaks, CA
Parking: Park and enter Oaks Mall on north side east of J. C. Penny Co. entrance. Community Room is to left just inside entrance.
Time: 7:30 p.m. - Coffee, Tea & Dessert.
Meeting 8:00 p.m.
Speaker: Dr. Rein Turn,
Department of Computer Science, California State University, Northridge.
Subject: Advances in Computer-Communications Security
Information: Phone (805) 495-0211, 484-1331 or 492-2056

CHINA LAKE SECTION (513)

Meeting information not available at press time.

Reservations & Information: Mel Creusere (714) 939-2009

CIRCUITS & SYSTEMS/ELECTRON DEVICES SOCIETY (S4/S15)

Reservations & Information: Rich L. Helfrich (714) 871-5000

COMMUNICATIONS SOCIETY (S19)

Reservations & Information: W. Larry Bacon (213) 573-5663

Thursday June 23

COMPONENTS, HYBRIDS & MANUFACTURING TECHNOLOGY

Time: No Host Cocktails 6:00 p.m.
Dinner 6:30 p.m.
(\$13.00 including tax and tip, with reservations, \$14.00 without reservations)
Non-members welcome.
Location: The Proud Bird (next to LAX)
11022 So. Aviation Blvd.
Reservations: Allen Packler (213) 306-4200
Information: Jack Forte (213) 536-7483
Paul Sadler (213) 822-8229
Subject: Reliability of Electronic Connectors: Techniques & Experience in Finding Resistance Transients
Speakers: Bill Rhoades & Roy Currence,
Xerox Corporation

Thursday June 30

LOS ANGELES COMPUTER SOCIETY 16.1

Topic: Software Cost/Reliability Tradeoffs
Speaker: Dr. Barry W. Boehm
Time: 6:30 p.m.
Location: Hacienda Hotel, El Segundo, California
Reservations & Information: Sam Lehr (213) 535-2905
For reservations send check for \$11.50 to:
Los Angeles Computer Society
P.O. Box 1285
Pacific Palisades, CA 90272

ELECTROMAGNETIC COMPATIBILITY SOCIETY (S27)

Reservations & Information: Fred J. Nichols (213) 870-9383

ENGINEERING IN MEDICINE AND BIOLOGY SOCIETY (S18)

Reservations & Information: Andrew Lisiecki (714) 975-1800

ENGRG. MGMT., EDUCATION, PROFESSIONAL COMMUNICATIONS SOCIETIES (S 14/25/26)

Reservations & Information: Robert Foley (714) 540-4330

Tuesday June 21

Topic:
Speaker:

Time:
Location:

Reservations & Information:

FOOTHILL SECTION (514)

A Submarine Adventure
Commander Walter L. Bacon
U.S. Navy
Cocktails, 6:30 p.m.: Dinner (optional), 7:00 p.m.
Barrister Restaurant
500 W. Mission Blvd., Pomona
Take I-10 to Garey Ave., go south on Garey Ave. to Mission.
Restaurant is approximately 1/2 mile on south side.

Reservations (by Friday, June 17)
Gary Davidson (213) 331-0011 Ext. 2812
Dave Mains (714) 787-7425

GEOSCIENCE & REMOTE SENSING SOCIETY (S29)

Reservations & Information: Fred Aminzadeh (714) 528-7201 ext 2462

Wednesday June 8

Topic:

Speaker: Mr. John Heitler, Dow Corning Corporation
Time: Attitude Adjustment: 5:30 p.m. Dinner: 7:30 p.m. Meeting: 7:30 p.m.
Location: Taix Restaurant
1911 West Sunset Blvd.
Los Angeles, CA

Reservations & Information: Gary Swanson (714) 779-8900

INFORMATION THEORY SOCIETY (S12)

Reservations & Information: Andreas Polydoros (213) 641-8600

INSTR. & MEAS. INDUS. ELECT. SOCIETY (S9/S13)

Reservations & Information: W. Larry Bacon (213) 573-5663

Wednesday June 15

Topic: Automatic Testing of Power and Audio Transformers by Microcomputer System
Speaker: Mr. Arthur Zuch, Optimized Devices Inc.
Pleasantville NY
Time: 8:00 p.m.
Location: #14 Steele Hall, Bldg 61, California Institute of Technology.
Chester St., Pasadena. Park South on Chester from Del Mar.
Dinner: 6:00 p.m., One West Restaurant. One West California St., Pasadena. Corner of Fair Oaks and California. Menu prices from \$6.95 plus tax & tip.

Reservations & Information: Dinner reservations by Noon Tuesday 14 June 1983. Philip Massie (213) 839-6498 or Art Grinnell (213) 988-2600 X6949.

