EDITOR'S PROFILE of this issue

from a historical perspective …

with Paul Wesling, SF Bay Area Council GRID editor (2004-2014)

February, 1975:

Cover: A map shows the boundary of the proposed new IEEE SF Bay Area Council, with three Sections shown: a Santa Clara Valley Section; an Oakland-East Bay Section; and a San Francisco Section. The dividing line on the Peninsula is Highway 92 (the Half Moon Bay road). The story is on page 4D.

Page 4D: A major reorganization is announced, to bring the Section organizations into better communication with its chapters. The new SF Section has 1,318 members; the new OEB Section has 1,677 members; and the new SCV Section has 6,312. Of the 22 existing chapters, 20 will be in the SCV Section, and two in the SF Section; OEB will form several new chapters in specific areas. A nomination committee is set up for each new Section to select potential new officers.

Page 6: Lin Wu, of Amdahl Corp, gives a talk on the test philosophy for their computer subsystems. He headed up the VLSI chip development department at Amdahl; I worked with him on several projects while I was at Amdahl.

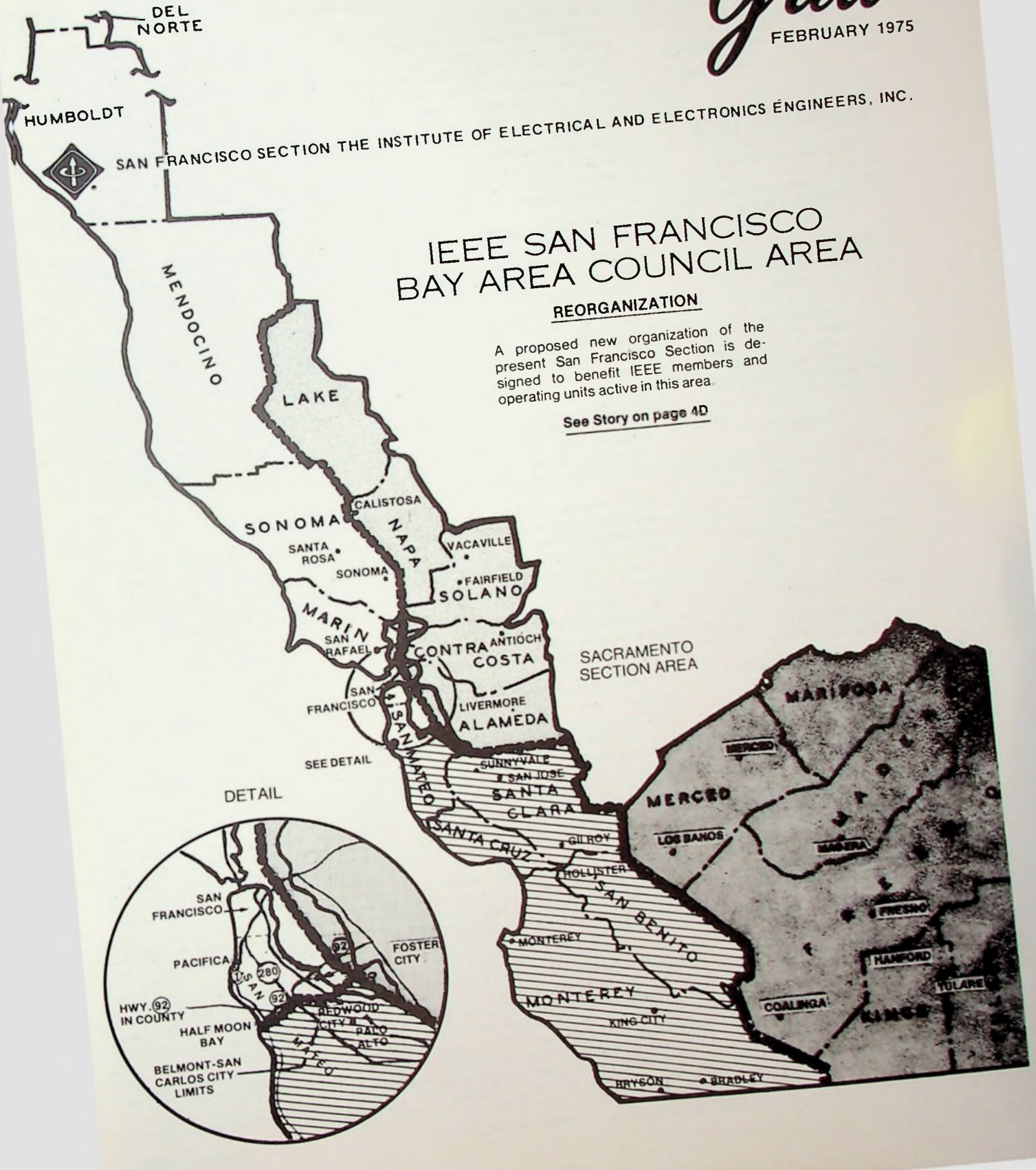
Grid
FEBRUARY 1975
SAN FRANCISCO SECTION THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, INC.

IEEE SAN FRANCISCO BAY AREA COUNCIL AREA

REORGANIZATION

A proposed new organization of the present San Francisco Section is designed to benefit IEEE members and operating units active in this area.

See Story on page 4D



Grid

volume 21
number 5

FEBRUARY 1975

Published monthly except June, July, August and December by San Francisco Section Institute of Electrical and Electronics Engineers

Address all mail except address change to
San Francisco Section Office, IEEE
Suite 2210, 701 Welch Road
Palo Alto, California 94304
Telephone: (415) 327-6622
Jean Helmke, Office Manager

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THE COVER STORY

Surprise - See story on page 4D

"THANK YOU"

from the editor for the prompt response to meeting deadlines for the February GRID. Considering the holidays, and the IEEE office being closed for a week to give Jean Helmke a break, everyone cooperated to meet the situation very well.

PROFESSIONAL ACTIVITIES COMMITTEE

"The Reusables"

'No deposit - no return' someday may be considered as the most appropriate description of the present stage of our industrialized society. With disposable beverage cans littering our roadsides and parks, some people suggest that the reusable container should be re-introduced. In a recent TV editorial, it was even asserted that we could save a sizeable amount of energy if we did not have to manufacture the many tons of disposable bottles and cans every year.

Despite the appeal of such agruments to re-introduce the reusable container, the opposing voices claim that if throw-aways are abolished, many people would become unemployed. For most of us, it seems that our jobs must depend on an every increasing pace of waste and forced obsolescence. Up to now, the waste of containers and the forced obsolescence of automobiles, appliances, and clothing styles has been enough to satisfy the needs of the industrial machine. The time has come, however, when disposable products are not enough. To the pile of waste, now we must add disposable people.

