EDITOR'S PROFILE of this issue

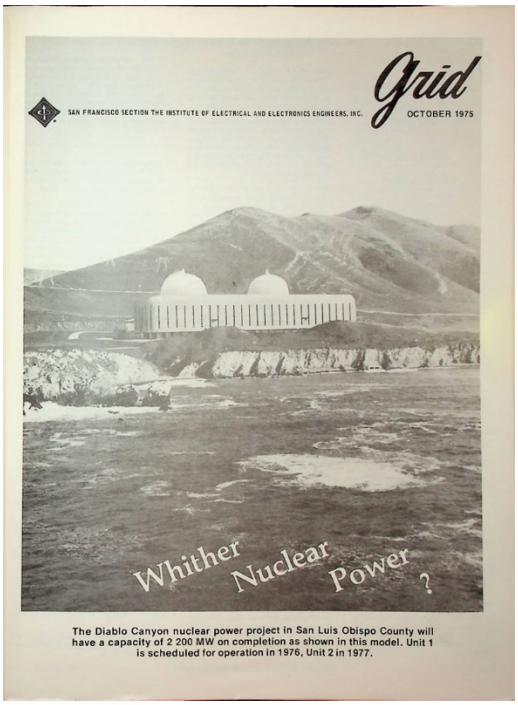
from a historical perspective …

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

October, 1975:

Cover: The photo shows a model of two units of PG&E's Diablo Canyon nuclear power plant, set to open in 1976 and 1977. More on page 3.

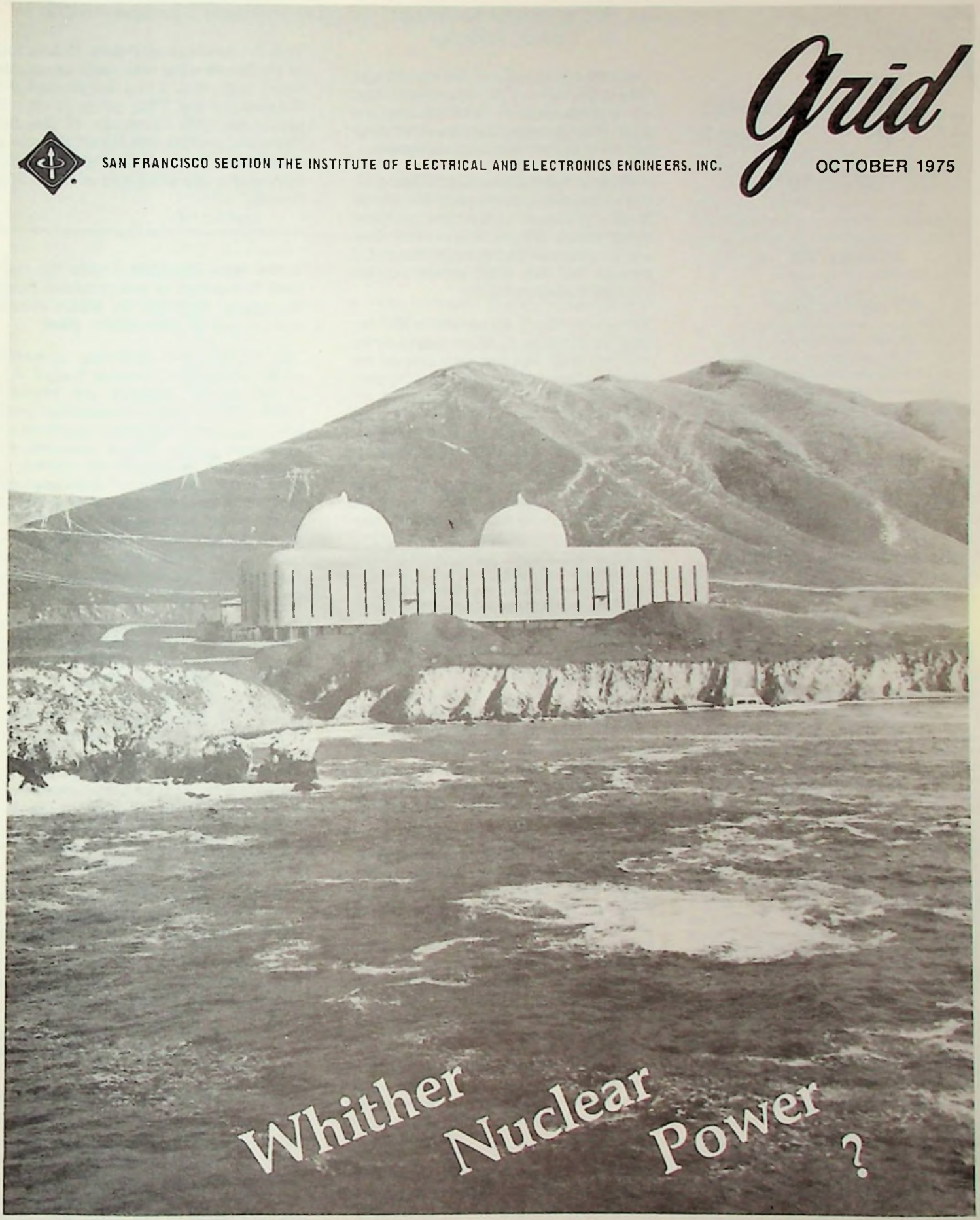
Page 7: Sydney Drell, Deputy Director at the Stanford Linear Accelerator Center (SLAC), speaks on the "zoo" of basic particles generated in electron-positron annihilation, and especially the quarks.