METROPOLITAN SECTION (515)

Meeting information not available at press time

Reservations & Information: David J. Melvold (213) 481-4749

Tuesday June 21

Topic:

Speaker: William Smith
Time: 6:00 p.m. Social Hour,
7:00 p.m. Dinner,
8:00 p.m. Speaker
Location: Los Angeles Air Force Station
Officers Club, Daedalion Room
El Segundo

Reservations & Information: Reservations are necessary for both the dinner and the meeting. Please call C.W. Swift at (213) 989-1133 by Friday, June 17.

NUCLEAR AND PLASMA SCIENCES SOCIETY (S4)

Reservations & Information: James P. Spratt (213) 640-0480

ORANGE COUNTY SECTION (516)

Meeting information not available at press time

Reservations & Information: Gene H. Hostetter (714) 833-6627

PES/IAS Chapter of the IEEE Orange County Section

Topic: Load Management
Speakers: 1. Geoff Bales, Manager of the Load Management System for Southern California Edison. "Utility Approach to Load Management for residential, commercial, industrial and agricultural applications"
2. Robert E. Owen, Ph.D., Manager of Operation and Marketing, McGraw-Edison/Altran. "Broadcast Radio System for Distribution Control and Load Management Communications"
Time: Cocktails 6:00 p.m.; Dinner 7:00 p.m.; Presentations 8:00 p.m.
Location: Saddleback Inn
1660 E. First Street, Santa Ana, California

Reservations & Information: Please contact: Khalil N. Zadeh (714) 838-0511 (work) or (714) 974-5912 (home)
Cost of dinner: \$13.00
Please make checks payable to: IEEE Orange County Section
Checks should be mailed to: Khalil N. Zadeh, 18542 Villa Drive, Villa Park, CA 92667.
Reservations requested by: June 14, 1983 with payment no later than June 17, 1983.

POWER GENERATION COMMITTEE

Conference: 1983 IEEE Summer Power Meeting
Location: Bonaventure Hotel, Los Angeles, CA
July 17, 1983 to July 22, 1983
Session: Windpower - Utility and Entrepreneur Perspectives
Moderator: Frank Goodman
Electric Power Research Institute
Date: Wednesday, July 20, 1983
Time: 2 p.m. to 4:30 p.m.

Panelists

Name & Topic	Company Affiliation
Operating Experiences	
— Utility: Doug Seely	BPA
— Entrepreneur: Dan Reynolds	Zond
Contract Negotiations	
— Utility: Frank McCrackin	Southern California Edison
— Entrepreneur: Bob Danzinger	Sun Law
Project Financing	
— Ed Blum	Merrill Lynch

Reservations & Information: For information on registration and price, call Tony Fong (213) 572-2732

QUANTUM ELECTRODYNAMICS APPLICATIONS SOCIETY (S36) AND

Reservations & Information: William H. Steier (213) 743-2578

Thursday June 16

Topic: S07 RELIABILITY
Speaker: Spacecraft Reliability
Atle Steen, TRW
Time: 6:30 p.m. (Dinner)
Location: Hacienda Hotel 525 N. Sepulveda Blvd.
El Segundo (South of L.A. Airport)

Reservations & Information: Call Sam Lehr (213) 535-2905
Dinner is \$11.50 incl. tax and tip
SADDLEBACK SUBSECTION (516.1)
Meeting information not available at press time

Reservations & Information: Earl Switzer (714) 754-6781 ext 310

Thursday June 16

Topic: SAN FERNANDO VALLEY SECTION
Speaker: Legal Considerations and Patent Rights in Engineering
Robert P. Egermeier
Time: 6:30 p.m. Social Hour, 7:15 p.m. Dinner
8:00 p.m. Program
Location: Plaza Suite Restaurant
18460 Roscoe Boulevard (Corner of Roscoe Blvd. and Reseda Blvd.)
Northridge, CA 91324

Reservations & Information: Sergene Zimmerman (213) 885-2190

SAN GABRIEL VALLEY SECTION (518)
Meeting information not available at press time

SANTA MONICA BAY SECTION (520)
Meeting information not available at press time

Reservations & Information: Donald G. Reinertsen (213) 624-1414

SONICS AND ULTRASONICS SOCIETY (S20)

Reservations & Information: Chen Tsai (714) 833-5144

SOUTH BAY HARBOR SECTION (521)

Meeting information not available at press time

Reservations & Information: Harold H. Wilson (213) 536-4485

SYSTEMS, MAN & CYBERNETICS SOCIETY (S28)

Reservations & Information: Andrew Lisiecki (714) 975-1800

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Reservations & Information: Gary Gray (714) 834-2123

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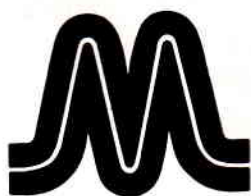
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ABSTRACT DEADLINE 30 JUNE 1983

AUTHORS are invited to submit abstracts of
300 to 500 words in any of the above related areas.
A short biographical sketch of the author(s) including
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KITTY HAWK *cont'd from page 7*

In 1975 the Chamber established "The Kitty Hawk Youth Award" which the Northrop Corporation agreed to sponsor annually. The award consists of an appropriate plaque and a contribution of \$2,000.00 to the recipient for continued efforts in aviation/aerospace endeavors.