In the private world of engineers, the disposables are the 'overqualified', the 'obsolesent'. They are all those thousands who have lost their jobs and are never to be allowed to return to their chosen occupation; they are the middle age engineers who must vegetate at some dead end job because for them no employer will allow a fresh start in a new field (at any price). In a few short years, the younger 'tigers' of today may become the disposables of tomorrow; and in a few more years, the recent grads now being wooed by college recruiters may find that engineering career paths are collision courses to the scrap heap. To maintain a market for the fresh-off-the-assembly-line graduates and to maintain a constant supply of cheap technical labor, we must have disposable engineers.

Must engineers become the victims of the same industrial machine which they have helped to create, or can we find ways to end this waste of human resources? Should we regard the engineer as a container of recent technology, to be used and discarded; or is the engineer a perpetual learner and a problem solver to be used again and again, retrained and refurbished, and applying new skills and technology to new problems? Ways must be found to transfer our skills from micro-electronics to power plant design, from trajectory analysis to nuclear energy; and employers must be convinced that ultimately thier own interests will be served by supporting the reusable engineer. The current practice of wooing recent grads while rejecting not-so-recent grads will fill our society with increasing numbers of ex-engineers who always will be available to advise the young students away from the engineering field. Eventually the graduate engineer may become as extinct as the chimmey-sweep.

What do you think? Can employers and engineers work together for the benefit of both to convert disposables into reusables?

. . . . . .

The above article has been reprinted with the permission of the IEEE Long Island Section PULSE, where it originally appeared. With National Engineers Week being this month, the concerns it raises are particularly timely.

The next meeting of PAC, San Francisco Section will be in San Francisco at 7:30 PM on Monday, February 10, 1975 at:

Suite 3000
Ferry Bldg. S.F.
(Embarcadero at Market Street)

and is open to all IEEE members. For further information please contact the undersigned, telephone: (415) 877-4511 or the Palo Alto IEEE Office.

Hank Hanig, PAC
San Francisco Section

PEAKING POWER STORAGE

The Power Engineering Society, Industry Application Society and Golden Gate Subsection will hold a joint meeting featuring a presentation on a new approach to peaking power systems. Peaking power storage utilizing batteries and solid state technology is a most promising method of load-leveling by storing off-peak generating-capacity energy for use during peak load periods.

This talk will be presented by Mr. Moon Yuen, project engineer in Bechtel Corporation's Scientific Development Division. Mr Yuen has been a long-time proponent of utilization of solid-state inverter-rectifier systems and has authored many papers in this and related fields.

See calendar for information and date.

IEEE MEETING CALENDAR

AEROSPACE & ELECTRONIC SYSTEMS SOCIETY
FEB. 20

Story on Page 6

LATEST ADVANCES IN HIGH SPEED DIGITAL TRANSMISSION. C. Louis Cuccia, Manager, RF Systems, Philco-Ford WDL.

FEB. 20, Thursday, 8:00 PM, Philco-Ford Auditorium, 3825 Fabian Way, Palo Alto. No dinner.

ANTENNAS & PROPAGATION SOCIETY
FEB. 15

Story on Page 7

ONE DAY LECTURE ON PRINCIPLES OF RADAR. See Jan. GRID page 8 for story, topics and registration form.

FEB. 15, Saturday, 8:30 AM to 4:30 PM, Building 44, Radio Physics Lab, SRI, Main Conference Room, Laurel Street, Menlo Park. For information call F.M. Tesche (415) 845-5019 in Berkeley.

COMMUNICATIONS SOCIETY
FEB. 11

Story on Page 8

A NEW FAMILY OF DIGITAL FACSIMILE SYSTEMS. Donald R. Weber, Senior Vice Pres. Engineering, Dacom, Inc.

FEB. 11, Tuesday, 8:00 PM, Dacom, Inc., 2972 Stender Way, Santa Clara. No dinner. For information contact E.K. Peterson at (415) 591-8461.

COMPUTER SOCIETY
FEB. 19

Story on Page 6

NATIONAL'S SINGLE CHIP 16-BIT MICROPROCESSOR. Gary Miller, National Semiconductor, Santa Clara.

FEB. 19, Wednesday, 8:00 PM, University of Santa Clara, Daly Science Hall, Rm. 207. Cocktails at 6:15, Benson Parlors at Benson Center. Dinner at 6:45 PM, Univ. of Santa Clara, corner of the Alameda and Santa Clara Street. Reservations: Lil Redford (408) 742-5395 by noon, Feb. 17th.

CONTROL SYSTEMS SOCIETY
FEB. 27

Story on Page 6

TEST PHILOSOPHY OF AMDAHL COMPUTER ELEMENTS. Lin Wu, Director Machine Technology, Amdahl Corp., Sunnyvale.

FEB. 27, Thursday, 8:00 PM, Amdahl Corp., 1250 East Arques Ave., Sunnyvale. Cocktails at 6:00 and dinner at 7:00 PM at Smugglers Inn, 1299 Lawrence Expressway, Santa Clara (off El Camino Real). Reservations: Lawrence Lam or Jane Breiding (415) 764-6000 by noon, Feb. 27th.

ELECTRON DEVICES
FEB. 18

MULTI-STAGE COLLECTORS & ELECTRON BEAM REFOCUSING. Speaker to be announced.

Place to be announced. No dinner.

ENGINEERING IN MEDICINE & BIOLOGY
FEB. 10

JOINT MEETING WITH BAY AREA CHAPTER OF CALIFORNIA MEDICAL INSTRUMENTATION ASSOCIATION. APPLICATION OF NUCLEAR MEDICINE. Jorge A. Franco, M.D.

FEB. 10, Monday, 8:00 PM, Stanford Medical Center, Room M 104. Cocktails at 6:00 and dinner at 7:00 PM at Stickney's, El Camino and Embarcadero, Palo Alto. Reservations: Melanie Messman (408) 732-6000 by Feb. 7th.

GOLDEN GATE SUBSECTION/ INDUSTRY APPLICATION/POWER ENGINEERING
FEB. 18

Story on Page 2

JOINT MEETING. PEAKING POWER STORAGE UTILIZING BATTERIES & SOLID STATE TECHNOLOGY. Moon Yuen, Bechtel Corp.

FEB. 18, Tuesday, 7:30 PM, PG&E, 245 Market St., S.F., Conference Rooms A & B, first floor. Dinner: PG&E Cafeteria, 3rd floor, 77 Beale St., S.F. Reservations: Ram Gupta (415) 781-4211, Ext. 3728 or Carol Franke, Ext. 1441 by Feb. 10th.