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

Grid

OCTOBER 1975



The Diablo Canyon nuclear power project in San Luis Obispo County will have a capacity of 2 200 MW on completion as shown in this model. Unit 1 is scheduled for operation in 1976, Unit 2 in 1977.

Grid

volume 22
number 2

OCTOBER 1975

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IEEE EMPLOYMENT REFERRAL SERVICES

IEEE members seeking new positions get current lists of job openings by sending 4 stamped, self-addressed envelopes (#10 business size) to: 701 Welch Road, Suite 2210, Palo Alto, CA 94304. The system works. Also at the office are helpful employer lists, resume examples and brochures with helpful hints for obtaining and conducting interviews.

Non-member EE's may join IEEE now to receive full membership through Dec. 13, 1976, and rights to this service. Applications available via mail or a visit to office above.

IEEE members are urged to bring this service to the attention of their employers and personnel departments. Employers desiring to list openings, please send job description with a check for $35 per job listed, to the above address. Each listing receives 4 mailings at approximate 2-week intervals.

Professional Activities Survey Results

The PAC survey taken a few months ago tried to get views of IEEE members about the institute and its activities. The answers they provided paint an interesting picture of section members' viewpoints.

In reply to the first question, about one-half of the respondents gave the results to date on pension legislation a favorable rating. Nearly 20 percent feel that they are not up to date on this issue. About 0.5 percent feel that IEEE should not be involved in pension activity.

There was strong agreement in the replies to question 2. Most respondents feel that IEEE has had very little or no effect on their career. Well over 50 percent feel that the institute has had no effect on their lives in the categories of salary, working enviornment, pension, job security, job satisfaction, public image, and political power.

Professional standards got a more positive response: only about 47 percent say that IEEE had no effect in this category; nearly 50 percent gave professional standards a plus rating.

Technical expertise was the only category that had a majority of positive responses. Over 76 percent feel that the IEEE has made a positive contribution to them technically.

According to responses on question 3, most members of the IEEE are dissatisfied with the way national officers are chosen. Less than 15 percent would leave the process unchanged. Over 26 percent are not familiar with the present method.

There has been a lot of discussion and argument about whether there is, or will be in the near future, a shortage or a surplus of engineers. Colleges, universities, and industry usually support the shortage theory. Question 4 asks the working engineers what their feelings are. Over half of the engineers feel that within the past 5 years and at the present time there are more engineers than jobs. That figure falls to about 40 percent for 1980.

Another problem discussed frequently concerns the age bias against engineers over 40. Many engineers have expressed their desire to have the IEEE take action in this area. Question 5 asks the members to respond to this proposal. Nearly 60 percent feel that the IEEE's involvement should be great or very great.

The Professional Activities Committee works under a very meager budget. A lot of worthwhile projects are presently under way or under consideration by the PAC, such as employment services and legislative action. These programs and others need funding to be carried out successfully. Question 6 asks what portion of the members dues they would like to see contributed to PAC. More than 63 percent would like to give 20 percent or more to PAC. Well over one third of the respondnets are willing to allot 40 percent or more to the PAC.

Question 7 gives a profile of the members who returned the questionnaire. The largest number of returns came from engineers who hold Masters degrees. Slightly over 15 percent hold Ph.D. degrees. The median age is about 35 with a median experience of 15 years. About 45 percent are employed in a non-supervisory capacity. Nearly 35 percent are employed in manufacturing electronics. Slightly more than 20 percent feel that their potentials and background are under 50 percent utilized; about 16 percent feel that they are full utilized.

In response to question 8, more than four-fifths of the respondents would be willing to return at least 2 questionnaires a year.

We plan to publish the complete graphs of all responses in the November GRID.

Richard Duke
PAC, Santa Clara Valley Section

New Section PACS

The Professional Activities Committees of the two new bay area sections are now being organized. If you are interested in the goals of the PAC, get in touch with your new PAC Chairman. In the San Francisco section, call Gerald Parsons at 433-4150. In the Oakland-East Bay section, it's Jay Wiedwald at 834-3030, Ext. 527.