Nominations for the award are to be forwarded directly to the Wright Brothers Banquet Committee, Los Angeles Area Chamber of Commerce, P.O. Box 3696, Terminal Annex, Los Angeles, California 90051, Attention: Special Events by no later than 30 June of each year. Names of proposed nominees will be submitted to the Chamber appointed Youth Award Committee for recommendation and ultimate selection by the total Committee for the Los Angeles Area Chamber of Commerce Wright Brothers Banquet. Selection is based upon the information received in accordance with the established General Criteria and Official Application for this award.

Presentation of "The Kitty Hawk Youth Award" will be made in cooperation with the Northrop Corporation at the Los Angeles Area Chamber of Commerce Wright Brothers Banquet on 9 December 1983.

SPACECRAFT RELIABILITY

A special meeting on Spacecraft Reliability by the Los Angeles Council, IEEE Reliability Society will take place on June 16, 1983, at the Hacienda Hotel, 525 N. Sepulveda Blvd. El Segundo. (A few blocks south of the Los Angeles Airport). The meeting will feature a presentation by Atle Steen of TRW.

Atle Steen will provide a summary of experienced TRW spacecraft reliability over the past ten years. His discussion will include methods of analysis and results obtained for predictions *vs* experience. These methods include reliability modeling and trade-off analysis to alternate designs using system analysis techniques. He will discuss studies for a 25 Kw in-orbit power station funded by NASA: availability analyses of multi-orbit, multi-payload satellite communication systems subject to replenishment, launch, and manufacturing constraints; and demonstrated reliability and failure rates of launched TRW spacecraft. Atle Steen holds B.S., M.S. and Engineer's degrees from M.I.T., and he coauthored the paper "Reliability Modeling of High Voltage Batteries" in IEEE Proceedings, 1982. Prior to TRW, Mr. Steen was a senior ocean engineer with Kennecott Exploration of San Diego, for six years.

A dinner at 6:30 p.m. will precede the meeting. For information, please call Sam Lehr at (213) 535-2905.

AFTER PCB, WHAT?

Speaker: Mr. John Heitler,
Dow Corning Corp.
Date: Wednesday, June 8, 1983
Time: Attitude Adjustment: 5:30 p.m.
Dinner : 7:30 p.m.
Meeting : 7:30 p.m.
Place: Taix Restuarant
1911 West Sunset Blvd.
Los Angeles, CA.

The Industry Applications Society, Chapter 34, June 8, 1983 meeting will be held at the Taix Restaurant, Sunset Boulevard, Los Angeles, CA. The speaker will be Mr. John Heitler of Dow Corning Corporation.

John is a graduate of Indiana University's Chemistry Department with a B.A. degree and concentrations in Biology, Physics, and Business. For the last year he has been the Dow Corning Transformer Specialist responsible for retro-filling PCP transformers in Southern California. He also had the opportunity to work closely with different engineering groups at Southern California Edison Co. and the Department of Water and Power on a new insulator coating.

Mr. Heitler will discuss two relatively new Dow Corning electrical products. The first will be the Retro-Sil System. He will briefly describe the need, function and implementation of the product which has the capability of removing PCB's from a PCB filled transformer. This presentation will address the impact of the product to the consulting engineers.

The second portion of his talk will be about Dow Corning Q3-6539, Insulator Coating. He will cover the historical differences and cost and performance advantages of the product. Other possible applications would include conductor and switchgear coating.

L.A. COUNCIL ELECTION RESULTS

The Teller's Committee met May 2 to count the Los Angeles Council ballots that ran in the April Bulletin.

Of the 282 ballots received, five were not validated by signature or membership number. Counting the 277 valid ballots confirmed the following officers for the 1983-84 year:

Chairman	Audrey J. Smith
Vice Chairman	Myron Kayton
Secretary	Jerry C. Aukland
Treasurer	William E. Murray
PACE Chairman	Karl H. Hering
Members at Large	Gene H. Hostetter
	Harold H. Wilson

COMPUTERIZED SNOW SKI RELEASE BEING DEVELOPED AT UC DAVIS

A computerized snow ski-release binding that may reduce injuries while giving the skier better control has been designed by engineers at the University of California, Davis.

