EDITOR'S PROFILE of this issue

from a historical perspective …

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

November, 1972:

Cover: The spray canal cooling system for PG&E's Pittsburg power plant. It avoids dumping warmed water into the Sacramento River. More on page 2.

Page 6: John Warnock of the Ames Research Center talks on memory sytems. He goes on to co-found Adobe Systems (named for a creek in Los Altos) which developed the Postscript system for creating portable documents (PDFs), PhotoShop, and many other software products.

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

NOVEMBER 1972

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THE COVER STORY

PES – TOURS UNUSUAL POWER PLANT COOLING SYSTEM

The November meeting will feature a tour of PG&E's new spray canal which is used in the cooling system for the utility's new 750 MW generator at its Pittsburg Power Plant. This unique canal design was chosen over the more conventional once through cooling system due to environmental factors. Waste heat from the warmed cooling water is liberated to the atmosphere rather than into the nearby Sacramento River.

Eugene P. Myers, a chemical engineer for PG&E's Mechanical Engineering Department, will discuss power plant cooling systems before the tour. Mr. Myers is a registered chemical and mechanical engineer in California and participated in the design of the spray canal.

The tour is limited to 60 persons with preference given to Power Group members. Directions to the plant will be mailed to those making reservations by November 6th. See Calendar for details.

PES CHAPTER SPONSORS TUTORIAL COURSE ON PROTECTIVE RELAYING PRINCIPLES AND PRACTICES

The San Francisco Chapter of the IEEE Power Engineering Society is sponsoring a series of lectures on Protective Relaying Principles and Practices starting November 16, 1972. Eight lectures are planned, covering basic principles and practical methods of system and equipment protection. The topics to be covered include basic equipment, mathematical calculation methods and protection of generators, motors, transformers, buses, distribution and transmission lines. The lectures will be conducted on a level to provide useful and practical information to engineers in the power and industrial field. Each lecture will be presented by an engineer who is well qualified in the field being discussed.

The lectures will be given at Pacific Gas & Electric Co., 77 Beale Street, San Francisco. They will be held on Thursday evenings from 6:00 to 8:00 p.m. starting on November 16 and continuing through January 25 with the exceptions of November 23, December 21, and December 28.

Cost of registration will be $7.50 for members and $10.00 for non-members.

Enrollment will be limited to 55 with preference to members of the Power Group. Advance registration is required which can be done by using the accompanying form.

PROTECTIVE RELAY PRINCIPLES AND PRACTICES

Mail to: Siegfried Auer
Pacific Gas and Electric Co.
77 Beale Street
San Francisco, California 94106

Enclosed is my check (Payable to S.F. IEEE Power Group) in the amount of $ _____ to cover enrollment for:

Name: _____

Bus. Address: _____

_____
(City, State, and Zip)

Bus. Phone: _____

Member of: IEEE _____

Power Group _____

Other _____

MEETING CALENDAR

ANTENNAS & PROPAGATION
NOV. 9

Story on page 4

DETECTION OF UNDERWATER SOUND SOURCES BY ELECTROMAGNETIC RADIATION. Dennis Tremain, Research Assistant, UC Berkeley, EE Department.

NOV. 9, Thursday, 8:00 PM, Rm 277 Cory Hall, University of Calif., Berkeley. Dinner: 6:00 PM; Cocktails 5:15 PM, Spenger's Fish Grotto, 1919 - 4th St., Berkeley. No. reservations.

CIRCUIT THEORY
NOV. 11 and 12

"WEEKEND SHORT COURSE" on HOW TO START AND FINANCE YOUR OWN BUSINESS. Registration information in Oct. and Nov. GRID, and program.

NOV. 11 and 12, Saturday and Sunday 9 AM, Slac Auditorium, 2575 Sand Hill Road, Menlo Park. For information call Les Besser (415) 593-8491 or Don Dible (408) 247-7770.

COMMUNICATIONS SOCIETY
NOV. 28

Story on page 4

A REVIEW OF FACTORS AFFECTING THE SYSTEM LOAD IN MULTICHANNEL FDM CARRIER SYSTEMS. Neale A. Zellmer, Sr. Staff Engineer, Adv. Dev. Lab, GTE Lenkurt, San Carlos.

NOV. 28, Tuesday, 8:00 PM, Brave Bull of Los Altos, 4390 El Camino Real, Los Altos. Dinner: 6:30 PM. Reservations: Dick Sherman (415) 326-4350 x 4104 by Nov. 27th.

COMPUTER SOCIETY
DEC. 2

Story on page 6

ONE-DAY SHORT COURSE: ADVANCED MEMORY SYSTEMS. Joint with Division of Continuing Education, University of Santa Clara. John Warnock, Ames Research Center; Ted Laliotis, Fairchild; and Dave Hodges, Professor at UC, Berk.

DEC. 2 Saturday, 8:30 AM to 4:00 PM, Daly Science Hall, Rm 207, University of Santa Clara. See story for registration and other information.

CONTROL SYSTEMS SOCIETY
NOV. 29

Story on page 8

FREEWAY TRAFFIC CONTROL. Leif Isaksen, Transportation Div. Systems Control, Inc.

NOV. 29, Wednesday, 8:00 PM, Engineering Center, ME 551, University of Santa Clara. Dinner: 6:15 PM, Mariani's, 2500 El Camino Real near San Tomas Expressway, Santa Clara. No reservations.