INDUSTRIAL ELECTRONICS & CONTROL INSTRUMENTATION/ INSTRUMENTATION MEASUREMENT
FEB. 19

Story on Page 7

CAPABILITIES AND APPLICATION OF INTEGRATED CIRCUIT PRESSURE AND TEMPERATURE TRANSDUCERS. Gary Hess, National Semiconductor Corp., Santa Clara.

FEB. 19, Wednesday, 8:00 PM, Rickey's Hyatt House, 4219 El Camino Real, Palo Alto, North Patio Room. Cocktails at 6:30 and dinner at 7:00 PM. Reservations: Marge Booth (408) 289-3342 by Feb. 18th.

INFORMATION THEORY
FEB. 26

Story on Page 6

THE SHANNON LECTURE: ON BANDWIDTH. Dr. David Slepian, Bell Laboratories, and EE Prof., Univ. of Hawaii.

FEB. 26, Wednesday, 8:30 PM, SRI Conference Room B, 333 Ravenswood Ave., Menlo Park. Dinner: 6:30 PM at The Winery, 2391 El Camino Real, Palo Alto. Dinner reservations: Ms. Carrington (415) 497-4539 by Feb. 25th.

MAGNETICS SOCIETY
FEB. 27

AMORPHOUS MAGNETIC MATERIALS. Kenneth Lee, Manager, Materials, Synthesis and Analysis, IBM Research Lab., San Jose.

FEB. 27, Thursday, 8:00 PM, Hewlett-Packard Auditorium, 5301 Stevens Creek Blvd., Santa Clara. No dinner.

MICORWAVE THEORY & TECHNIQUES
FEB. 20

Story on Page 7

GENERALIZED DESIGN OF FILTERS, COUPLERS AND PHASE EQUALIZERS BY COMPUTER OPTIMIZATION. S.B. Cohn, Consultant.

FEB. 20, Thursday, 8:00 PM, SRI, Building 44, Laurel St., Menlo Park. No dinner.

NUCLEAR & PLASMA SCIENCES SOCIETY
FEB. 18

Story on Page 7

PROBING THE PYRAMIDS WITH COSMIC RAYS. Prof. Luis Alvarez, UC Berkeley and Lawrence Berkeley Laboratory.

FEB. 18, Tuesday, 8:00 PM, Lawrence Berkeley Lab, East End of Hearst Ave., Berkeley. No dinner. Reservations: Mrs. Cynthis Whiteside (415) 843-2740, Ext. 6341 by Feb. 18th.

POWER ENGINEERING SOCIETY
APRIL 2 - JUNE 4

Story on Page 4C

COURSE ON ELECTRICAL DESIGN OF INDUSTRIAL, COMMERCIAL AND POWER DISTRIBUTION SYSTEMS. Speakers from Industry.

APRIL 2 - JUNE 4, Wednesdays, 6:00 PM, PG&E building, 245 Market St., first floor conference Room B. Reservations: Richard Webster (415) 781-4211, Ext. 3143 by April 2nd.

RELIABILITY
FEB. 19

Story on Page 8

CONSUMER PRODUCT SAFETY & RELIABILITY - OUR HOT LINE TO WASHINGTON. Joseph Darby, US Consumer Product Safety Commission.

FEB. 19, Wednesday, 8:00 PM, PH 101, Stanford Physics Lecture Hall. Cocktails and dinner 6:00 PM, Stickney's, El Camino at Embarcadero, Palo Alto. Reservations: Section office (415) 327-6622 by Feb. 19th.

SYSTEMS MAN & CYBERNETICS SOCIETY
FEB. 19

Story on Page 6

FIRST IN A SERIES OF TALKS ON SYSTEMS APPLICATIONS IN THE ENERGY FIELD - SOME ASPECTS OF CURRENT WORK ON ENERGY MODELING. Dr. Frank J. Alessio, Electric Power & Research, Palo Alto.

FEB. 19, Wednesday, 8:00 PM, Conference Room B, SRI, 333 Ravenswood Ave., Menlo Park. Dinner 6:15 PM, Butterfield's, 1706 El Camino, Menlo Park. Reservations: Marty Tannenbaum, (415) 326-6200, Ext. 4167 by noon Feb. 18th.

VEHICULAR TECHNOLOGY
FEB. 17

Story on Page 6

TOUR OF SUTRO TOWER. Harry Jacobs, Chief Engineer, Sutro Tower, Inc., San Francisco.

FEB. 17, Monday, 8:00 PM, Sutro Tower, Mt. Sutro, San Francisco. No dinner. Limited to 40 persons. Reservations: Mark Yound at (415) 349-3111 by Feb. 14th.

PARTICIPATE IN ENGINEERS' WEEK ACTIVITIES FEBRUARY 16 - 22, either in San Francisco or the Santa Clara - San Jose areas. Stories of activities on page 8. Information on how and where to make reservations for banquet Thursday evening February 20 in San Francisco, and Friday February 21 in San Jose. The theme for Engineers' Week in 1975 - "Exploring New Energy Frontiers." Prominent speakers, many student scholarships and awards. See you there!

SAN FRANCISCO SECTION —— 1975 FELLOWS ELECTED

Donald A. Dunn

David G. Luenberger

Sydney R. Parker

Richard L. Comstock

DONALD A. DUNN

For contributions to the development of telecommunications policy.

Donald A. Dunn is professor and associate chairman of the Department of Engineering Economic Systems at Stanford University and is chairman of the School of Engineering Television Advisory Committee.

He received the B.S. degree in electrical engineering from Caltech in 1946 and the M.S. degree in 1947 and the Ph.D. degree in 1956 in electrical engineering from Stanford. He also received the LL.B. degree from Stanford in 1951. Dr. Dunn is a member of the bar of the state of California and has been admitted to practice before the U.S. patent office. He has published over 40 papers in various fields of physics and electronics including microwave electron tubes, microwave power systems, and computer simulation of plasmas. He is the author of the book, *Models of Particles and Moving Media*, published in 1971. His recent publications are in the field of telecommunications policy.

Dr. Dunn is a member of the AAAS and the American Economic Association. He has been chairman of the San Francisco section of the IEEE, co-chairman of the WESCON technical program committee, and chairman of the International Symposium on Microwave Power.

DAVID G. LUENBERGER

For contributions to modern control theory.

David G. Luenberger received the BS degree from California Institute of Technology, and the MS and PhD degrees from Stanford University, all in electrical engineering. Since 1969 he has been on the faculty at Stanford, presently as Professor of Engineering-Economic Systems and Electrical Engineering.