"This is the first digital-computer controlled ski binding that has been developed in the world," said Maury L. Hull, associate professor of mechanical engineering at UC Davis and project coordinator.

This new computer-controlled binding, which has been field tested at the Boreal Ski Area, incorporates three basic systems: 1) a dynamometer, 2) a release mechanism, and 3) a computer. The dynamometer converts the loads between the boot and the ski into proportional electrical signals. These signals are input to the computer which solves mathematical equation models of the leg. When a dangerous condition is detected, the computer issues an electrical release command to the binding, thereby releasing the boot from the ski.

The task of traditional mechanical bindings is both to clamp the skier's boot to the ski and to release the ski from the boot should injury to the skier's leg become imminent. According to statistics cited by Hull, 90 percent of skiing injuries to the leg are attributed to binding release malfunction. This statistic represents about 250,000 injuries annually in the United States. Despite two decades of design innovation and development of purely mechanical bindings, there has been no notable decrease in the injury rate, according to Hull.

"Skiers are prone to at least five different severe leg injuries," explains MacGregor. "Each injury occurs under a different specific set of loading circumstances. For complete skier protection, binding releases must be sensitive to each set of circumstances and current mechanical systems are not well suited for this requirement."

According to Hull, the new computer controlled binding offers numerous advantages over its mechanical counterparts. One advantage of the new computerized binding is improved skiing control. To gain the shock absorption capability necessary to prevent premature release, mechanical bindings must allow movement between the boot and the ski. This is a disadvantage to the skier, however, because the lack of rigid attachment between the boot and ski impairs skier control. In computer controlled bindings, however, shock absorption capability is

continued on page 12

OFFICE AUTOMATION AND THE WORKPLACE

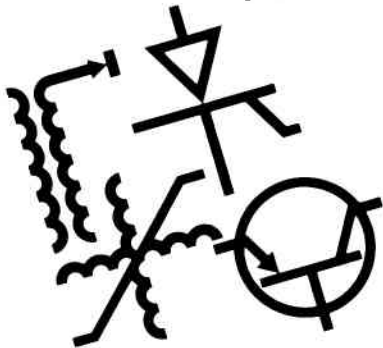
A national survey examined for the first time secretaries' and managers' perceptions of office work, productivity and office automation. The survey, sponsored by Honeywell and conducted by Response Analysis, a research firm in Princeton, N.J., questioned 1,264 secretaries and 937 managers from 443 companies with 100 or more employees. Results are based on a computer-generated random sample, drawn by Dun & Bradstreet, of "information-intensive"⁽¹⁾ businesses throughout the U.S.

(1) The term "information-intensive" is used to characterize businesses that regularly process substantive amounts of information.

Summary of Major Findings

Managers and secretaries identify communications as the key to improving office productivity. Bosses were more likely to say that more automated equipment would increase productivity, while twice as many secretaries cited the need for more of a team relationship. Managers and secretaries who work in automated offices show a high level of satisfaction with their automated equipment. Twice as many secretaries as managers cited the need for more training and instruction. Secretaries are almost exclusively female (99%); managers are mostly male (84%).

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Summary of Findings By Issue

Relationships Between Bosses & Secretaries

- Managers tend to overestimate the time that secretaries spend on traditional tasks and underestimate the time spent on non-traditional tasks.
- Half of the managers report wasting more than 10 percent of their time on minor tasks and do not delegate these tasks to secretaries, either because the nature of these tasks makes them impossible to delegate (50%) or that they think their secretaries are already too busy (37%).
- Fewer than one in four secretaries say they are too busy to take on extra duties.

Productivity

- Nearly twice as many bosses as secretaries say that more automated equipment would help the office become more productive. On the other hand, twice as many secretaries as bosses say that more of a team relationship between managers and secretaries is needed.
- Both managers and secretaries blame each other for unnecessary interruptions that keep them from being more productive.
- Managers and secretaries agree that productivity could be improved by minimizing unnecessary interruptions, better organization of work flow and fuller use of secretaries' abilities.
- The most frequent suggestion for increasing the productivity of automated equipment is more and better training.

