

EDITOR'S PROFILE of this issue

from a historical perspective ...

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

May, 1975:

Cover: A photo of PG&E's Geysers Power Plant, where a tour is planned.
See pages 6-7.

Page 2: Congressman Norm Minetta speaks at a meeting, discussing high-tech investment, and employment issues during the current recession. He had been the mayor of San Jose, and went on to become the US Secretary of Commerce, then the Secretary of Transportation.

Page 4C-4F: A history of the Power Engineering Society goes back to 1874. The PES Summer Meeting is set for San Francisco this summer

Page 4: Bob Lucky, head of the Advanced Data Communications department at Bell Labs, speaks at a ComSoc and IT meeting. Many of us remember his bimonthly column in SPECTRUM Magazine, musing about careers in engineering, and his book, 'Lucky Strikes Again'. He goes on to become the director of Bell Labs, in Holmdel NJ. In September, 2019, I needed a place to stay when visiting New Jersey, so Bob put me up in an extra bedroom at his home. He came to my "Silicon Valley" talk at his Holmdel building (now a community center), and explained to the overflow audience why the 1965 proposal by Fred Terman (funded by RCA, Johnson & Johnson and others) to grow a Silicon Valley in New Jersey was a failure. Bob had been a young engineer when he sat in on the meetings with Terman. Here's a photo of me with Bob in 2019 →.

Page 8: Dave Hodges, EE-CS professor at UC-Berkeley, speaks on integrated injection logic. In 1988, Dave is head of publications for EDS, and I'm Pubs VP for our Electronics Packaging Society. He and I start a new IEEE journal- the Transactions on Semiconductor Manufacturing. He serves as its first Editor-in-Chief. Then we ask Gary May, of Georgia Tech, to be the next EIC. Gary goes on to become the Chancellor at UC-Davis.



Archive of available SF Bay Area GRID Magazines is at this location:

https://ethw.org/IEEE_San_Francisco_Bay_Area_Council_History

At time of scanning, the bound volumes are held by Paul Wesling.

April, 2025

Contact p.wesling@ieee.org



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

Grid
MAY 1975



SECTION ANNUAL MEETING AND DINNER DANCE - PAGE 2
COUNCIL FIRST ANNUAL TECHNICAL SYMPOSIUM - PAGES 6-7
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NORTHERN CALIFORNIA SYMPOSIUM ON ANTENNAS AND PROPAGATION - PAGE 5
ICC 1975 CONFERENCE, JUNE 16-18 - SEE APRIL GRID
1975 INTERNATIONAL MICROWAVE SYMPOSIUM, MAY 12-14 - SEE APRIL GRID



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number 8

MAY 1975

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**This will be the last issue of the GRID
until September. Deadline for September
Issue is July 31, at the Office.**

VACATION

The IEEE Council Office will be closed
the week of June 16th for vacation.
Will reopen on Monday, June 23, 1975.

**1975 POWER ELECTRONICS
SPECIALISTS CONFERENCE**

June 9 - 11, 1975
Americana Hotel - Culver City, CA

For information: Ernest Levy, Jr., Confer-
ence Chairman, Hughes Aircraft Com-
pany, Los Angeles, CA, phone: (213)
648-4621.

MAY 1975

APRIL COVER STORY

For any who did not recognize the cover
on the April GRID, of course it is San
Francisco State University, which is the
locale for the San Francisco Council's
"FIRST ANNUAL TECHNICAL SYM-
POSIUM", to be held May 17, 9:00 AM-
3:00 PM. Don't miss it!

MAY COVER STORY

The striking photo used for the May GRID
cover is that of the Geysers Power Plant
of PG&E. This will be one of the subjects
included in the Council Technical Sym-
posium at San Francisco State University,
on Saturday, May 17. It also will be the
object of an Inspection trip on July 25
during the IEEE 1975 Summer Power
Meeting. See pages 6-7 of this issue.



PROFESSIONAL ACTIVITIES COMMITTEE

**Dr. Leo Young to Speak on New
Pension Law In Palo Alto
on May 12, 1975**

With the sponsorship of the San Fran-
cisco Section PAC, Dr. Leo Young,
assisted by Mrs. Young, will be con-
ducting an evening session in Profes-
sional Action at the MTT International
Microwave Symposium at Rickey's Hyatt
House in Palo Alto. This session will be
from 8:00 PM to 10:00 PM on Monday,
May 12, 1975 in room B. This session is
open to all IEEE members, with registra-
tion at the symposium NOT being
required.

Briefly, the Federal government en-
courages citizens to save for retirement
by offering tax incentives. However not
everyone can join a qualified (i.e. tax
deferred) retirement plan. A recent act,
the Employment Retirement Income
Security Act (ERISA) has established
new ground rules. But this act is only
enabling legislation, and the IEEE is now
working with other professional societies
to set up retirement plans to benefit all
our members. Dr. Young will speak on
"The New Pension Law and How You
Might Benefit From It," and answer ques-
tions in a panel discussion.

Dr. Young, now with the Department of
Defense, Washington, D.C., is this year's
IEEE Pension Committee Chairman. He
was last year's chairman of USAC, and
helped to start the San Francisco Section
PAC.

The next meeting of PAC, San Francisco
Section will be in Palo Alto at 7:30 PM on
Monday, May 19, 1975 at:

Hewlett Packard, Building 5
1501 Page Mill Road, Palo Alto, CA
and is open to all IEEE members.

FEDERAL R&D PROGRAMS

The Santa Clara Valley Section of the
American Chemical Society is to be
addressed by Congressman Norman
Mineta of San Jose on Friday, May 2,
1975 at 8:15 PM in room 135 of Duncan
Hall at San Jose State University. The
Congressman will discuss proposed
legislation to federally fund research and
development programs in high tech-
nology areas such as energy, environ-
mental controls, medicine, conservation,
etc., and their probable effects upon the
job situation and business picture in the
Santa Clara County area. Engineers of
all disciplines are invited to attend.



MEETING CALENDAR

**AES, ASSP, EM, EMC, GQSS, SCVSS
MAY 20**

Story on
Page 5

JOINT SOCIAL MEETING. Wine tasting and Barbeque dinner.