Special thanks for a tremendous job well done are due to Richard Duke. He compiled the results of the PAC survey and wrote the summaries that appeared in last month's issue of the GRID and on this page.

For comments or information on the PAC column, call Michael Ward at (408) 246-4300, Ext. 2316.

See CALENDAR for Program Arrangements

The California Initiative: *Whither Nuclear Power?*

By May 6, 430,000 California voters had endorsed "The California Nuclear Power Initiative". It will appear on your ballot next June. It calls for at least a 40 percent curtailment of nuclear-fueled electric power generation in the state unless three successive hurdles are cleared:

- The Federal government must remove all limitations on liability insurance for nuclear power plants by June 1977;
- The Legislature must set permanent safety requirements for operation of nuclear power plants and disposal of nuclear wastes, and find that nuclear power plants can reasonably expect to meet these standards within two years by June 1979;
- The Legislature must decide that nuclear power plants are meeting these standards by June 1981.

The IEEE and the affiliated Power Engineering Society have gone on record as opposing passage of this initiative. Their statements appear on this page. Among organizations joining IEEE and PES in urging its defeat are:

- The American Society of Mechanical Engineers;
- The American Institute of Aeronautics and Astronautics;
- The American Institute of Chemcial Engineers;
- The National Society of Professional Engineers.

Among arguments advanced by proponents of the Initiative are the following:

- Policy decisions about nuclear safety are too important to leave to professional engineers and managers. The people must get in on them through their elected representatives.
- Our experience with nuclear power generation is statistically very small in comparison with what is projected.
- A committee of three physicists (Wolfgang Panofsky, Hans Bethe, and Victor Weisskopf) appointed by the American Physics1 Society endorsed current standards for operation of nuclear power plants but criticized provisions for storing nuclear wastes.

But the hurdles proposed by the Initative would be tough to clear. Each of the legislative actions, in 1979 and in 1981, would require 2/3 votes in each house. One third of either house, in either year, would reduce nuclear power generation by 40 percent.

That's initially. After 1981, if the Legislature failed to certify the nuclear power industry as safe, nuclear power generation would have to decrease by an additional 10 percent per year to a final level of 10 percent of present levels by 1986.

The Federal government now insures each nuclear power plant up to a liability limit of $500 million, and lets private insurers add $175 million. The latter figure was originally $60 million and had grown to its present level by 1957. It is scheduled for review by August, 1977, two months after the deadline set by the Initiative.

Passage of the Initiative would take away from the state Energy Resources and Development Commission responsibility for monitoring nuclear power plants to assure their safety and freedom from air and water pollution. This commission just began work this year. More generally, passage of the Initiative would hamper this Commission on its task of assuring adequate, balanced development of the state's energy resources.

The Basic Question

To what extent can the electorate make engineering policy decisions through the political process? Although the Initiative proposes a commission of at least 15 "experts" to advise the Legislature, the Legislators themselves would have to make the final decisions.

Right now, engineers are in a situation similar to what those "experts" would face. This Initiative now involves the electorate in engineering policy making. The electorate is not qualified to assess rationally the meanings of the probabilities and relative magnitudes involved.

So the engineer has the professional task of making his own responsible assessments of the engineering aspects of the arguments, pro and con, about the Initiative. Then he has to communicate his assessments effectively to the electorate.

IEEE Statement

The Institute . . . hereby goes on record as opposed to the California Nuclear Initiative to restrict the use of nuclear power.

The pressing need to reduce dependence on oil and natural gas for the generation of electric power has increased the emphasis on the use of coal and uranium fuels. There are some future engineering and environmental developments required regarding the use of these fuels, but the experience to date indicates that each provides a practical alternative to oil and gas.

The development of safe, efficient nuclear power plants has progressed rapidly and such facilities are now providing a significant percentage of the nation's electric power with an outstanding safety record. This development is progressing in an orderly, highly-regulated manner to insure that the security of fuel, the disposal of waste material, and the public safety are properly taken into account. The on-going program should provide the increased, safe use of nuclear energy for additional electric power generation urgently needed by the industrialized nations.

The proposed California Nuclear Initiative, if passed, could severely disrupt the orderly development and introduction of nuclear-powered electric power plants in California, and perhaps lead to similar action in other states. This Initiative could in effect restrict the use and construction of nuclear plants in California and phase out existing facilities in that State. It is in the light of these concerns that the Institute . . . expresses this position.