Automation

- Use of automated equipment is not yet widespread. More than half the offices surveyed to do not have word processing and fewer than one in 10 managers use a personal computer. At least 75 percent of the secretaries do not have access to personal computers, electronic mail and computerized scheduling and filing, while two-thirds do not have memory typewriters.
- Users, particularly secretaries, say that more and better training is the single most important change that is needed when introducing automated equipment into the office.
- Among non-users, managers are more positive about automated equipment than secretaries. Younger secretaries view the prospect of automated equipment more favorably than older secretaries do.
- Secretaries and managers who work in automated offices show a high level of agreement on office automation. Ninety percent say that automated equipment makes their jobs easier, makes routine tasks go faster and improves the flow of work through the office.

- Satisfaction varies with the level of automation: secretarial and managerial users from companies with high and medium levels of automation are more satisfied than those with a low level of automation.
- Forty-six percent of the secretarial users say that half or more of their daily secretarial work is automated. Seven in 10 secretaries say that it would be difficult or they could not handle the work load without the equipment.

Response Analysis, an independent, full-service research company headquartered in Princeton, New Jersey, conducts both qualitative and quantitative research on human behavior, attitudes and motivations for the federal government, commercial concerns and for academia.

Honeywell Inc., a \$5.5 billion company based in Minneapolis, Minn., provides high technology systems and services for energy conservation, productivity improvement, defense and information processing markets.

Continued from page 11

achieved by filtering techniques and the boot-ski connection is nearly rigid.

A second advantage is a simpler binding. The design of mechanical bindings is complicated by spring loaded mechanisms which resist boot forces while at the same time offer the travel necessary to absorb shock loads. Such complexity both drives up cost and limits reliability. Computer controlled mechanisms, on the other hand, have just two modes of operation, locked and unlocked.

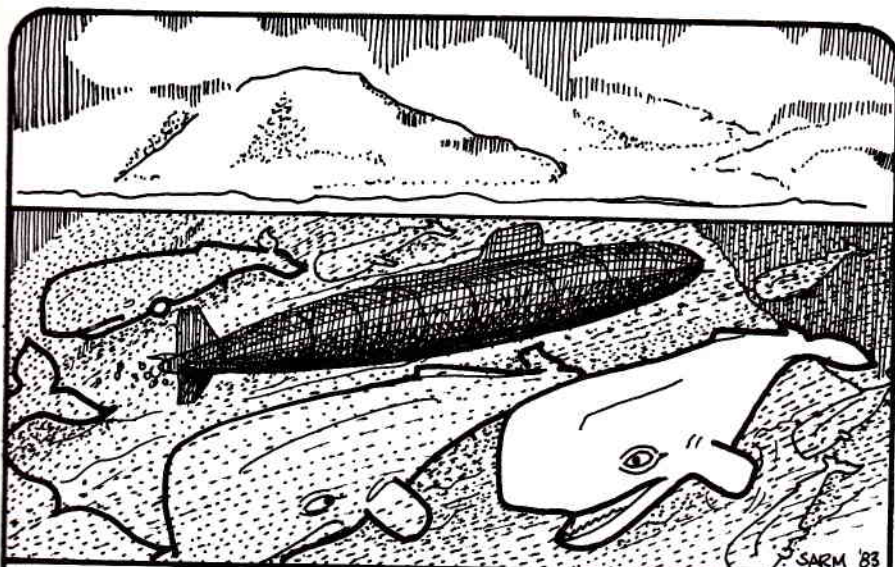
A third advantage is the elimination of the effects of friction. Release levels of computer controlled bindings are not influenced by friction, whereas mechanical bindings cause friction build-up between the boot-sole and the ski.

The fourth advantage is the performance of the release mechanism. The release accuracy of mechanical bindings is limited because they don't monitor twisting and forward bending movements of the lower leg. Computer bindings do measure various movement combinations of the ankle joints and knee.

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A SUBMARINE ADVENTURE

Commander Walter L. Bacon, of the United States Navy will discuss ocean measurement and instrumentation equipment under the polar ice cap. Commander Bacon's background in acoustical and electrical engineering combined with the story of his voyage promise an interesting and informative evening. Commander Bacon was unable to give this program at our April meeting and we have rescheduled it for the June 21 meeting.

Tuesday, June 21, 1983

PLACE: Barrister Restaurant
500 W. Mission Blvd., Pomona
Take I-10 to Garey Ave. go south on Garey Ave.
to Mission. Turn right on Mission. Restaurant
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COCKTAILS: 6:30 p.m.

DINNER: 7:00 p.m. Dinner will be free for the first
(Optional) twenty reservations. Dinner for all others
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**IEEE
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Section**

PROPOSED IRS CHANGES TO ALTER RULE ON SOFTWARE AS R&D EXPENSE

New proposed Internal Revenue Service regulations would change the long standing classification of computer software development expenses as currently deductible research and development expenses for Federal income tax purposes, the tax service director of a leading CPA firm pointed out today.