MAY 20, Tuesday, Paul Masson's Winery, Saratoga. Wine tasting at 6:30 PM, dinner at 7:30 PM - \$9.00 per person. Order tickets by sending check payable to AES, to Roger Winslow, 19455 Melinda Circle, Saratoga, CA 95070 by May 13th.

**ANTENNAS & PROPAGATION SOCIETY
MAY 8**

Story on
Page 5

NORTHERN CALIFORNIA SYMPOSIUM ON ANTENNAS AND PROPAGATION.

MAY 8, Thursday, 1:30 to 4:30 PM, Lockheed Auditorium, Bldg. 202, 3251 Hanover St., Palo Alto. \$1.00 registration fee payable at door. No reservations.

**COMMUNICATIONS SOCIETY/INFORMATION
MAY 13 THEORY**

Story on
Page 4

JOINT MEETING. DATA COMMUNICATIONS SERVICES OF THE BELL SYSTEM. A Status Report. Dr. Robert W. Lucky, head, Advanced Data Comm. Dept., Bell Tel. Labs.

MAY 13, Tuesday, 8:00 PM, SRI Conference Room B, Bldg. 1, 333 Ravenswood Ave., Menlo Park. Cocktails at 5:30 and dinner at 6:00 PM, Mediterranean Restaurant, 1120 Crane, Menlo Park. Reservations: Ken Peterson, (415) 591-8481 Ext. 573 by May 12th.

**COMPUTER SOCIETY
MAY 21**

Story on
Page 8

ELECTION MEETING! and talk on **ARCHITECTURE OF THE SMS MICROCONTROLLER.** Kenneth Krossa, Mgr. System Development and William Price, Mgr. Circuit Design, Scientific Microsystems, Mt. View.

MAY 21, Wednesday, 8:00 PM, University of Santa Clara Daly Science Center. Cocktails at 6:15 and dinner at 7:00 PM, Benson Parlors at Benson Center, University of Santa Clara, corner of the Alameda & Santa Clara Sts. Reservations: Dan Conway, (408) 742-2450 by May 19th.

**CONTROL SYSTEMS SOCIETY
MAY 15**

Story on
Page 4

ELECTION MEETING and talk on **COMPUTER OPTIMIZATION OF FREQUENCY-DIVISION SATELLITE COMMUNICATION SYSTEMS.** Dr. D.T. Magill, SRI.

MAY 15, Thursday, 8:00 PM, SRI Bldg. 1, Conference Room B, 333 Ravenswood Ave., Menlo Park. Dinner at 6:00 PM, The Refractory, 1906 El Camino, Atherton. Reservations: L. Voropaeff (415) 326-6200 Ext. 2434 or L. Lam (415) 768-2709 by 2 PM, May 15th.

**ELECTRON DEVICES SOCIETY
MAY 20**

Story on
Page 8

INTEGRATED INJECTION LOGIC: WHERE DOES IT FIT? Prof. David A. Hodges, UC Berkeley.

MAY 20, Tuesday, 8:00 PM, Stanford Room at Rickey's Hyatt House, 4219 El Camino Real, Palo Alto. Cocktails and dinner at 6:00 PM, beef bourguignonne \$7.00 incl. tax & tip. Reservations: Section office (415) 327-6622 by May 20th, noon.

**ENGINEERING IN MEDICINE & BIOLOGY
MAY 15**

Story on
Page 8

INSTRUMENTATION NEEDS OF THE DENTAL PROFESSION. Dr. Allen M. Olinger, Jr.

MAY 15, Thursday, 8:00 PM, Stanford Medical Center Room 106. Dinner 6:30 PM, Stickeny's Embarcadero and El Camino, Palo Alto. Reservations: Carla Veillette, (408) 732-6000 by noon May 15th.

**INDUSTRY APPLICATIONS SOCIETY
MAY 20**

Story on
Page 4

SETTING OF GROUND FAULT PROTECTION. Art Freund of Federal Pacific Electric and Gene Thomas of Square D Company.

MAY 20, Tuesday, 7:00 PM, Conference Room A-B, PG&E Bldg., 1st floor, 245 Market St., San Francisco. Dinner at 5:45 PM, PG&E Cafeteria, 3rd floor, 77 Beale St. Bldg. \$6.00. Reservations required. Deadline 5:00 PM, Monday, May 19, to John Moore (415) 678-5471 or Moon Yuen (415) 764-4067.

**NUCLEAR & PLASMA SCIENCES SOCIETY
MAY 20**

Story on
Page 5

HEAVY ION MEDICINE AT THE BEVALAC. Dr. John Lyman, Bio Physicist at Lawrence Berkeley Lab.

MAY 20, Tuesday, 8:30 PM, Blue Dolphin Restaurant, West end of Marina Blvd., San Leandro. Cocktails at 6:30 and dinner at 7:00 PM. Reservations: Mrs. Cynthia Whiteside (415) 843-2740 Ext. 6341 by May 16th.

**POWER ENGINEERING SOCIETY
MAY 13**

Story on
Page 4

ENERGY - A NEW GENERATION OF CHALLENGES. Dr. Tim Healy, Associate Professor of EE&CS at University of Santa Clara.

MAY 13, Tuesday, 7:30 - 9:00 PM, Engineers Club, 160 Sansome St., San Francisco. Cocktails 5:30 - 6:30 PM, dinner 6:30 - 7:30 PM. Reservations: Carol Franke, (415) 781-4211 Ext. 1442 by May 9th.

**POWER ENGINEERING SOCIETY
MAY 29**

Story on
Page 4

COMPRESSED AIR ENERGY STORAGE SYSTEMS. Dr. John Peschon, Vice Pres., Systems Control, Inc., Palo Alto and Edward Williamson, Senior Project Engineering Geologist, Woodward-Clyde Consultants, Oakland.

MAY 29, Thursday, 12:00 - 1:30 PM, PG&E Cafeteria, Third Floor, 77 Beale St., San Francisco. 11:30 AM - pick up your own lunch and meet us in the dining room of the PG&E cafeteria. Reservations: Carol Franke (415) 781-4211 Ext. 1442 by May 29th.