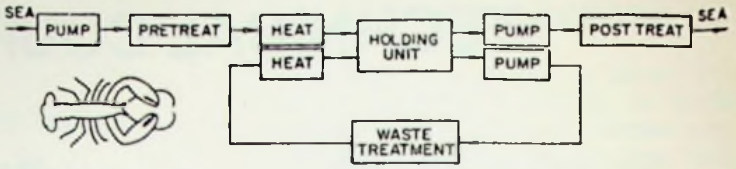
April 8, 1975

PES Statement

We are deeply concerned about the California Nuclear Power Plants Initiative on nuclear power. As engineers, we recognize the urgent need for electrical energy generated from nuclear fuel to complement other energy sources in meeting the essential needs of the people of these United States. If the California Nuclear Power Plants Initiative is adopted, the results will be very harmful to the people of the State of California. If, as a consequence, other states subsequently adopt similar measures, the results will be disastrous to the well-being, livelihood, and existence of the people of the United States.

Therefore, we urge the people of the State of California to consider carefully the consequences of adopting this initiative, to insist on responsible public reviews of these consequences, and to join forces in rejecting this pre-emptive action.

April 23, 1975



Waste treatment and water recirculation.

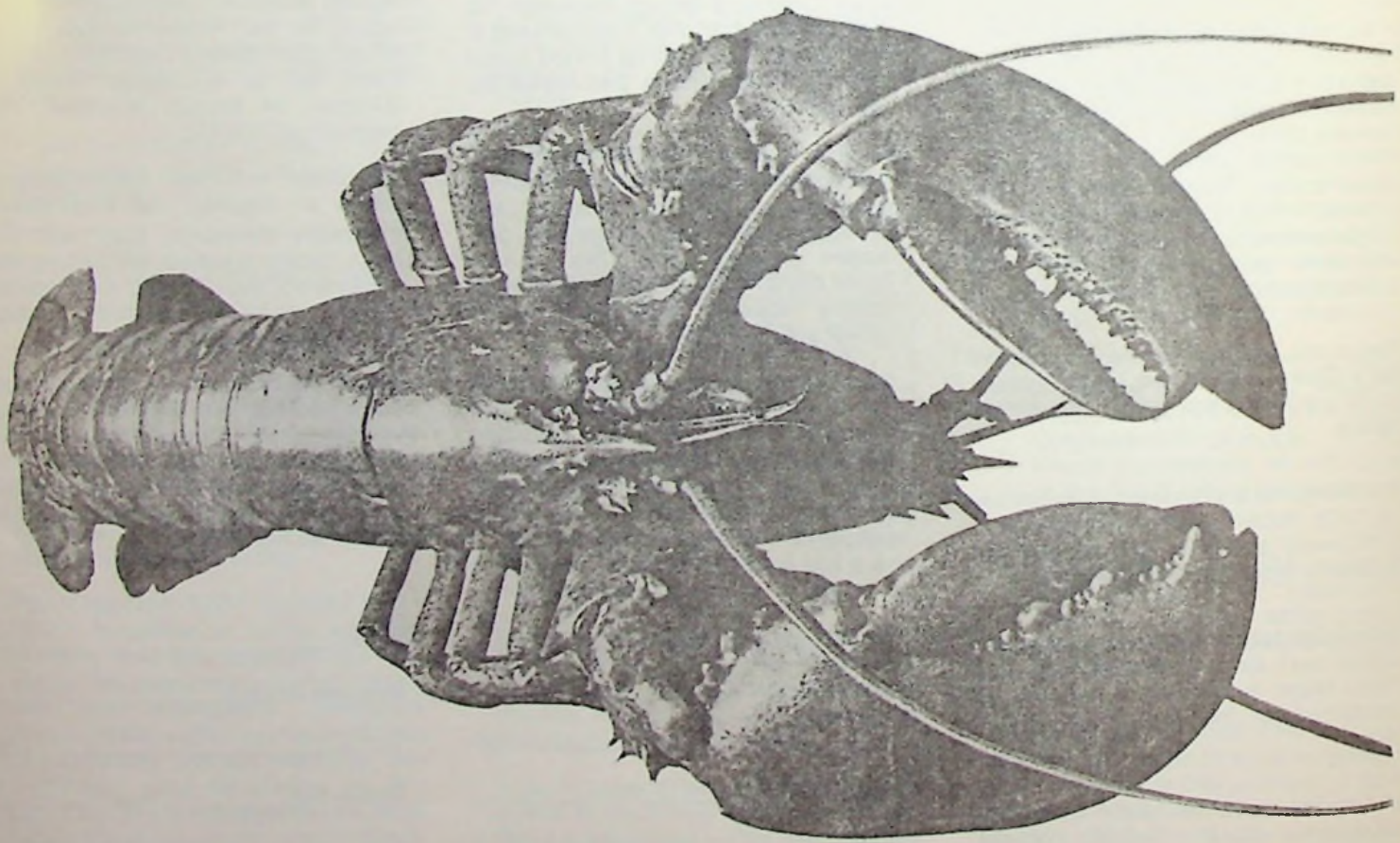
Optimal Control of a Lobster Plant

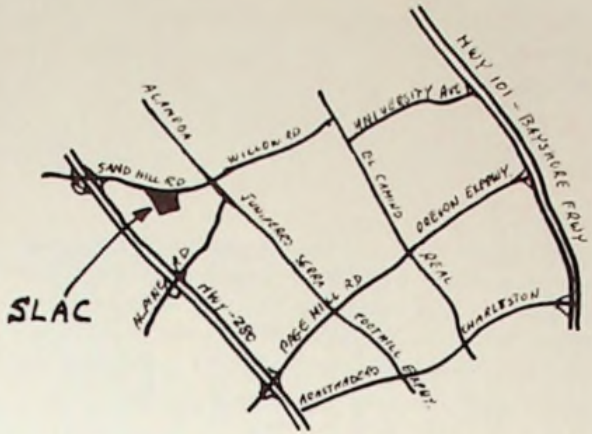
On Thursday, October 16, the Control System Society will host a dinner meeting jointly sponsored by IEEE, AIEE, and ASME, along with chapters on IT, IECI/IM, and SMC. The speaker will be Dr. Herbert E. Rauch, Staff Scientist, Lockheed Palo Alto Research Laboratory. The talk is of interest to spouses as well as members.

Dr. Rauch has recently co-authored several papers on the application of methods of engineering system analysis and optimal control to the problem of raising lobsters and other aquatic species in a controlled environment. In particular, it may be possible to raise Marine lobsters commercially in California by optimally controlling water temperature and circulation, food supply and other "control variables". The problem is to select the control variables to minimize the cost per lobster of raising a batch to one pound. State variables are the average weight of lobsters in the batch, the number of lobsters in the batch, and their cost.

The work described in this talk is part of an on-going interdisciplinary research program by the Aquaculture Group of the University of California, Davis. The program involves a systematic approach to the development of commercial aquaculture, in general, and lobster farming, in particular. Biological experiments are conducted to model the effect on animal growth and mortality of different variables such as water temperature, metabolite levels in the water, amount of space, and amount and kind of food. The resulting biological models are then combined with physical models of a culture system and their related costs in order to produce a systems model. The systems model can be used for cost projection, determination of sensitivity, and for optimization.