In order to qualify under proposed rules, the expenses must be "incurred for new or significantly improved computer software," it was noted by Paul D. Koehler, director of tax services for Fox & Company, one of the nation's largest CPA firms.

In addition, such expenses must not be for development of software "the operational feasibility of which is not seriously

in doubt," he said. The new proposed definition would change rules which have existed since 1969.

Koehler, whose firm offers counseling on acquisition of computer hardware and software in addition to the conventional accounting, auditing and tax services provided by CPA firms, stated that public hearings will be held on the proposed regulations on April 19, 1983.

According to Koehler, under previous regulations the costs of developing software were considered so closely to resemble the kinds of expenses deductible as research and experimental expenditure as to warrant tax accounting treatment similar to that accorded such costs. The new rules not only cast doubt upon the current deductibility of such expenses, but also do not define the proper cost amortization period for software costs.

Besides deductibility, the new rules also affect the amount of qualified research

credits allowed taxpayers. This nonrefundable direct credit against taxes otherwise payable is limited to incremental expenditures over a base period that, when fully implemented, will include the preceding three taxable years. In defining the types of incremental expenses which qualify for the credit, the same definition used for purposes of the deduction generally applies.

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MONDAY OCTOBER 17	① Software Configuration Management, Part I William Bryan Stan Siegel	⑥ Software Testing Edward F. Miller	⑪ Ada Sabina Saib Robert Fritz	⑯ Small Computer Local Area Networks J. Scott Haugdahl
TUESDAY OCTOBER 18	② Software Configuration Management, Part II William Bryan Stan Siegel	⑦ Automated Tools for Software Engineering Edward F. Miller	⑫ Introduction to C William Rieken, Jr.	⑰ Small Computer Databases Roger Sippl
WEDNESDAY OCTOBER 19	③ The Art of Software Scheduling and Cost Estimating Randall W. Jensen	⑧ Software Management Part I Donald J. Riefer	⑬ Lisp Larry Masinter	⑱ Small Computer Unix Douglas Michels
THURSDAY OCTOBER 20	④ Advances in System Design Anthony Wasserman Peter Freeman	⑨ Software Management Part II Donald J. Riefer	⑭ Prolog David Warren	⑲ Small Computer Graphics Michael K. Collins
FRIDAY OCTOBER 21	⑤ Interactive Development Environments Anthony Wasserman	⑩ Distributed Systems: Control and Applications John G. O'Reilly Paul L. McEntire Robert E. Larson	⑮ Expert Systems (Knowledge Engineering) Frederick Hayes-Roth	⑳ Small Computer Algebraic Computation Anthony C. Hearn

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LAC/PACE REPORT . . .

The LAC/PACE meeting was held on Tuesday, 19 April 1983 at 6:15 p.m. in the IEEE LA Council office. In attendance were Gene Kopp, Don Giddings and Karl H. Hering.

The following topics were discussed, with the indicated results:

- (1). Company benefit package — tabled for future action.
- (2). Alien engineers' employment — a LA Council wide meeting, consisting of a panel discussion of this issue, is being organized by Eugene Kopp.
- (3). Portable pensions — a study is recommended whether the existing IRA plans are sufficient, how much is job mobility reduced, and the needs for presentations on financial planning for retirement.
- (4). High school/college engineering career planning — suggest an effort for Section involvement (The San Fernando Section's approach is a good example).
- (5). Support of legislation and policy statements — need to get in contact with the legislative analyst's office and the legislative liaison.
- (6). Shortage of engineers — need a position paper written that will discuss the myth and the why.
- (7). Salary scales — a new survey is required to determine LA area pay scales and then relate to the national salary levels.
- (8). Member data bank — the importance of a computerized member mailing and status file was discussed. It is urged that such a file be implemented.

It was recommended to hold an LA area-wide PACE meeting at least once a year.

It was decided to hold future LAC/PACE meetings at the DWP building in downtown Los Angeles on the third Wednesday of every month. These meetings are scheduled from 7:00 p.m. — 10:30 p.m. as follows:

May 18, 1983	Room 871
June 15, 1983	Room 871
July 20, 1983	Room 871
August 17, 1983	Room 772
September 21, 1983	Room 871
October 19, 1983	Room 772
November 16, 1983	Room 772
December 21, 1983	Room 772

Any IEEE member is welcomed to attend and is encouraged to volunteer and participate. Each Section should send a representative to the LAC/PACE meetings.