During 1971-1972 Dr. Luenberger was Technical Assistant to the Director in the Office of Science and Technology, Executive Office of the President. In 1973 he was a member of the Study Conference on Urban Strategies of the Research Subcommittee of the National Academy of Engineering-National Academy of Sciences Advisory Committee. Presently he is a consultant to the Congressional Office of Technology Assessment. He is author of two textbooks, and has authored or co-authored over forty technical papers.

SYDNEY R. PARKER

For contributions to circuit and systems theory.

Sydney R. Parker received the BSEE degree from City College of New York, and MS and ScD degrees from Stevens Institute of Technology. Dr. Parker served as a Radar Officer in the Signal Corps. This was followed by teaching assignments at the City College of New York, MIT, University of Houston, and Naval Post-Graduate School, Monterey, where he currently is Professor and Chairman of the Department of Electrical Engineering. He also serves as a consultant for several industrial organizations.

Dr. Parker is co-author of the text, "Principles of Control Systems Engineering", and has published over fifty technical papers. He served as President of the IEEE Circuits and Systems Society (1974), is a member of the IEEE Educational Activities Board, an active member of ASEE and ECPD, and the American Association for the Advancement of Science.

R.L. COMSTOCK

For developments in magnetic microwave devices.

Dr. Comstock obtained his Ph.D. in Electrical Engineering from Stanford University in 1962. Throughout his early career at Bell Telphone Labs and Lockheed, Dr. Comstock contributed in a significant way to the knowledge of magnetic microwave devices. He recently was recognized as an authority in this field by the publication of one of his papers in a book containing reprints of the most important articles in this area. He has also done significant work on the advancement of magnetic recording. He currently heads the IBM San Jose Lab's Advanced Recording Department.

Dr. Comstock has also been active in promoting technical educational programs by his activities with universities. His most recent participation was in the Digital Systems Seminar at Stanford, presenting a talk on "Technologies for Computer Files". In his position at IBM, Dr. Comstock has shown his leadership in the magnetic recording field by being selected chairman of the in-house technology committee on magnetic recording, coordinating contributions on this subject from all areas of IBM.

PROFESSIONAL ACTIVITIES SURVEY

The following questionnaire represents part of the efforts of your Professional Activities Committee (PAC) to obtain a more accurate reading of members' viewpoints. Your responses will form a basis for PAC activities. Please take a moment to complete and return the following questionnaire.

1. How would you rate the results obtained to date by IEEE with regard to pension legislation?

☐ Excellent, ☐ Good, ☐ Acceptable, ☐ Poor, ☐ A Failure, ☐ I Am Not Up To Date On This Issue, No Opinion.

2. What is your estimate of IEEE's effect on you and your job with respect to the following categories? Consider the composite effect to date in each category.

	Made Worse			None	Improved		
	-3	-2	-1	0	+1	+2	+3
Salary							
Working Environment							
Pension							
Professional Standards							
Technical Expertise							
Job Security							
Job Satisfaction							
Public Image							
Political Power							

3. How would you change the present method of selecting National IEEE officers?

☐ Leave unchanged; present method is satisfactory.
☐ I am not familiar with the details of how a nominee is chosen.
☐ Nominating committee should propose multiple choice.
☐ PAC should investigate additional choice of methods.
☐ No opinion
☐ Other

4. Predictions of engineering shortages and descriptions of Engineering as a career are being publicized, especially to students. Organizations representing colleges and industry seem to be the only sources of data to support shortage predictions. Based on your own experiences, observations, and/or other sources of information, what is your estimate of the supply/demand picture for you at your particular experience level?

	1965	1970	1975	1980
Engineers $\ll$ Jobs				
Engineers $<$ Jobs				
Engineers $\approx$ Jobs				
Engineers $>$ Jobs				
Engineers $\gg$ Jobs				

5. Conversations with some engineers in the over-40 group, reflect a feeling of age bias against them. To what extent should PAC become involved in the apparent age bias problem for engineers?
(a) None ☐ ,(b) Some ☐ ,(c) Reasonable ☐ ,(d) Great ☐ ,(e) Very Great ☐ (including legal action where necessary).

6 If it were possible to set the level of IEEE support for PAC activities, what portion of your present dues would you agree to have alloted for PAC activities?
(a) None ☐ ,(b) 1-20% ☐ ,(c) 20-40% ☐ ,(d) 40-60% ☐ ,(e) 60-80% ☐ , (f) Over 80% ☐ .

7. To help us interpret the response from this questionnaire, please supply the following information about yourself:
(a) Degree: None ☐ , Asso. ☐ , BS ☐ , MS ☐ , PHD ☐ .
(b) Experience (yrs.): 0-5 ☐ , 6-10 ☐ , 11-20 ☐ , 21-30 ☐ , Over 30 ☐ .
(c) Age (yrs.): 20-30 ☐ , 31-40 ☐ , 41-50 ☐ , 51-60 ☐ , Over 60 ☐ .
(d) Salary (thous.) : 10-15 ☐ , 16-20 ☐ , 21-25 ☐ , 26-35 ☐ , Over 35 ☐ .
(e) Supervisory Level: Non-supervisory ☐ , 1st or 2nd level supervisor ☐ , Middle management ☐ , Upper management ☐ .
(f) Employment Field: Utilities ☐, Civil Service ☐, Teaching ☐, Research ☐, Mfg.-electronics ☐, Mfg.-aerospace ☐, Mfg.-other ☐, Consultant ☐ ,Employed in non-engineering field ☐ ,Unemployed ☐ .
(g) If employed in engineering, to what extent are your background and capabilities utilized? Fully ☐ , 90-70% ☐ , 70-50% ☐ Under 50% ☐
(h) How many hours, on the average, do you devote directly to your employer per week? _____ hrs.
(i) How many additional hours per week on the average do you devote to your profession in such areas as service on committees, class attendance, home study, etc.? _____ hrs.

8. The Professional Activities Committee of the S.F. Section believes that improved service can be provided to the membership, if the membership is given the opportunity to voice its thoughts and opinions. For this purpose, how often would you be willing to receive and return a questionnaire such as this one?
(a) Never ☐ , (b) Once a year ☐ , (c) 2 times a year ☐ , (d) 3-4 times a year ☐ , (e) Over 4 times a year ☐ .

9. Comments and suggestions: _____

_____

_____

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ANNUAL MULTI-TOPIC ENGINEERING SYMPOSIUM

Education Committee of the San Francisco Section will present a one day multi-topic Engineering Symposium to be held on Saturday, May 10th, 1975 at the campus of the San Franicsco State University.

There will be nine sessions, three held concurrently and each will be devoted to selected programs of interest to all IEEE members.