Dr. Rauch is well known for his contributions to the theory of optimal filtering and smoothing and has recently worked in the area of combined estimation and detection. This talk is the result of an extension of his interests outside of the aerospace field and illustrates a very promising application of control methods to commercial biological systems.





INTRODUCTION TO TELECOMMUNICATIONS

SYSTEM DESIGN, PART II

A ONE DAY COURSE - OCTOBER 25, 1975 AT SLAC - JOINTLY PRESENTED BY THE IEEE MICROWAVE THEORY AND TECHNIQUES AND THE COMMUNICATIONS SOCIETIES OF THE SAN FRANCISCO BAY AREA COUNCIL..

THE **INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, INC.**

WHEN

October 25, 1975
Saturday
9:15 a.m. - 4:00 p.m
Registration: 9:00 a.m.

WHERE (See Map)

Main Auditorium
Stanford Linear Accelerator Center
2575 Sand Hill Road
Palo Alto, California

PURPOSE:

The course focuses on the technical aspects of major types of microwave, and line communications systems currently in use or planned for the near future. The course continues from a previous introductory session (December 7, 1974). Attendance at the earlier course is not a pre-requisite since an introductory review of Part I is included.

COURSE DESCRIPTION:

Although communications networks utilize fundamental principles of early wire systems, today's modern networks rely on an interaction between many technologies and design approaches. A typical communications link may involve several different types of systems. Therefore, a knowledge of the major types of systems is important in understanding the expanding field of communications. This course will provide additional insight into the design of communications subsystems and their relationship to the overall network. Emphasis is placed on the practical aspects of three major types of communications systems: analog, digital and video, as well as multiplexing and signaling techniques. The function and major characteristics of each type will be discussed.

To a large extent, the development of communication networks has progressed due to the availability of solid state microwave devices. These are an important building block in a microwave system and a discussion of their role is included. To the system user, overall transmission performance is a key parameter. Methods used to evaluate and measure transmission performance are included.

PREREQUISITE (Recommended)

Bachelor's degree in engineering, or equivalent practical experience.