**RELIABILITY
MAY 21**

Story on
Page 5

BART - ENGINEERING MARVEL OR ENGINEERING FIASCO? Dr. Everett L. Welker, TRW.

MAY 21, Wednesday, 8:00 PM, Physics Lecture Hall, PH 101, Stanford University. Cocktails and dinner at Stickeny's Embarcadero and El Camino, Palo Alto at 6:00 PM. Reservations: Section office (415) 327-6622 by noon May 21st.

**SYSTEMS, MAN & CYBERNETICS
MAY 14**

Story on
Page 4

ON-LINE INFORMATION RETRIEVAL IN A PUBLIC LIBRARY SETTING. Oscar Firschein, SRI.

MAY 14, SRI Bldg. 1, Conference Room B, 333 Ravenswood Ave., Menlo Park. Dinner 6:15 PM Butterfield's, 1706 El Camino, Menlo Park. Reservations: Section office (415) 327-6622 by May 14th.

**THE 3 NEW SECTIONS OF THE SFBA COUNCIL, IEEE
MAY 17**

Story on
Page 4C

FIRST ANNUAL TECHNICAL SYMPOSIUM.

MAY 17, Saturday, 9:00 AM to 3:00 PM, San Francisco State University, 1600 Holloway, San Francisco. Registration: D.T. Magill (415) 326-6200 Ext. 2664 by May 7th.



Mark Your Calendar, Save Friday Night June 6 - 6:00 PM 'til Midnight

SAN FRANCISCO SECTION ANNUAL DINNER DANCE

Elks Club, San Mateo, 229 West 20th Avenue, Reservations accepted at

IEEE Section Office until May 30. Tickets will be mailed to you.

DATA COMMUNICATIONS SERVICES OF THE BELL SYSTEM - A STATUS REPORT

Communications Society and the Information Theory Group Joint Meeting

The demand for data communications services continues to grow at a remarkable rate with current services accounting for about a billion dollars of AT&T's annual revenue. The Bell System has responded to the variety and strength of the data market with a number of new offerings in recent years, including a new family of Dataphone modems and the introduction early this year of the Digital Data Service (DDS). Meanwhile, energetic competition from specialized common carriers and customer equipment suppliers and increasing legal and regulatory controversy have created a constant background turmoil.

This talk is one engineer's brief technical description of current and announced future data communications service and equipment offerings. It will be given by Dr. Robert W. Lucky, head of the Advanced Data Communications Department, Bell Telephone Laboratories at the May 13 joint meeting of the Communications Society and the Information Theory Group.

COMPUTER OPTIMIZATION OF FREQUENCY-DIVISION SATELLITE COMMUNICATION SYSTEMS

Frequency-division multiple access satellite communication systems present a complex optimization problem. The problem of minimizing the average bit error rate by selecting the optimum frequency assignments and the optimum carrier powers is considered for the case of a nonlinear satellite transponder. This brief talk considers the significant parameters, various optimization algorithms, and the associated computational problems for this complex communication problem.

The speaker, Dr. D.T. Magill, is a Program where he is responsible for speech signal processing and satellite communications system analysis. He received his MS and PhD from Stanford University in 1960 and 1964 respectively.

SUMMER COMPUTER SIMULATION CONFERENCE

21-23 July 1975. Summer Computer Simulation Conference, St. Francis, San Francisco, California. Reviews simulation as a tool for problem solving in the technical, social and management sciences. Sponsors: AIChE, AMS, ISA, SCS, SHARE. General Chairman: R.J. Sylvester, Martin Marietta Company, P.O. Box 179, Denver, Colorado 80201 (303) 794-5211.

SETTING OF GROUND FAULT PROTECTION

The Industry Applications Society will hear a discussion by two manufacturers on the subject of "Setting of Ground Fault Protection" at their meeting on Tuesday, May 20.

Ground fault protection on 480 volt power distribution systems has been a most important code requirement in the last decade. Although the concept of this type of fault protection is easily understood, the art and science of relay settings has been somewhat indefinite. Two philosophies of setting this type of protection will be presented. It promises to be the most definitive discussion on the subject ever to come to the Bay area.

Mr. Art Freund of Federal Pacific Electric will discuss the Kilowatt-sec concept, and their research support background.

Mr. Gene Thomas of Square D Co. will present the "Amp-Second" approach developed by H.I. Stanbeck.

The meeting will be held in PG&E Conference Room A-B, 1st floor, 245 Market Street, at 7:00 PM, May 20. Dinner will cost \$6.00 and be at the PG&E cafeteria, at 5:45 PM, 3rd floor, 77 Beale Street. *Reservations required*, deadline is 5:00 PM Monday, May 19, to John Moore, (415) 676-5471, or Moon Yuen (415) 764-4067. See calendar for arrangements.

ON-LINE INFORMATION RETRIEVAL IN A PUBLIC LIBRARY SETTING

The May Meeting of the SMC Group will feature a talk by Oscar Firschein of Lockheed's Palo Alto Research Laboratory. Over the past decade, on-line access to large technical, scientific, business, educational, sociological, and psychological data bases have been available to government and industry. Mr. Firschein will describe the dialib project, an experiment in making access to such bases available to the public through four public libraries in San Mateo and Santa Clara counties. In addition to the technical aspects of on-line information retrieval, he will discuss the impact of such a service on the library and on the public. Along with his responsibilities at Lockheed, Mr. Firschein is a lecturer at San Jose State University and in the University of California extension program.

NEW BOOK AVAILABLE

"Modern Microelectronics" is a new 960 page book made available by Research and Education Association, 342 Madison Ave., New York, NY 10017. Over 60 contributors from government, industry and universities. Price \$19.50. Available for 15 days free inspection, and REA pays postage both ways.

ENERGY - A NEW GENERATION OF CHALLENGES

The Power Engineering Society's May 13 Ladies' Night meeting will feature a presentation entitled "Energy - A New Generation of Challenges" by Dr. Tim Healy, Associate Professor of Electrical Engineering and Computer Sciences at the University of Santa Clara.