Qualified and noted experts invited from local industries will talk on carefully selected subjects such as principle, concept and application of Microprocessors and Microprogramming; application of computers in design and operation of power, electronics and space projects; source, economy and future of energy; guide in selecting equipment in the power field; safety and environmental aspects of nuclear power generating stations. There will also be topics to cover the latest development, in electronic, instrumentation and communication devices and their application.

A special series of outstanding management films will be presented during the entire program. These films will cover areas such as management by objectives, motivation and productivity, and the effective executive.

In cooperation with the PAC Committee the luncheon speaker will brief all the participants on the new laws effecting the entire engineering profession and the future of the engineers.

MARK THE MAY 10th ON YOUR CALENDAR AND PLAN TO ATTEND THIS OUTSTANDING PROGRAM FIRST EVER TO BE SPONSORED BY OUR SECTION AT LARGE.

Please look for details of the outstanding program in the future issues of the GRID.

For information and suggestions please call Tom McGill of SRI (415) 326-6200 Ext. 2664 or Hadi Monsef of Bechtel Power Corp. (415) 764-3748.

IEEE NATIONAL ELECTIONS

Two IEEE members from California have been elected to Region and Division Offices for the next two years.

J.E. BARKLE
Director Division II for 1975-1976

John E. Barkle, Fellow, has been elected IEEE Director, Division II, for the years 1975-1976. Mr Barkle is Project Manager, Bechtel Power Corporation, San Francisco. He joined Bechtel in 1957, where he currently manages engineering design, procurement and construction of major steam-electric generating stations. As an adjunct to his design experience, Mr. Barkle has worked to develop the use of analog and digital computing techniques for the design and performance analysis of power plants and power systems protection. He is a graduate of Carnegie-Mellon Institute.

Mr. Barkle is a Past Chariman of the San Francisco IEEE Section, and Past Director of Region 6. He also was one of the leaders in founding and organizing the Power Engineering Group (Society) following the AIEE - IRE merger.

CARLETON A. BAYLESS
Director Region 6 for '75-'76

Carleton A. Bayless now vice-chairman of the Region has been elected Region Six Director for the coming year.

Carl is System Design Division Egnineer of the Pacific Telephone and Telegraph Company, Sacramento, California. While his career includes several positions within the Bell System, his most recent assignments include data transmission and voice frequency network transmission design, microwave radio route transmission design, inductive coordination, and electrical protection desgin. Mr. Bayless received his Engineering Physics degree from the University of California, Berkeley and has studied Communications Systems Engineering at UCLA, Stanford University, and the University of Michigan.

MINICOMPUTERS

Hardware, Software & Applications

A one-day short course to be offered by the San Francisco Section in cooperation with the Educational Activities Board (EAB) of the IEEE. This course, based on the IEEE Press book by the same title, is one of the most popular courses offered by the EAB.

Saturday, April 19, has been selected as the date for offering this tutorial short course at the Bold Knight restaurant in Sunnyvale. Please reserve this date for an excellent educational opportunity sponsored by the IEEE. Further details available from the Section Office (415) 327-6622, or from Tom Magill (415) 326-6200, Ext. 2664.

POWER EDUCATIONAL COURSE

Electrical Design

A course on the Electrical Design of Industrial, Commercial, and Power Plant Distribution Systems will be given by the Power Engineering Society with assistance from the Industrial Applications Society. It will tentatively be held from 6:00 to 8:00 PM on Wednesday evenings from April 2 through June 4 in the PG&E Bldg. at 245 Market St., San Francisco (first floor Conference Room B). Class will be terminated in time to allow BART connections. The fees will be $7.50 for IEEE members and $15 for non-members. Watch for details and application form in the March GRID. Mr. Richard Webster (415) 781-4211, Ext. 3143, Chairman of the Continuing Education Committee may be contacted.

NEW SECTION ORGANIZATION PLANNED FOR JULY 1, 1975

by E.D. Jackson, Chairman, San Francisco Section

The San Francisco Section announces a proposed change in its organization designed to unite the various elements of IEEE (Group/Society Chapters, Professional Activities Committee, Student Branches and the General Membership) at the local level under a local Administrative Group.

The rapid growth in membership in the San Francisco Section (now over 9,000 members) and the increase in Professional, Technical and Educational Activities, have outdated the current organization. Recent studies indicate a lack of inter-group communications, a remoteness between the Section and some of the other entities, and a lack of common interest between the Subsections and the Chapter/Societies. The new organization is designed to get the Administrative Groups closer to the members and unplug the communications channels.

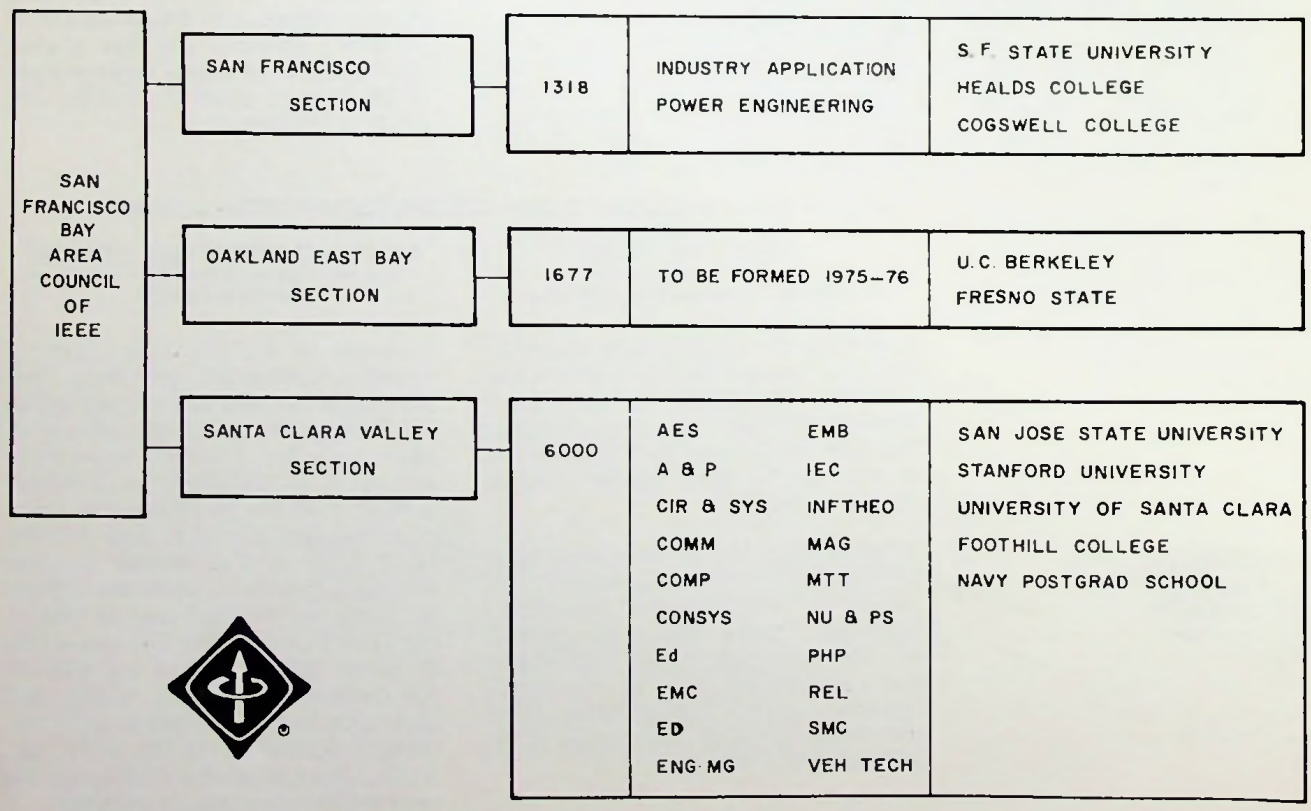
Initially, the new organization will have three Sections, each operating in an assigned geographical area of responsibility. These three new Sections will cover the same geographical area that is currently represented by the San Francisco Section. (See map on cover).