INTRODUCTION TO TELECOMMUNICATIONS SYSTEM ENGINEERING DESIGN, Part II

October 25, 1975
Main Auditorium
Stanford Linear Accelerator Center
2575 Sand Hill Rd.
Palo Alto, California

COURSE SCHEDULE

MORNING

Registration

1. Introduction, Review of Part 1 — Gillespie

Coffee

2. Multiplexing and Signaling Techniques — Brown
3. Digital Microwave Communications — Williams

Lunch - included in registration fee

AFTERNOON

4. Video Transmission Systems — Murray
5. Microwave Solid State Generation and Power Amplification — Ivanek

Coffee

6. System Testing and Performance Evaluation — Gillespie

LECTURERS:

Derrick C. Brown, Farinon Electric
Chris Gillespie, Farinon Electric (Course Organizer)
Ferdo Ivanek, Farinon Microwave
Jim Murray, Farinon Video
Don Williams, Farinon Electric (Course Organizer)

LECTURERS

The topics will be presented by the staff members of Farinon Electric and its affiliated divisions.

FEE

The fee for this course is $15.00 for IEEE regular members, $10.00 for student members and $25.00 for non-members. The fee also includes the lunch at SLAC and the material to be handed out. The registration fee is increased by $5.00 after the date of October 20, 1975

REGISTRATION

The enrollment for this course is limited. Therefore, persons interested in taking this course are urged to enroll early by completing and mailing the registration form below. Companies may enroll for any given number of individuals, supplying names later. Advance registration is required. For additional applications, use separate sheet giving information requested on enrollment form.

INFORMATION

For additional information concerning the program, write to or call the course organizers:

Susan Detro
Farinon Electric
1691 Bayport Avenue
Phone: (415) 592-4120, Ext. 278

TELECOMMUNICATIONS COURSE REGISTRATION FORM

(Should be received before October 20, 1975)
Late registration: Add $5.00 to fee.

Mail to: Les Besser
c/o IEEE San Francisco Section Office
Suite 2210
701 Welch Road
Palo Alto, California 94304

Enclosed is check (payable to San Francisco GMTT Chapter) in the amount of $ to cover the enrollment fee.

Name .....
(please print full name)

Address .....
(Street)

.....
(City and State) (Zip)

Company Name .....

IEEE Affiliation (Check One)

- ☐ Member
- ☐ Student Member
- ☐ Non-Member

- -

IEEE Membership No:- - - - - - - - - - - - - - - - - - -

☐ Late Registration (Check if applicable)

A&P to Feature Critical Survey of SEM

Recently a new approach for treating electromagnetic scattering and antennas problems was proposed by Baum and numerically verified by Tesche, Marin and others. Since that time, the Singularity Expansion Method (SEM) has been used by a number of other investigators, primarily for the transient analysis of conducting obstacles illuminated by a nuclear electromagnetic pulse (EMP).

In the October meeting of the APS, Dr. Frederick M. Tesche will outline the basic ideas of SEM and illustrate how they are implemented numerically for problems of practical interest.

Dr. Tesche received his Ph.D. degree from the University of California at Berkeley in electromagnetic theory and has been conducting investigations into the behavior of transient excited antennas and scatterers. He is presently the activities chairmen of the APS chapter and, as a member of URSI Commission VI, presented an invited paper on the same topic at the 1975 URSI International Assembly in Lima, Peru, last August.

AES To Tour UAL Maintenance At SFO Airport

The Society on Aerospace and Electronics Systems will tour the United Airlines Maintenance Center at San Francisco International Airport on Thursday, October 16. A maximum of sixty will be admitted by free ticket only.

UAL will supply dinner at a nominal cost to ticketholders at 5:30 PM, prior to the tour.

This Maintenance Center is one of the largest in the United States. UAL engineering personnel have developed some unique diagnostic and statical approaches to improving maintenance cost-effectiveness.

To reach the Center, leave U.S. 101 at the "Airport Shops" exit (one mile north of the exit to the airport passenger terminal). Go east one-fourth of a mile to the UAL "Visitors' Parking Area".

Computer Group Studies Formulator For Microprocessing

The Computer Society's October meeting will feature the first unveiling of Fairchild's F8 FORMULATOR which is a development system to be used as an aid in designing, simulating, and developing both hardware and software systems for Fairchild's F8 microprocessor family.

From an architectural standpoint, the F8 FORMULATOR features two separate microcomputer systems sharing one CPU. The front console microcomputer system is a software-controlled intelligent system which is capable of intervening into the user's system for information and control without upsetting the user's program. The user's microcomputer system is a modular design of RAM, PROM, I/O, and a multiprocessor DMA facility. The system will be available with a native assembler or a floppy disc operated system.

The presentation will review progressively the features of the F8 and the F8 FORMULATOR as they relate to each other. The software aspects of the system will also be presented.

The speakers will be Tony Beccia, Ted Laliotis and Bob Boehlje of Fairchild's Systems Technology Division. They are respectively, Manager of Advanced Development, Hardware Development Manager, and Software Development Manager for Microcomputer Systems.

IAS Talk on Ground Fault Interruptors

Field test show positive gains in electrical safety where temporary power circuits supplying tools and equipment on construction sites are equipped with ground fault circuit interruptors. A talk at the IAS meeting Tuesday, October 28, will report on these tests.