Energy crises are not unique to modern man but have also been a problem to other civilizations. Some have been more apparent and some more serious than others. Some generations found solutions and prospered while others failed and passed from history. The present generation of both technical and non-technical citizenry faces new challenges and must seek solutions to new energy problems, recognizing that these problems are technical, political, economic, and environmental.

Because of no simple solutions to the energy problem presently exist, enormously exciting opportunities have been created from this generation's response to the problem. The basic elements of the energy supply and demand problem and five approaches to solving this problem will be presented by Dr. Healy.

Dr. Healy has received degrees from Seattle University, Stanford University, and the University of Colorado. He has written a number of papers on energy, particularly in the field of energy use for transportation and has authored a textbook, *Energy, Electric Power, and Man*.

COMPRESSED AIR ENERGY STORAGE SYSTEMS

The Power Engineering Society and the Golden Gate Subsection will hold a joint luncheon meeting on May 29, 1975 featuring a presentation on the development and application of compressed air energy storage systems.

Compressed air storage (CAS) in conjunction with combustion turbines was proposed in Sweden (1949) and Yugoslavia (1950) as an alternative to conventional hydro pumped storage. A 230 mw CAS system is currently being installed in West Germany and several others are the subject of detailed economic and geological investigation.

The subject will be jointly presented by Dr. John Peschon, Vice-President of Systems Control, Inc. in Palo Alto and Mr. Edward Williamson, Senior Project Engineering Geologist of Woodward-Clyde Consultants in Oakland.

IEEE Power Engineering Society 1975 Summer Meeting

and International Atomic Energy Specialists Meeting



IEEE Power Engineering Society

DEDICATION OF PURPOSE

The IEEE Power Engineering Society is a professional organization of electrical engineers dedicated to easing the burdens of man by augmenting and amplifying, through the use of electric energy, the meager and insufficient energies available to him from his own capabilities.

Power engineering entails the application of electric energy instantaneously at power levels suited to the need, whether it be the massive quantities required to turn the wheels of industry or to provide the essentials for a humane environment, or whether it be the minute amount required to pulse a heartbeat to sustain a life.

In all its activities, the Society strives to advance the frontiers of knowledge, elevate the standards of professional excellence, stimulate technical progress, inform the public of technical pace, and to apply technical progress to the satisfaction of the real needs, both material and spiritual, of mankind.

HISTORY OF THE IEEE POWER ENGINEERING SOCIETY

The Power Engineering Society had its roots in the American Institute of Electrical Engineers, founded 101 years ago in 1874. At that time the two major developing fields were wired communication and power. Famous names like Steinmetz, Lamme, Tesla and many others dominated the power field, and contributed much to the technical literature. The publication "Transactions on Power Apparatus and Systems" was later initiated, which today includes between 400 and 500 original technical papers annually, published with discussions, totalling over 2,000 pages.

Today the Power Engineering Society's Technical Committees are engaged in developing and revising industry standards and application guides. These committees review and grade papers offered for presentation at either the two annual General Meetings, or at certain Special Technical Conferences.

(continued in column 3)

"Tomorrow's Energy - - Today's Concern"

July 20 - 25, 1975
Hilton Hotel
San Francisco, California

AN INVITATION FROM THE GENERAL CHAIRMAN



Chas. H. Sedam

"Tomorrow's Energy - - Today's Concern" is the theme of the IEEE 1975 Summer Power Meeting to be held in San Francisco July 20 - 25. The International Atomic Energy Agency (IAEA) will hold a Specialists Meeting on Nuclear Control Room Design in conjunction with the Summer Power Meeting.

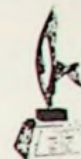
Chas. H. Sedam, General Chairman, invites all members of IEEE to register and attend this Meeting. You do not have to be a member of the Power Engineering Society to register. The Meeting is designed to provide a well-rounded program with something of interest and value to all engineers. Special emphasis is being given to latest developments in the specialties that are vital to all professional levels in today's modern power system technology.

Any IEEE or ASME member may register for \$30, and there is no fee for student registration. See page 4F for advance registration. Advance programs will be available at the IEEE Section office in Palo Alto.

E.G. Lambert, Technical Program Chairman, indicates there may be over 200 original technical papers presented at the estimated 65 half-day technical sessions scheduled. One tutorial, two symposiums, and three panel discussions are included in the program. See more on program details on page 4D-E.

The International Atomic Energy Agency Meeting is expected to draw participants world-wide.

In addition to the technical sessions, the Meeting will provide a wide range of social activities and inspection trips. ■



The Winter Power Meeting traditionally has been held in the east, and presently the Summer Power Meeting is being held in cities in western Canada, United States and Mexico. Special Technical Conferences are held at intermediate points in the United States and Canada to offer greater local participation. These STC's include Underground Transmission and Distribution, Power Industry Computer Application Conference (PICA), the Joint (with ASME) Power Generation Conference, EHV Transmission Conference, and Midwest Power Symposium. Power Engineering Society members participate in related meetings, such as the American Power Conference, IEEE International Convention (INTERCON), and CIGRE. They also assist and participate in local power conferences in Regions 7, 8, 9 and 10.

TECHNICAL OPERATIONS DEPARTMENT

The Technical Operations Department coordinates the technical activities of the Power Engineering Society through 15 committees at present. Each committee has a definite assigned scope, or charter, and frequently coordinates its work with other committees. These committees are:

- Insulated Conductors
- Nuclear Power Engineering
- Power Engineering Education
- Power Generation
- Power System Communications
- Power System Engineering
- Power System Instrumentation and Measurements
- Power System Relaying
- Rotating Machinery
- Standards Coordinating
- Substations
- Surge Protective Devices
- Switchgear
- Transformers
- Transmission and Distribution

The Power Engineering Society is truly international in character, with over twenty percent of their membership residing in Regions 7, 8, 9 and 10. Approximately fifteen percent of the PES members are active on, and devote a minimum of six days annually of their time, to the Society's technical committees. ■

IEEE Power Engineering Society 1975 Summer Meeting

Tutorial Course

APPLICATION OF POWER CIRCUIT BREAKERS

- PLACE** - 1975 PES Summer Meeting - Hilton Hotel - San Francisco
- TIME** - Thursday, July 24, 1975 - 8:30 a.m. - 5:30 p.m.
- SPONSORS** - Switchgear Committee and Power Engineering Education Committee

This Tutorial Course was organized by Mr. R.E. Friedrich of the PES Switchgear Committee. The intended purpose is to clarify the application of circuit breakers on Total Current and Symmetrical current basis, and instruct regarding other important considerations for the proper application of power circuit breakers.