A Council Committee consisting of two representatives from each section will be formed to remove certain administrative details (GRID, WESCON/EEEI, office) from the local operating Sections so that they may concentrate on technical, professional and educational activities. The Council also will work with the Sections in identifying and coordinating major programs and objectives for IEEE in the Council area. This arrangement provides local control while retaining the strength, unity and efficiency of a large section.

The chart below shows the relationship of all members and operating groups to the new San Francisco Bay Area Council. It does not reflect the vital Professional and Educational Committees to be associated with each section. The Section you will be associated with initially will be determined by your IEEE mailing address. Adjustments can be made by calling the Section Office (415) 327-6622.

We used all the tools available to assign members and chapters to the most desirable and appropriate Sections. Initially, there appears to be an imbalance with Santa Clara Valley Section carrying a larger load. However, because of the extreme flexibility of the system, most inequities can be corrected. Sections can be added, deleted, combined or split by a simple petitioning process. Chapters also have flexibility in their formation and Section association.

Additional help is needed from you. You can support the new organization, initially, by doing committee work and, ultimately, by serving on the Executive Committee of your respective Sections. Call your Section Chairman. (See Page 5).



SANTA CLARA VALLEY SECTION NOMINATIONS FOR 1975-1976

Following are the candidates proposed by the Nominating Committee for the Santa Clara Valley Section of IEEE, to serve from July 1, 1975 to June 30, 1976.

For Chairman:
C.R. Gilliland, Barry Research Corp.
Palo Alto

For Vice Chairman:
J.A. Kirtland, FMC Corp.
San Jose

For Treasurer:
S.G. Roll, Underwriters Laboratories
Santa Clara

For Professional Activities Chairman:
J.T. Nawrocki, Philco-Ford
Palo Alto

For Secretary:
R.W. Haegele, Watkins-Johnson Co.
Stanford Industrial Park

For Secretary:
L.D. Test, General Electric Company
San Jose

SAN FRANCISCO SECTION NOMINATIONS FOR 1975-1976

Following are the candidates proposed by the Nominating Committee for the San Francisco Section of IEEE, to serve from July 1, 1975 to June 30, 1976.

For Chairman:
C.L. Ostrofe, Pacific Telephone & Telegraph Co., San Francisco

For Vice Chairman:
J. Art Wells, Artwell Electric, Inc., San Francisco

For Secretary:
Fred Doell, Pacific Telephone & Telegraph Co., San Francisco

For Treasurer:
Wes Fenner, Bechtel Corporation, San Francisco

For Professional Activities Chairman:
W.W. Raukko, Hewlitt-Packard Co., Palo Alto

OAKLAND - EAST BAY SECTION NOMINATIONS FOR 1975-1976

Following are the candidates proposed by the Nominating Committee for the Oakland-East Bay Section of IEEE, to serve from July 1, 1975 to June 30, 1976.

For Chairman:
Dale Johnson, Pacific Gas & Electric Co., Oakland

For Vice Chairman:
Terry Rossow, Lawrence Livermore Laboratories

For Secretary:
Allen Jones, Pacific Gas & Electric Co., Oakland

For Treasurer:
James Haggmark, Pacific Telephone and Telegraph, Oakland

For Professional Activities Chairman:
Jay Wiedwald, University of California

THE COVER STORY

IEEE SAN FRANCISCO BAY AREA COUNCIL AREA

See story on page 4D

San Francisco Section:
Counties in California:

Del Norte	Marin	San Francisco
Humboldt	Sonoma	Mednocino

and the Northern part of San Mateo County down to and including Half Moon Bay, Belmont, San Mateo, Foster City, and those *County mailing addresses* north of Highway 92.

Santa Clara Valley Section
Counties in California:

Monterey	Santa Clara
San Benito	Santa Cruz

and the Southern part of San Mateo County up to and including San Carlos, Redwood City, Woodside, and those *County mailing addresses* South of Highway 92.

Oakland - East Bay Section
Counties in California:

Alameda	Lake	Napa
Contra Costa	Madera	Solano
Fresno	Mariposa	Tulare
Kings	Merced	

LATEST ADVANCES IN HIGH SPEED DIGITAL TRANSMISSION

The Aerospace & Electronic Systems Society will hear from Mr. C. Louis Cuccia of Western Development Laboratories, Philco-Ford Corp., at their February 20th meeting. Mr. Cuccio will speak on the latest advances in high speed digital transmission.

Following a brief history of digital communications, Mr. Cuccia will review the latest advances in high speed transmission in Japan, the British Isles, Germany and other countries. Acutal systems will be discussed, including tables of the various techniques of multiplexing on not only microwave but also millimeter wave systems.

C. Louis Cuccia, Manager of the RF Systems Department at Philco-Ford WDL, has extensive experience in microwave and millimeter wave components and systems, and very high speed digital systems. He has written more than 60 technical articles, has over 40 patents, is chairman of the Editorial Review Board of Microwave Systems News, and Philco Representative on the CCIR Committees.

AMDAHL COMPUTER ELEMENTS

The Control System Society meeting will have as its subject on January 23, 1975, "Test Philosophy of Amdahl Computer Elements".