The speaker, Eugene Carlton, received his BSEE from the University of California in 1933. Since 1943, he has worked in the Division of Industrial Safety, Department of Industrial Relations, of the State of California. He has been Supervising Electrical Safety Engineer in charge of this Division's Electrical Section since 1949.

A registered professional engineer in California, Carlton has been a member of AIEE and IEEE for 25 years. He also serves on the Electrical Council of Underwriters Laboratories. A past president of the International Association of Electrical Inspectors, he has represented this organization on a variety of national committees and study groups.

What's New In the Subatomic "Zoo"

It is a central concept of modern particle physics that the "herd" of supposedly elementary particles discovered during the past 25 years are actually assemblages of only a few structureless entities that are truly fundamental. These constituent particles have been named "quarks". Different versions of the quark theory make different predictions about what is to be expected in the aftermath of an electron-positron annihilation, and it was hoped that recent experiments would help to determine which version is the correct one. As it turned out, two new very massive particles were unexpectedly discovered leading to fundamental and exciting new puzzles about what is going on in the "zoo" of elementary particles physics. These puzzles and the present state of confusion and understanding will be described.

Dr. Drell is a Professor of Physics at Stanford University and Deputy Director and Executive Head of Theoretical Physics at Stanford Linear Accelerator Center.

Changing Concepts In Utility Financing

The financial problems facing the utility industries have forced recent reductions in capital expenditures and manpower. At is October 15 meeting, the Power Engineering Society will hear how the changes may affect EE's and what the utilities are doing about the problem.

John C. Wilson, Jr., Vice-President, Corporate Finance Department, Dean Witter and Company, San Francisco, will be the speaker. He holds an MBA in finance from the University of California, Berkeley, and is a registered CPA in California. With extensive experience in utility financing, he has made several presentations to the California Public Utilities Commission.

IEEE MEETING CALENDAR

AEROSPACE & ELECTRONIC SYSTEMS SOCIETY
OCT. 16

Story on Page 7

TOUR OF UNITED AIRLINES MAINTENANCE FACILITIES, at San Francisco Airport. IEEE members and spouses. 60 people maximum.

OCT. 16, Thursday, 5:30 PM, UAL Maintenance Center ("Airport Shops" exit). Reservations by ticket (no charge) only from J.R. Welch (415) 494-7400, Ext. 523 by October 13th.

ANTENNAS & PROPAGATION SOCIETY
OCT. 9

Story on Page 7

THE SINGULARITY EXPANSION METHODS (SEM): A CRITICAL SURVEY. Dr. Frederick M. Tesche, Science Applications, Inc., Berkeley.

OCT. 9, Thursday, 8:00 PM, LMSC Auditorium, Bldg. 202, 3251 Hanover St., Palo Alto. Cocktails at 5:30 and dinner at 6:15 PM, Rick's Swiss Chalet, 4085 El Camino Way, Palo Alto. Reservations: Dr. Tom Wang, (415) 326-6200, Ext. 4641.

COMPUTER SOCIETY
OCT. 15

Story on Page 7

THE F8 FORMULATOR: A MICROCOMPUTER DEVELOPMENT SYSTEM. Tony Beccia, Ted Laliotis and Bob Boehlje, Fairchild Systems Technology Division.

OCT. 15, Wednesday, 8:00 PM, University of Santa Clara, Science Hall, Room 207. Dinner at 6:15 PM, Mariani's at Santa Clara. Cost $5.50. Reservations: Council Office (415) 327-6622.

CONTROL SYSTEMS SOCIETY/IT/IECI/IM, & SMC
OCT. 16

Story on Page 6

JOINT MEETING: OPTIMAL CONTROL OF A LOBSTER PLANT. Dr. Herbert E. Rauch, Staff Scientist, Lockheed Palo Alto Research Lab.

OCT. 16, Thursday, 8:15 PM, Ness Auditorium, International Bldg., SRI, 333 Ravenswood Ave., Menlo Park. Dinner at 7:15 PM, same place. Cost: $7.00 per person. Reservations: Leda Voropaeff (415) 326-6200, Ext. 2434 by noon October 13th.

ENGINEERING IN MEDICINE & BIOLOGY
OCT. 16

ECHO CARDIOGRAPHY FOR NON-INVASIVE DIAGNOSIS OF CARDIAC DISORDERS. Dr. Richard Popp, Dept. of Cardiology, Stanford Hospital.

OCT. 16, Thursday, 8:00 PM, Stanford Medical Center, Room M112. Dinner at 6:15 PM, Stickney's, Town & Country Village, El Camino & Embarcadero, Palo Alto. Reservations: Council Office (415) 327-6622.