INSTRUCTORS WILL COVER

- I History of Standards
- II Symmetrical vs. Total current ratings
 - (a) basis of rating
 - (b) calculation procedures
 - (c) reclosing duty factors
 - (d) overload current ratings
- III Transient Recovery Voltages
- IV Capacitance Current Switching
- V Insulation Considerations
- VI Other Factors
 - (a) test procedures
 - (b) sound levels
 - (c) seismic

PREREGISTRATION IS REQUIRED AND AVAILABLE UNTIL JULY 11, 1975

The registration fee is \$40.00. This includes the text prepared by the course instructors and is in addition to the registration fee for the 1975 Summer Meeting. A preregistration form will also appear in the program announcement. Attendance will be limited to the first 75 registrants.

PREREGISTRATION FORM

Please make check payable to:
"IEEE-PES 1975 Summer Meeting"

NAME _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

FIRM NAME _____

A receipt and full instructions will be sent to each registrant.

Please Mail Early To:
Mr. S.V. Lyon
General Electric Co.
P.O. Box 3736
San Francisco, CA 94119
(415) 546-4261

THREE PANEL DISCUSSIONS

Multiplexing Techniques for Data Acquisition and Control In Power Stations

Sponsored by Substations Committee Working Group 72.3 on Application of New Technologies in Substation Control. Panel members will be representatives from Boeing Instrumentation and Control, TRW, I.C. Engineering, So. Calif. Edison and Bonneville Power Administration.

Federal Energy Administration Approval for Instrumentation In Nuclear Plants

Sponsored by Power System Instrumentation Measurement Committee, covering problems and requirements in establishing FEA approval for test instrumentation for use during construction and operation of nuclear power plants. Panel discussion will cover: Quality Assurance Programs; Test instruments to be used; Certified test instruments; Control of test equipment; and the answer to the question, "How can the user be sure that the established procedures will suffice?"

Proposed Revision of Separable Insulated Connectors Standard ANSI C119.2-1974, IEEE 389-1974

Discussion of background history of the Standard, reasons for the proposed revision and details on the series of Electric Power Research Institute (EPRI) funded tests that were conducted to determine the validity of the testing requirements.

SYMPOSIUM - THE EPRI/HUGHES HVDC BREAKER PROGRAM

July 28, Monday 2:00 p.m. - Presentation of results of an EPRI supported program at Hughes Research Labs., Malibu, Calif., which culminated in the first successful three terminal test of an HVDC breaker on the HVDC Pacific Intertie.

Papers include:

- "HVDC Breaker - Requirement and Implementation"
- "High Speed HVDC Circuit Breaker with Crossed-Field Interrupters"
- "Three Terminal Operations of the HVDC Pacific Intertie for DC Circuit Breaker Testing"
- "Field Test of HVDC Circuit Breaker: Interruption and Fault Clearing on the Pacific Intertie"

SYMPOSIUM - "COMPACT DC TERMINALS"

Sponsored by the Substations Committee and presented by the EHV-DC Substations Working Group 64.2 chaired by Dr. Narian G. Hingorani, Bonneville Power Administration.

Scope of Symposium:

- "Compact Converter Station Layout"
- "Design and description of any converter equipment which is made compact or is suitable for compact converter stations, and in which air may be eliminated as an insulating medium"
- "Need and application of compact terminals"

Participants will include representatives from ASEA, Brown-Boveri, Hughes, Philadelphia Electric, Consolidated Edison, and General Electric.

IEEE Power Engineering Society 1975 Summer Meeting

TECHNICAL PROGRAM SESSION SCHEDULE

MONDAY JULY 21	9:00 a.m. Insulated Conductors I Nuclear Power Engineering I Power System Engineering, I, II rotating Machinery I Power Generation I Transformers I Transmission and Distribution, I, II
2:00 p.m.	Switchgear Symposium HVDC Breakers Insulated Conductors II Nuclear Power Engineering II Power System Engineering III Transformers II Transmission and Distribution III, IV, V Rotating Machinery II
TUESDAY JULY 22	8:30 a.m. Insulated Conductors III Power Generation II Power System Engineering, IV, V Rotating Machinery III Substations I Symposium Multiplexing Control Transmission and Distribution VI, VII IAEA (See announcement next column)
12:00 noon	<u>Awards Luncheon</u>
2:30 p.m.	<u>Special Session "Concern Over Nuclear Safety"</u>
WEDNESDAY JULY 23	9:00 a.m. Power System Engineering VI, VII Power Generation III Substations II Switchgear I Transmission and Distribution VIII, IX IAEA (See announcement next column)
12:00 noon	Power Engineering Education Luncheon
2:00 p.m.	Power Engineering Education Panel for Students Power System Engineering VIII, IX Power System Relaying I Substations III Switchgear II Transformers III Transmission and Distribution X, XI IAEA (See announcement next column)
THURSDAY JULY 24	9:00 a.m. Insulated Conductors IV Power Generation IV Power System Engineering X, XI Power System Instrumentation Measurements I Switchgear Tutorial (See page 4D opposite) Transmission and Distribution XII, XIII, XIV
2:00 p.m.	Power Generation V Power System Engineering XII, XIII, XIV Power System Instruments and Measurements II Power System Relaying II Surge Protective Devices Switchgear Tutorial (continued) Substation Symposium on DC Terminals
FRIDAY JULY 25	9:00 a.m. Power System Engineering, XV, XVI Power System Instrumentation & Measurements III Rotating Machinery IV Switchgear III, IV Transmission and Distribution XV, XVI