Karl Hering
Acting LAC/PACE Chairman

. . . AND CORRESPONDENCE

To: Mr. Karl Hering
Acting LA Council PACE Chairman
From: Mr. Donald E. Giddings
Metro LA Section PACE Chairman
Subject: Engineering and Science
Manpower Bill

The Los Angeles Metro Section of the IEEE believes there is no crisis shortage of engineering manpower in the United States as portrayed by the conclusion of a survey made by the American Electronics Association (AEA). Senator John Glenn viewed the survey by AEA as having flaws that are associated with an industry where optimism runs rampant. Robert Borden, at the USAB workshop on November 16, and 17, 1981, indicated that engineering salaries are not shooting upward as one would expect if the shortages are as dire as stated by AEA. There is more of a problem of underutilization of engineers than a shortage of them.

Therefore, we request that the Los Angeles Council of the IEEE urge the IEEE Headquarters to cease and desist supporting the position that a crisis shortage of engineers exists.

Please inform this Section of your action. We would appreciate copies of correspondence directed to the IEEE Headquarters.

Engineers — Local/Natl



CORPORATE CAREER OPPORTUNITIES

ELECTR. ENGRS

LSI/VLSI, Anal/Dig, RF/MW/ Ant, MOS/CMOS, Ga As, ATE, Logic Des, P/S, EW, Radar, Magnetics, EMI/ EMP, ECM, Video, Sig Proc, Crypto, Laser/Op, I/O ASW, Disk Drive, Read/Write, Gate Array, Servo, IFF, Trav Wave Tube to 60K

MECH/ELECT

E/M, Pkg, Mach Des, Med TWT, NASTRAN, Magnetics, AC/DC, Finite Anal, Spec., Stress, Robotics, Liaison, Hydro/Mech, HVAC, Calc, Ctrls/Inst, Aero/Mil, Est, ASME, CAD, Mat, Structures, Wave Guide Sub Sta, ANSI to 55K

MFG/IND ENGRS

Cost Est, Fac, Methods Pkg, Tooling, Process, New Pdt Intro, Assy, NC/CNC, Machining, E/M, Eq Just, Stds, Layout, CAM, Mfg Planning, PCB, Weld, Sheet Mtl, Metallurgy to 44 K

SALES/AP ENGRS

Field Svc, Customers Support to 36K +

SOFTWARE

2901 Bit Slice, Firmware 6800, 8086, TTL, ECL, VAX/ UNIX, Avionics/C3 Voice/ Data, X-25/SDLC ASYNC/ BYSYNC/HP, CMS-2, Image Proc, Radar, Simulation, Network, Secure Systems, Microcode to 63K

QA DIR/TEST

Rel/Maint-Components, ATE, Prog, MIL, NDT, Stat Anal, Mech, Sys. E/M, MRB, DOD Fail Vendor Audit, Anal, Des Review, ASME, Elec to MID 40's

DESIGN/DRAFT

CAD, Layout, Prog, CAM, E/M, PCB, Checkers, Tool to 32K

TECHNICIANS

R & D, Production, Test Field Svc, Analog/Digital/Mech, RF/Microwave to 32K

OTHER OPPS

Program Mgmt, Purchasing Contracts, Tech Writers, Facilities to 38K +

AEROSPACE

FORWARD RESUME TO:

18582 Marion Way, Suite #5756
Villa Park, CA. 92687

Management Consultants
Employer Retained



MEETING IN LOS ANGELES, MARCH 17, DISCUSSED THE USAB TASK FORCE ON REGISTRATION

William E. Murray

The Los Angeles Council was honored on March 17 with a visit by Joel Snyder, Chairman of the IEEE USAB Task Force on Registration. The purpose of this visit was to acquaint the local IEEE leadership with the USAB activities in the area of professional engineering registration and to review the preparation of questions for the Electrical Engineering Registration examination. A very active and useful discussion was conducted. We felt that this important subject should be reported to you.

We, the IEEE members, have been requested to assist in the preparation of realistic examination questions requiring professional judgement, thereby to replace problems that are presently considered too academic; at best, the type found in textbooks for senior-level courses. It was noted that the National Council of Engineering Examiners (NCEE) recently found it necessary to reject one examination entirely, because it was judged to be too much like an EE Senior class examination.

Recently, the content of the professional EE examination was challenged by Ralph Nader under the Consumer Protection Act and the Freedom of Information Act. Consequently, a major effort is now in progress to develop exams that are representative of the needs for registration to protect the public.

IEEE conducted a survey of 10% of our U.S. members, using a questionnaire developed with the assistance of the SAT (Scholastic Aptitude Test) staff. This 10% random sample is considered representative of the entire membership. The results were analyzed and reported in a three-volume report. It was discovered that, as expected, most licensed Professional EE's are employed in the power engineering field. However, a total of 704 engineering specialties were identified in this field.