The speaker is Mr. Lin C. Wu. There will be a thirty minute slide show briefly describing the technologies for background information. Following that will be a tour of the testing area which includes DC Delay Tester, SOT Tester, MCC Tester, and Memory Tester. The entire talk will last approximately one hour.

Mr. Wu obtained his BS and MSEE] degree from Columbia University. He has had many years of experience in the field of high speed mainframe processors and currently is the Director of Machine Technology at Amdahl Corporation.

THE SINGLE CHIP 16-BIT MICROPROCESSOR

The Computer Society February meeting will feature a presentation on National's single chip 16-bit microprocessor, PACE. All interested persons are invited.

PACE (Processing and Control Element) is a single chip, general purpose, parallel 16-bit microprocessor implemented in silicon gate, P-channel enhancement mode technology and packaged in a 40-pin dual-in-line ceramic package. PACE contains a fixed instruction set consisting of 45 instructions types (377 individual instructions) with all address and data transactions occuring over a 16-bit wide bidirectional, fully multiplexed data bus.

Gary Miller will describe the internal architecture and device design advantages of PACE, stressing enhanced on-chip hardware capability, including a six-level vectored priority interrupt structure, four sense inputs, four control flag outputs, seven internal 16-bit wide registers, an independent 16-bit status and control register, and a ten-word (16-bit) last in, first out (LIFO) stack.

Gary Miller is a Systems Engineer with the Microprocessor Group of National Semiconductor Corporation.

ENERGY MODELS

The SMC Society is initiating a series of talks on systems applications in the energy field, the first of the series being presented at their meeting on February 19. This month's speaker, Dr. Frank J. Alessio, is currently manager of the Energy Modeling Program at the Electric Power Research Institute in Palo Alto. In his talk Dr. Alessio will describe several aspects of current work toward energy models. Dr. Alessio is particularly interested in research approaches to the dynamics of adjustment, a topic of particular concern as the nation changes it energy sources and demands. He will comment on this work as well as the activities of the Electric Power Research Institute and other efforts aimed at developing models to better understand our energy system.

The meeting will be held Wednesday, February 19, at 8:00 PM in Conference Room B at Stanford Research Institute, Ravenswood Avenue, Menlo Park. A no-host dinner will be held before the meeting at 6:15 PM in Butterfield's restaurant, Menlo Park. For reservations, phone Marty Tannenbaum at SRI, 326-6200, Ext. 4167 before noon, February 18.

VEHICULAR TECHNOLOGY

Mr. Harry Jacobs, Director of Engineering for Sutro Tower Inc., will conduct a tour of the 12 million dollar facility. Mr. Jacobs is no stranger to broadcasting or to the Mt. Sutro site. His broadcasting career extends back to the early thirties. As KGO's Chief Engineer, he was involved in installing the Channel 7 antenna and transmitter on the mountain in 1947.

Statistics: Began generation July 4, 1973; 977 feet high, 1811 feet above sea level. Tower is higher than Bank of America Building. Total weight is 1800 tons; 25,000 feet of RF transmission line, and the total project has taken over 17 years to complete.

Tour is limited to 40 persons; No dinner, guests are welcome. Tour starts at 8 PM at the tower. Phone Mark Young, Motorola Corp. at (415) 349-3111 by February 14th for reservations.

THE SHANNON LECTURE: ON BANDWIDTH

The Information Theory Group will hear Dr. David Slepian present the Shannon Lecture, on Bandwidth of Signals. The Shannon lecture, given at each International Symposium on Information Theory, was instituted to honor the contributions of Claude Shannon. The first, in 1973, was given by Professor Shannon. The second was given last October by Dr. Slepian. Especially if you were unable to attend the symposium at Notre Dame you will want to hear this most entertaining and informative lecture on a number of seeming paradoxes related to the concept of the bandwidth of signals. Resolution of these difficulities depends on understanding the role played in science by mathematical models.

Dr. Slepian is a member of the technical staff at Bell Laboratories, and a Professor of Electrical Engineering at the University of Hawaii. His fundamental contributions have received many honors.

See CALENDAR for Program Arrangements

DESIGN OF MICROWAVE CIRCUITS BY COMPUTER OPTIMIZATION

The Microwave Theory and Techniques Society will be addressed at their February 20th meeting by Dr. Seymour B. Cohn on the subject of generalized design of microwave circuits by computer optimization. The method will yield equal ripple response for a variety of components such as filters, couplers and phase equalizers. Circuits can contain lumped as well as distributed elements, and discontinuity effects can be included. Wide-band couplers and equalizers incorporating tapered lines can also be designed. Examples of these will be discussed, as well as multi-resonator filters.

Dr. Cohn received his advanced degrees in engineering sciences and applied physics from Harvard University. He was with the Stanford Research Institute, Menlo Park, California, from 1953 to 1960 and was Manager of the Electromagnetic Laboratory. In 1960 he joined Rantec Division of Emerson Electric Company, Calabasas, California as Vice President. He has been an independent consultant since 1967.

COVER PHOTOS

Cover photos for the March and April issues of the GRID would be welcomed by the editor.

INTEGRATED CIRCUIT TRANSDUCERS

The IECI/IM Group will hold a meeting on February 19 to hear Mr. Gary Hess discuss how recently developed integrated circuit pressure and temperature transducers are finding use in many diverse disiplines. Mr. Hess, Transducer Marketing Manager for National Semiconductor, will provide an insight into the capabilities of these devices, not only in traditional transducer application areas, but in non-traditional and state of the art fields as well.

Working demonstration units will be available. We hope you will attend this talk and share your ideas on application of these devices. Reservations are required only if you wish to attend the dinner before the meeting.

APS - ONE DAY LECTURE SERIES PRINCIPLES OF RADAR

The IEEE Antennas and Propagation Society will present a one-day tutorial lecture series titled "Principles of Radar", at Building 44, Radio Physics Laboratory, (SRI), Main Conference Room, Laurel St., Menlo Park, Ca., on Sat., Feb. 15, from 8:30 am to 4:00 pm.

Speakers and topics are:

"The Radar Range Equation"
Mr. John B. Damonte, Lockheed

"Search and Tracking Radar"
Dr. A.F. Sciambi, Philco-Ford

"Atmospheric Effects on Propagation"
Dr. Nicholas Cianos, SRI

"Synthetic Aperture Radar"
Dr. Daniel Levine, Lockheed

"Laser Radar"
Dr. Richard D. Hake, Jr., SRI

Deadline for preregistration is Jan. 31. Fees: IEEE member $15, non-member and late registration $20. Fees include notes and lunch (lunch guaranteed for preregistration only).