STUDENT ACTIVITIES PROGRAM 1975 SUMMER POWER MEETING

Wednesday, July 23, is the day of a full program of student activities sponsored by the IEEE Power Engineering Education Committee. Not only electrical engineers, but students and faculty in any and all other engineering disciplines are welcome to attend the following events:

- 9:30 - 11:00 a.m. - Special student tour of the new Pacific Gas and Electric Company downtown Embarcadero Substation.
- 12:00 noon - 1:45 p.m. - Student-Faculty-Industry luncheon at the Hilton Hotel. Speaker: Dr. Richard E. Balzhiser, Director, Fossil Fuel and Advanced System Department, Electric Power Research Institute, Palo Alto. Subject: "The Nation's Energy Future."
- 2:00 - 4:30 p.m. - Panel Session "Jobs for Engineers in Electric Power." Speakers from Pacific Gas and Electric Company, Southern California Edison Company, Bechtel Corp., International Engineering Co., General Electric Co., and Westinghouse Electric Corporation will address these vital questions: Where are the jobs? What are the qualifications required? What are the approaches to get the jobs? What does an electric power engineer do?

The luncheon and panel session topics will be of interest to industry representatives as well as students and faculty, and the welcome invitation to attend also is extended to them.



Control Room Diablo Canyon Nuclear Plant

INTERNATIONAL ATOMIC ENERGY AGENCY TO HOLD SPECIALISTS MEETING ON NUCLEAR CONTROL ROOM DESIGN AT IEEE 1975 SUMMER POWER MEETING

Plans have firmed for the International Atomic Energy Agency (IAEA) to hold a Specialists Meeting on Nuclear Control Room Design, in conjunction with the 1975 Summer Power Meeting in San Francisco. Dates for this IAEA Specialists Meeting are July 22, 23, and 24. The Meeting will be held within the framework of the International Working Group on Nuclear Power Plant Control and Instrumentation (IWG-NPPCI). Contributors and observers must be nominated to the Agency by their respective governments.

The IAEA Meeting is expected to draw participants from all over the world. As the name implies, IAEA is an international group of scientists and engineers with members in all major countries of the world. Their meeting will cover such subjects as: Control Room Requirements; The Use of Computers and Related Technology; The Role of the Human Operator; Facilities and Maintenance; and a Panel Discussion Regarding Standardization for Control Room Layout.

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Boston, Mass. June 9-10
San Francisco, Calif. July 14-15
Washington, D.C. August 16-17
Dallas, Tex. September 18-19

Call or write us for information.



2551 Riva Road, Annapolis, Md. 21401
Attention: Educational Programs Group
(301) 268-4000

HEAVY ION MEDICINE AT THE BEVALAC

At the NPSS Annual Meeting in May, Dr. John Lyman will discuss "What is Heavy Ion Medicine?" What role might it play in the fight against cancer? - in diagnosis? in treatment? What is Bevalac? What instrumentation techniques are employed?

Radiotherapists may have a new tool, born of the novel interconnection of two accelerators that were previously dedicated to basic research in the areas of Nuclear Chemistry and High Energy Physics. With it comes the potential for radiation treatment of tumor cells with virtually no damage to surrounding tissue.

Dr. John Lyman, a Bio Physicist at the Lawrence Berkeley Laboratory, is a project leader in the Bio-Med Heavy Ion research program at LBL. He will tell us about this new and exciting program from a survey perspective, answering the questions posed above and many others. With color slides, he will show the facilities and the results of research on the machine to date. He will outline the Bio-Med Heavy Ion program objectives and estimate the future impact (and time scale of achievement) in medical applications.

MAY 1975

**JOINT SOCIAL MEETING
AES - ASSP - EM - EMC
SANTA CLARA VALLEY AND
GOLDEN GATE SUBSECTIONS**

**Tuesday, May 20, 1975
Paul Masson
Mountain Vineyard & Winery**

Members and their guests are invited to attend this 1975 joint social event at the beautiful and historic Paul Masson Mountain Vineyard and Winery in the Santa Cruz mountains, high above Saratoga. Wine tasting will begin at 6:30 PM and the barbeque dinner, catered by Meyerberg's of San Jose will start at 7:30 PM. The menu will include a New York steak, a variety of salads, baked potato, beef bratwurst, dessert and coffee. Wine, compliments of Paul Masson's, will be served with dinner.

Dinner tickets are \$9.00 per person. Order tickets by sending checks, made out to Aerospace & Electronic Systems Society, San Francisco Section, to Roger G. Winslow, 19455 Melinda Circle, Saratoga, Calif. 95070. Please include names of members and guests. Dinner tickets will be mailed to your home and must be presented for admittance to the Winery. The deadline date for ticket orders is May 13, 1975. Attendance is limited to 250 persons. See map for travel directions.

**NORTHERN CALIFORNIA SYMPOSIUM
ON ANTENNAS AND PROPAGATION**

Northern California Symposium on Antennas and Propagation, Thursday, May 8, 1975, 1:30 - 4:30 PM, LMSC Auditorium, Bldg. 202, 3251 Hanover, Palo Alto, Ca., will feature the following papers:

"The Secondary Field of the Hertzian Electric Dipole Over an Arbitrary Ground" - F.B. Harris, Jr., TCI.

"The Application of Electrical Methods of Geophysical Probing to Coal Gasification Experiments" - R.J. Lytle, E.F. Laine, D.L. Lager, Lawrence Livermore Laboratory.

"Iterative Algorithms for Reducing Data from an H.F. Electrical Method of Geophysical Probing" - D.L. Lager, R.J. Lytle, Lawrence Livermore Laboratory.

"Coupled Scalar Potential Formulations for Three Dimensional E.M. Boundary Value Problems in Inhomogeneous Isotropic Axially - Symmetric Media" - S.K. Chang, M.A. Morgan, K.K. Mei, University of California, Berkeley.

"Object Discrimination Using Poles Extracted from Transient Responses" - F.J. Deadrick, H.G. Hudson, E.K. Miller, J.A. Landt, A.J. Poggio, Lawrence Livermore Laboratory.

"Dynamic Performance Measurements on an Electronically Despun Satellite Antenna" - F.J. Dietrich, Philco-Ford.