Each examination was developed in the past as a Test Syllabus, but now each is contained in a Test Specification. The Test Specification has been developed for the October 1983 exam, but preparation of the Test Specification for the Oct-Nov, 1984 exam is still in progress.

The IEEE USAB is now soliciting members to build up a cadre which will help NCEE to prepare a data bank of questions of more professional quality. These new questions will be offered to NCEE, which will pay \$50 to the author of each

question accepted for use. This offer was advertised in both the SPECTRUM and the EE Times and will soon be advertised again. By law (Consumer Protection Act?), these ads must be public — not restricted to IEEE members alone — and they must cover a cross-section of professional activities and geographical areas. Camera-ready copies of the SPECTRUM article will be sent soon to every Section and Council Chairman.

It was suggested that teachers of PE exam courses and registered engineers listed in current rosters should be invited to participate in the proposed cadre. A workshop for those interest in writing questions also was suggested as a cost-effective means of building up a cadre of authors.

The IEEE is now represented on two NCEE committees; Liaison Committee and the Professional Examination Advisory Committee. Only those societies that have licensed specialties are on the Advisory Committee.

Mr. Snyder briefly reviewed the present scope and content of a typical exam as follows:

There are 19 questions in the specialty field (e.g. Electrical Engineer) in each exam, plus one engineering economics question which is common to all specialty exams. The examinee must select eight questions. The present content of the 19 questions for the Professional EE exam is: Power (8 questions), Electronics (6), Control Systems (3) and Computers (2).

It was noted that NCEE presently uses the mean raw score less 1/4 (sigma) to define a minimum acceptable or passing score for each problem. This method of evaluation has been challenged and is no longer considered to be legally defensible, so NCEE now plans to go to a Panel of Experts to define a minimum qualifying (acceptable) score for each question.

Under the "question data-bank" plan, each preparer must make a profile for his/her proposed original question; for example, a 5 may be considered "unqualified", a 6 may be "marginally qualified" and a 7 may be "qualified", with a perfect score of 10.

In addition, the level of professional judgement required to solve the problem must be defined by the preparer on the basis of four levels of difficulty. The goal for future exam questions is to have strong design and judgement requirements. For example, the question may require the examinee to select one of several designs, then to analyze and justify the choice. Each question should require 30 to 40 minutes to solve, by a qualified examinee.

Further interesting discussions covered the registration process, the makeup of state examining or professional registration boards, industrial exemptions, inde-

pendent consulting verses employee design work in licensed fields, professional engineering internship, experience requirements, certification programs for skills maintenance and license renewal. It was concluded that our members' views on these topics are likely as diverse as the 704 specialties and the many types of careers which we occupy. Nevertheless, it was agreed that continued dialogue on these and related topics will be necessary to arrive at an acceptable national professional licensing program and to guide USAB in formulating and maintaining acceptable positions and policies.

IT WORKS! LAC HISTORY IS ALIVE

We ran an article in the May Bulletin, listing the early chairmen of the Los Angeles Section of AIEE. We also asked for help in filling in gaps in our records. Well, bless him, Mr. Ken Dauwalder, a former Director of AIEE and retired telephone company EE called the office the other day with the bulk of the missing list. We certainly appreciate his diligent research.

YEAR	NAME
1934-1935	Fred Garrison
1935-1936	O. W. Holden
1936-1937	J. C. Gaylord
1937-1938	W. F. Grimes
1938-1939	David Hall
1939-1940	Mark A. Sawyer
1940-1941	J. M. Gaylord
1941-1942	F. C. Lindvall
1942-1943	T. M. Blakeslee
1943-1944	Lloyd F. Hunt
1944-1945	Pual L. Johnson
1945-1946	Earl S. Condon
1946-1947	E. W. Morris
1947-1948	H. D. Strong
1948-1949	Bradley Cozzens
1949-1950	E. L. Bertannier
1950-1951	J. H. Vizian
1951-1952	E. J. Sadler
1952-1953	E. W. Rockwell
1953-1954	C. A. Wells
1954-1955	G. T. Harness
1955-1956	W. S. Peterson
1956-1957	P. L. Savage
1957-1958	H. A. Lott
1958-1959	E. Dale Barcus
1959-1960	Fred Foulon
1960-1961	Robert Milmoe
1961-1962	L. L. Grandi

Just to complete the record, next issue we'll list the Los Angeles chairmen since the merger that formed IEEE.

And, to allay the fears of those of you who commented, the sketch of the emblem that will go on the Los Angeles Council banner we ran last month was only a *working drawing*. The final product will have a much more finished appearance!

**SANTA MONICA BAY
SECTION MEMBERS:
SEE BALLOT ON PAGE 5
VOTE!**