Dr. Frederick M. Tesche
Science Applications, Inc.
P.O. Box 277
Berkeley, Ca. 94701

All courses offer optional academic credit in UC-Extension's "Professional Credit" x 400 series. Information: Countinuing Education in Engineering, UC Extension, 2223 Fulton Street, Berkeley, CA 94720; (415) 642-4151

NPSS - PROBING THE PYRAMIDS WITH COSMIC RAYS

Dentists do it, Medical Doctors do it, why shouldn't Archeologists do it? Well, they should, but not without challenges that may be other than what would first come to mind.

Technology was not the stumbling block when Noble Laureate Physicist Luis Alzarez took a notion to x-(cosmic)-ray the Pyramids of Egypt in a nondestructive search for uncharted burial chambers. In addition to his world renown contributions to RADAR, including the Ground-Controlled Approach landing system, he is the master of nuclear instrumentation techniques, and indeed the conceptual founder of many. So, applying these techniques to the Pyramid project was largely a matter of logistics in installing the complex apparatus half-way around the world.

Diplomatic involvements with the Egyptian Government in the late 1960's was perhaps more the challenge. In a color slide presentation (see calendar) Dr. Alvarez will cover the stories of political intrigue and of warm personal relationships that developed as this project progressed; as well as the instrumentation techniques involved, and the results of the "probe".

This will be a program of general interest to all.

See CALENDAR for Program Arrangements

SANTA CLARA VALLEY 1975 ENGINEERS WEEK BANQUET

Engineering Society Exhibition

San Jose Hyatt House, Mediterranean Center, Friday, February 21, 1975.

Speaker: Mr. Sherman Naymark, President Nuclear Services Corporation, on:

"The Role of Nuclear Electric Power to Respond to the Nation's Energy Needs"

Sirloin Steak Dinner: $8.50 per person

Award to Outstanding Engineer

Engineering Scholarship Recipients

Schedule of Activities

Eng. Society Exhibition	1:00-5:00 PM
No Host Cocktails	6:00 PM
Dinner	7:00 PM
Program and Awards	8:00 PM

For reservations and tickets, contact: C.R. Gilliland at Barry Research, 1530 Page Mill Road, Palo Alto 94304. Phone: (415) 493-6800.

ENGINEERS' WEEK IN SAN FRANCISCO FEBRUARY 16-22

Engineering scholarship grants, student tours of local laboratories and research centers, and a banquet at Bimbo's 365 Club in San Francisco will highlight Bay Area Engineers' Week observances February 16-22.

Eleven scholarships ranging in value from $400 to $1200 will be awarded to deserving high school seniors from throughout the Bay Area who intend to major in engineering or science.

Nearly 100 applications have been received by the Scholarship Committee headed by Prof. M.C. Williams of U.C. Berkeley. Grants will be awarded at the banquet at Bimbo's on Thursday, February 20.

Since the theme for this year's Engineers' Week is "Exploring New Energy Frontiers", you have the opportunity to hear an address by Mr. Roger Zant, Deputy FEA Administrator, from Washington, D.C.

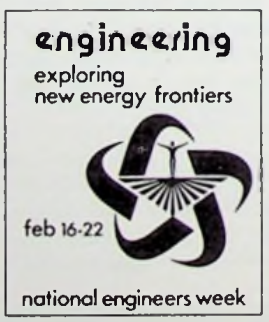
Orders for banquet tickets, at $12.50 each, should be sent to Lorne E. Swanson, C.S.O. International, Inc., 2450 Stanwell Drive, Suite 100, Concord, CA 94520. Deadline February 17.

A NEW FAMILY OF DIGITAL FACSIMILE SYSTEMS

Practical data compression solutions have led to development of a family of new, high-speed digital facsimile systems which transmit graphic material efficiently and economically. These new generation systems, along with background leading to their development, will be presented by Donald R. Weber, Senior Vice President-Engineers, Dacom, Inc., at the February meeting of the Communications Society. He will describe a sub-minute document facsimile system for phone line transmission and a graphic arts facsimile system for transmitting such publications as the WALL STREET JOURNAL and U.S. NEWS AND WORLD REPORT.

Mr. Weber is well-known for pioneering data compression and has authored many papers on the subject. He was a co-author of "Aerospace Telemetry," Volume II, By Stiltz, a Prentice-Hall publication, and has served on several technical panels. He holds several of the basic patents in picture and facsimile compression. As Senior Vice President of Engineering, Mr. Weber has directed the development of Dacom's product line for telemetry, facsimile and voice applications, featuring data compression based upon his original concepts and patents.

The presentation will be followed by a tour and an equipment demonstration at the Damon facility, 2972 Stender Way, Santa Clara. To get there, take Bayshore Freeway to the San Tomas Expressway exit in Santa Clara. Turn south onto San Tomas and continue for two blocks. Turn right (at signal) onto Central Expressway. Take second right onto Stender Way to the second building on the left. ■



CONSUMER PRODUCT SAFETY AND RELIABILITY OUR HOT LINE TO WASHINGTON

The Reliability Group will hear from Mr. Joseph Darby of the U.S. Consumer Product Safety Commission regarding the methods used to identify product related hazards, how safety standards are developed, and the enforcement strategies available to ensure compliance with existing laws for consumer product safety. In order to identify unsafe products, for example, 119 hospital emergency rooms daily feed information to Washington on accidents from home appliances (they average about one per day for each hospital).

Developing standards for safety is very time consuming since they must be both safe but not excessive, like the glass in doors that slam, or in shower doors where one could slip on the soap. Mr. Darby will describe the chain of events from a consumer's complaint, the visit of the U.S. CPSC Compliance Officer to the firm, his authority to look at files and obtain needed information, and how the laws are enforced.

Mr. Darby has been with the Navy Medical Corp., the CIA, and the Food and Drug Administration before joining the Consumer Product Safety Commission.

The talk will be given in Physics , Stanford University, February 19, at 8:00 PM. Cocktails and dinner will be at Stickney's Restaurant, Town & Country Village, Embarcadero and El Camino Roads, Palo Alto, at 6:00 PM. For reservations call Section Office 327-6622 by noon, February 19th. ■

UC-BERKELEY EXTENSION COURSES

Menlo-Atherton High School

Starting February 3:
"Advanced Sensor Technology"

Starting February 4:
"Machine Perception, Understanding and Artificial Intelligence"
"Electronic Communication Systems"
"MOFSET Device and Memory Design"

UC Campus - Berkeley

Starting February 4:
"System Design Using Digital/Linear Integrated Circuits"

UC San Francisco

Starting February 3:
"Industrial Research and Development Management"

Starting February 6:
"Energy Economics"

See CALENDAR for Program Arrangements