See CALENDAR for Program Arrangements



**BART - ENGINEERING MARVEL
OR ENGINEERING FIASCO?**

Dr. Everett L. Welker of TRW and assigned to BART will present to the Reliability Group the results of his studies of the system reliability, safety, and availability of the Bay Area Rapid Transit system. From the passengers viewpoint, a trip on rapid transit is satisfactory if the wait for a train is not excessive, if the train is on schedule, if the trip is quick, safe, and comfortable. The system design for BART calls for completely automatic operation with short headways at speeds up to 80 mph. The question which arises now that the system is operating is whether the hoped for performance is indeed a fact or fiction.

In studying BART, many of the conventional ways of characterizing safety, reliability, availability, maintainability, proved to be satisfactory. Other aspects required new and more complex methods for modeling the performance. While hardware deficiencies can be described by steady state formulas, the ways of calculating spares required, provisioning, and management of inventory can not.

Dr. Welker will be able to answer questions dealing with the types of problems, the accidents, etc., which have been amply discussed in the press. For example consider whether you would want to be on a BART train riding in the tunnel under the Bay during an earthquake. Is it safe? How do we know?

Dr. Welker of TRW is assigned to the BART study under a contract funded by the Urban Mass Transportation Administration. For the last 25 years he has worked on a number of system reliability and safety programs.

FIRST ANNUAL TECHNICAL SYMPOSIUM

Presented by the

SAN FRANCISCO IEEE COUNCIL

Saturday, May 17, 1975
9:00 AM - 3:00 PM
San Francisco State University
Science Building

9:00 AM - Morning Session

Session I - **NUCLEAR POWER**

Chairman: Mr. Ken Bailey, Bechtel Power Corporation

Speaker: Mr. Paul Schmitz, Chief Nuclear Engineer, Bechtel Thermal Power Corporation

Session II - **MICROPROCESSORS - OVERVIEW AND OUTLOOK**

Chairman: Mr. John Bouldri, Naval Post Graduate School

Speaker: Mr. Rudolph Panzholzer, Naval Post Graduate School

Session III - **TRENDS IN COMMUNICATION FACILITIES**

Chairman: Mr. James St. Arnaud, Pacific Telephone

Speaker: Mr. Fred Doell, Pacific Telephone

Session IV - **MANAGEMENT FILM**

Subject: "Management by Objective"

10:15 AM - Coffee Break - Resume Session at 10:30 AM

Session V - **GEOTHERMAL POWER, PRESENT AND FUTURE TRENDS**

Chairman: Mr. Leon Glahn, Bechtel Corp., Mining and Metals Division

Session VI - **TELECONFERENCE, PRINCIPLE AND APPLICATION**

Chairman: Dr. D.T. Magill, Stanford Research Institute

Speaker: Mr. Roger Hough, Senior Engineering Economist Stanford Research Institute

Session VII - **LINEAR INTEGRATED CIRCUITS**

Chairman: Mr. Andy Nalbandian, Lockheed Aircraft

Speaker: (To be announced)

Session VIII - **MANAGEMENT FILM**

Subject: "Effective Organization"
Coordinated by Saul Gellerman

12:00 Noon - Luncheon

Introduction: Dr. D.T. Magill

Welcome: Mr. E.D. Jackson, Council Chairman

Subject: **ENGINEERS AND NEW LAWS**

Speaker: Mr. Sid Tetenbaum, Bay Area Council Legislative Coordinator

Session X - **SOLAR ENERGY**

Chairman: Mr. Phil Simpson, Pacific Telephone

Speakers: Mr. Ron Wichner, Lawrence Livermore

Mr. William C. Dickerson, Lawrence Livermore

Session XI - **MICROCOMPUTER SYSTEMS, CONCEPT AND APPLICATION - Demonstration of Practical System Including Programming**

Chairman: Professor Bryon Thinger, San Francisco State University

Speaker: Mr. Richard L. Termaine Representative, Warner and Swazey-Comstar Microcomputer Systems Division

Session XII - **MANAGEMENT FILM**

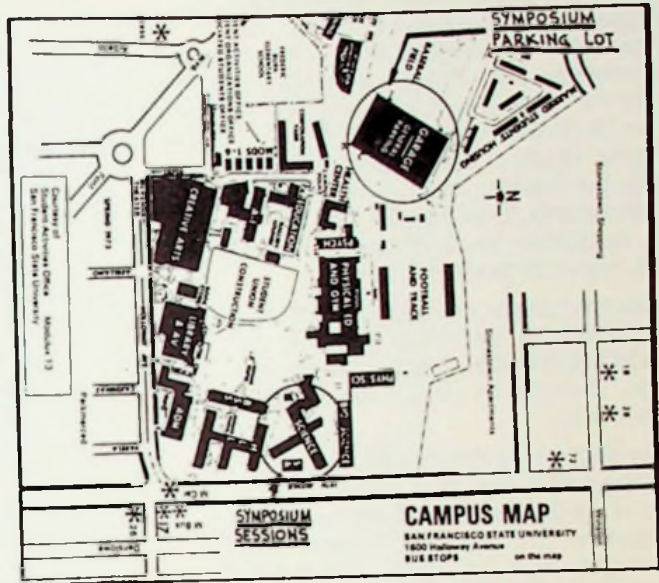
Subject: "Effective Executive" with Peter Drucker

3:00 PM - ADJOURNMENT



FIRST ANNUAL TECHNICAL SYMPOSIUM

Saturday May 17, 1975
 9:00 AM - 3:00 PM
 San Francisco State University



ABSTRACTS of the sessions will be available at the registration desk.

PARKING: Plenty of free parking will be available at the parking lot circled on the campus map. The Science Building, where the Symposium is held, also is circled on the map.

REGISTRATION FEE: \$20 members, \$30 non-members, \$5 students (includes luncheon if pre-registered by May 7).

REGISTRATION FEE after May 7: (No luncheon reservations can be taken after May 7): \$15 members, \$25 non-members, no charge for students. Late registration and/or registration at the desk on May 17 will be welcomed only to the limit of accommodations. Note this includes no luncheon.