INDUSTRIAL APPLICATIONS SOCIETY
OCT. 28

Story on Page 7

GROUND FAULT CIRCUIT INTERRUPTERS. Eugene Carlton, Div. of Industrial Safety, State of California.

OCT. 28, Tuesday, 7:30 PM, Four Seas Restaurant, 731 Grant Ave., SF. Reservations: Bill Kononetz (415) 768-2320 or George Johnson 871-2400, Ext. 684 by October 27th. Cost: $7.00.

MICROWAVE THEORY & TECHNIQUES/ COMMUNICATIONS SOCIETY
OCT. 25

ONE DAY COURSE ON TELECOMMUNICATIONS SYSTEM DESIGN, PART II, jointly sponsored. See insert for registration form and information.

OCT. 25, Saturday, 9:00 AM to 5:00 PM, SLAC Auditorium, 2575 Sand Hill Road, Menlo Park. Pre-registration required. Information: Susie Detro (415) 592-4120, Ext. 278. Lunch is included in registration fee.

OAKLAND-EAST BAY SECTION
OCT. 15

Story on Page 4

IMPROVEMENTS TO THE BART TRAIN CONTROL SYSTEM. Krishna V. Hari, Head of Equipment Div., BART.

OCT. 15, Wednesday, 12 noon, Tommy's Restaurant, 529 - 17th St. (near Broadway), Oakland. Reservations: Terry Rossow (415) 447-1100, Ext. 3650.

PARTS, HYBRIDS & PACKAGING
OCT. 14, 21, 28, NOV. 4, 11 and 18

Story on Page 5

SIX-LESSON SHORT COURSE ON CURRENT ADVANCED SEMICONDUCTOR TECHNOLOGIES. Various speakers.

OCT. 14 - NOV. 18, Tuesdays, 7:30 PM, Hewlett-Packard Auditorium, 5301 Stevens Creek Blvd., Santa Clara. $15 for IEEE members; $25 for non-members. See story for information and registration.

POWER ENGINEERING SOCIETY
OCT. 15

Story on Page 7

CHANGING CONCEPTS IN ELECTRIC UTILITY FINANCING. John C. Wilson, Jr., Vice Pres. Corporate Finance, Dean Witter Co.

OCT. 15, Wednesday, 8:30 PM, Engineer's Club of SF, 160 Sansome St., SF. Cocktails at 5:30 and dinner at 6:30 PM. Reservations: Miss Carol Franke, (415) 781-4211, Ext. 1442.

POWER ENGINEERING SOCIETY
OCT. 8-DEC. 10

Story on Page 5

IEEE COURSE ON STANDBY AND ALTERNATE POWER SUPPLIES. Speakers from Industry.

OCT. 8 - DEC. 10, Wednesdays, 5:45 PM, PG&E Bldg., 245 Market St., First floor, Conference Rooms A & B. Reservations: Emery Fabri (415) 768-1640 or John Lee (415) 781-4211, Ext. 3428. See story for registration form.

RELIABILITY
OCT. 15

THE RELIABILITY OF TAX-SHELTERED INVESTMENTS FOR ALL INCOME LEVELS AND RETIREMENT PLANS (IRA). Roger S. Laird, Creative Financial Management.

OCT. 15, Wednesday, 8:00 PM, PH 101, Stanford Physics Lecture Hall, Stanford University. Cocktails and dinner at 6:00 PM, Stickney's, El Camino & Embarcadero, Palo Alto. Reservations: Council Office (415) 327-6622.

NUCLEAR PLASMA SCIENCES

Story on Page 7

ELECTRON - POSITRON ANNIHILATION AND THE NEW PARTICLES. Dr. Sidney Drell, Deputy Director, SLAC.

OCT. 21, Tuesday, 7:00 PM, SLAC Auditorium, 2575 Sand Hill Road, Menlo Park. No dinner.

SAN FRANCISCO SECTION
OCT. 21

Oct. 21, Tuesday, 12:00 noon, P.G.E., Room 301 - 303, 60 Beale St., San Francisco, Ca. Speaker: Edward M. Walker V.P., Bentley Engineer. Subject: Are You A Concerned Engineer - a challenge. Reservations: Art Wells, (415)467-1880. Select meal at P.G. & E. Cafeteria and proceed to the meeting.

VEHICULAR TECHNOLOGY
OCT. 20

THE ROLE OF RADIO COMMUNICATION IN MODERN RAILROAD OPERATION. Merle C. Blanton, General Superintendent of Communications, Southern Pacific Transportation Co.

OCT. 20, Monday, 8:00 PM, International Inn, Bayshore Freeway at Airport Blvd., South SF. Cocktails 6:30, dinner 7:00 PM. For more information contact Ray Griese (408) 248-5199 or Phil Kane (415) 556-7700.