Please Preregister In advance by sending the accompanying registration form to the Council office with your registration fee.

Make checks payable to the "San Francisco Bay Area Council of IEEE." Please note that spouses are most welcome to attend.

This Symposium is designed in cooperation with the College of Engineering of the San Francisco State University, and co-sponsored by the newly organized three Sections of the San Francisco Council of the IEEE, consisting of the Oakland-East Bay Section, the San Francisco Section, and the Santa Clara Valley Section.

For further information please call or write to:

Dr. D.T. Magill
 Stanford Research Institute
 333 Ravenswood Avenue
 Menlo Park, CA 94025
 (415) 326-6200 Ext. 2664

or Hadi Monsef
 Bechtel Power Corporation
 P.O. Box 3965
 San Francisco, CA 94119
 (415) 768-1786

Cut on dotted line and mail:

Pre-registration form - 1975 Symposium
 Make checks payable to "S.F. Bay Area Council of IEEE"

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Registration Fee \$20 (members), \$30 (non-members)
 Students: Pay \$5.00 for luncheon only.

Mail to:
 S.F. Bay Area Council of IEEE, Suite 2210
 701 Welch Road
 Palo Alto, CA 94304

IEEE TO SEE JAPAN ELECTRONICS SHOW

Japan Tour members of the Institute of Electrical and Electronics Institute, San Francisco Section, will attend the 14th Annual Japan Electronics Show, it was revealed by Ed Jackson, Section chairman.

The show draws 250,000 international buyers from 70 countries each year, and represents new products from 340 high technology firms throughout the world. The 1975 Osaka version is sponsored by the Electronics Industries Association of Japan (E.I.A.J.). Exhibits are classified into the following categories: Electronic Components, Testing & Measuring, Radio & Associated Electronic Devices, and Consumer Electronic Products.

This International show, endorsed by the FEDERATION NATIONALE INDUSTRIES ELECTRONIQUES (F.N.I.E.) 10 years ago, alternates its site between Osaka and Tokyo.

The IEEE San Francisco Section is sponsoring a 12 day group tour via Japan Air Lines this September 28, 1975 from San Francisco. Information is available by writing the local IEEE office, 701 Welch Road, Palo Alto, Calif. 94304; or by calling Dave Parkinson at Travel Design Unlimited, (415) 969-2000.

INTEGRATED INJECTION LOGIC: WHERE DOES IT FIT?

I²L is thought by some as the next wave in LSI technology. The Electron Device Chapter will feature Dr. David A. Hodges, who will address the general topic of I²L with particular attention to where I²L is best suited for integrated circuit applications. Dr. Hodges feels that I²L has clear-cut advantages over alternative technologies only in selected situations. Notable are applications requiring a combination of analog and digital functions on a single chip. Both the technology and applications of I²L will be discussed.

David A. Hodges received the PhD in Electrical Engineering from the University of California, Berkeley, in 1966. From 1966 to 1970 he was at Bell Telephone Labs, where he became head of the System Elements Research Department at Holmdel, NJ. He is now Professor of Electrical Engineering and Computer Sciences at UC Berkeley, where he has been a member of the faculty since 1970.

Prof. Hodges' research interests are in the area of integrated circuits. He is the former editor of the IEEE Journal of Solid-State Circuits.

INSTRUMENTATION NEEDS OF THE DENTAL PROFESSION

"Dentistry needs, and can use, the theoretical and technical knowledge of the electronics profession," says Dr. Allen M. Olinger, Jr., who is to give an enthusiastic presentation to engineers in the forthcoming May 15, 1975 EMB meeting.

Dr. Olinger added that if the metrologic requirements are defined and combined with the engineering discipline, definitive instruments can be produced which will advance dentistry as a science and health service. Dentists, as a professional group, are eager and willing to accept and utilize new concepts and improve methods because they are aware of the specific limitations of dental art and science. As compared with medicine and many other sciences, the present status of dentistry can only be described as primitive.

Dr. Olinger is a practicing dentist, and an outstanding IEEE member, who has authored numerous articles on dental instrumentation and diagnostic techniques.

WESCON75

Electronics in the next thousand days

PHOTOGRAPHS OF SPEAKERS

Our apologies to the several speakers who sent photographs for use with the announcements. There was so much copy in this issue (plus two paid advertisements -) that something had to give. Thank you for sending them, however, as this will not always be our policy.

The Editor

ARCHITECTURE OF THE SMS MICROCONTROLLER

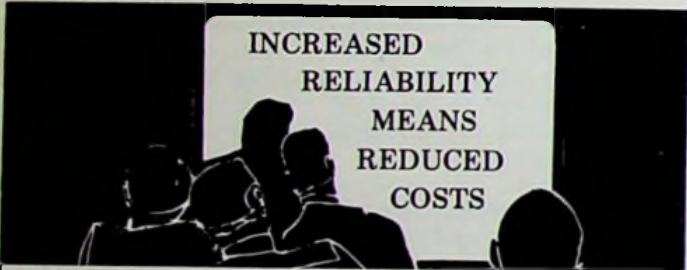
The Computer Society has for its May 21 meeting a discussion of the SMS Microcontroller. The discussions will be led by Mr. Kenneth D. Krossa, Manager of System Development, and William J. Price, Manager of Circuit Design, for Scientific Micro Systems.

Microprocessors being offered by semiconductor manufacturers today have architectures similar to that of minicomputers which were designed for efficient processing of data in memory and not for efficient control processing. Ironically, most of these microprocessors are used as controllers.

This talk will describe the architecture and implementation strategy of the Scientific Micro Systems MicroController, the first microprocessor designed specifically for control processing. The MicroController, a Schottky bipolar single-chip microprocessor, features:

- 300 nanosecond INSTRUCTION FETCH-EXECUTE cycle.
- The use of any I/O port or working storage byte as if it were an internal register.
- Bit-addressable, variable field length access to I/O or working storage.
- Single instruction test and branch on a 1 to 8 bit field of I/O or working storage.

In addition to the SMS presentation, election of new officers will be held, so all members should attend.



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Annapolis, Md. — Sept. 29-Oct. 3

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