EAST BAY SUBSECTION
NOV. 14

Story on page 6

THE EAST BAY WATER FUTURE. Orrin H. Harder, Mgr., East Bay Municipal Planning Division

NOV. 14, Tuesday, 7:30 PM, PG&E Service Center, 4801 Oakport St., Oakland. No dinner.

EAST BAY SUBSECTION
DEC. 11

Story on page 4

ONE HOUR TOUR OF GENERAL MOTORS ASSEMBLY PLANT. Limited to 50 persons — reserve early.

DEC. 11, Monday, 7:00 PM. Meet at 6:45 PM at the main gate of GM Plant, 45500 Fremont Blvd., Fremont (beside Highway 17). Reservations: Hadi Monsef, (415) 764-6000. No dinner.

ELECTROMAGNETIC COMPATIBILITY
NOV. 20

Story on page 8

SEMICONDUCTOR FAILURE ANALYSIS. William M. Berger, Philco-Ford WDL, Palo Alto.

NOV. 20, Monday, 8:00 PM, Bold Knight, 769 N. Mathilda Ave., Sunnyvale. Dinner: 6:45 PM. If attending dinner, call Erlyne Hooper at 326-4350 x 4310 for reservations.

ELECTRON DEVICES
NOV. 15

Story on page 4

LASER METHODS FOR REMOTE AIR POLLUTION DETECTION. Robert L. Byer, Prof. of Applied Physics, Microwave Lab, Stanford University.

NOV. 15, Wednesday, 8:00 PM, Rick's Swiss Chalet, 4085 El Camino Way, Palo Alto. Cocktails: 6:00 PM; dinner: 7:00 PM. Reservations: Section office (415) 327-6622.

ENGINEERING MANAGEMENT/ AEROSPACE & ELECTRONIC SYSTEMS
NOV. 14

Story on page 7

JOINT MEETING: THE EPA ALKALI WET-SCRUBBING TEST FACILITY AT THE TVA SHAWNEE STEAM PLANT. Dr. Michael Epstein, Asst. Project manager, Scientific Development, Bechtel Corp.

NOV. 14, Tuesday, 8:00 PM, University Room at Rickey's Hyatt House, 4219 El Camino Real, Palo Alto. Cocktails: 6:00 PM; dinner 6:30 PM. For dinner reservations call 326-4350 x 5087 by Nov. 12th, 4 PM.

ENGINEERING IN MEDICINE & BIOLOGY
NOV. 14

Story on page 7

BIOMEDICAL ENGINEERING — A FORTHCOMING PROFESSION? PANEL DISCUSSION. Prof. Edwin Lewis, U.C., Berkeley.

NOV. 14, Tuesday, 8:00 PM, Stanford Medical Center, Room M 104. Dinner: 6:00 PM, Rick's Swiss Chalet, 4085 El Camino Way, Palo Alto. Reservations: Mrs. A. L. Swenson (408) 292-4794 by Nov. 10th.

GOLDEN GATE SUBSECTION
NOV. 15

Story on page 5

"OSHA". R. W. White, Manager, Claims & Safety Dept., PG&E Co., San Francisco.

NOV. 15, Wednesday, 12:00 noon, PG&E, 77 Beale St., S.F., 3rd floor, Room 301 (next to the Cafeteria). No reservations.

INDUSTRY APPLICATIONS SOCIETY
NOV. 28

Story on page 5

A TALK ON CHINA'S ELECTRICAL POWER INDUSTRIES. Alexander A. S. Tseng, SLAC, Stanford.

NOV. 28, Tuesday, 8:00 PM, Iron Duke, third floor, 132 Bush St., San Francisco. Cocktails: 6:00 PM, dinner 6:30 PM. Reservations: Frank Trayer (415) 431-7701; Ted Bubb (415) 781-1177 or Tom Googin (415) 982-2442 by Nov. 27th.

INFORMATION THEORY
NOV. 20

Story on page 4

CONCEPTIONS OF PROBABILITY. Prof. Terrence L. Fine, visiting Assoc. Prof. Stanford University.

NOV. 20, Monday, 8:30 PM, SRI Conf. Room B, Bldg. 1, 333 Ravenswood Ave., Menlo Park. Dinner: Mings, 1700 Embarcadero, Palo Alto. Reservations: Mrs. Nancy Wynkoop, 321-2300 x 4539 by noon Fri., Nov. 18.

MAGNETICS
DEC. 7

Story on page 5

CARTRIDGE TELEVISION — A COMMUNICATION SYSTEM FOR HOME, BUSINESS AND SCHOOL. Philip Smaller, Cartridge Television.

DEC. 7, Thursday, 8:00 PM, Memorex Education and Training Center, Room 4, 1125 Memorex Drive, Santa Clara. No dinner.

MICROWAVE THEORY AND TECHNIQUES
NOV. 16

Story on page 7

MODERN DATA COMMUNICATIONS SYSTEMS — AN OVERVIEW OF SUPPORTING TECHNOLOGIES. C. Louis Cuccia, Philco Ford WDL. Ladies welcome.

NOV. 16, Thursday, 8:00 PM, Hewlett-Packard Auditorium, 5301 Stevens Creek Blvd., Santa Clara. Dinner: 6:00 PM, Custom House, 20060 Stevens Creek Blvd., Cupertino. Reservations: Dianna Tseu, (415) 326-6200 x 3181 by Nov. 14th.

NUCLEAR SCIENCE
NOV. 21

Story on page 6

DISCUSSION OF INSTRUMENTATION AND CONTROL FOR THE NEW SLAC POSITRON-ELECTRON STORAGE RING (SPEAR) AND TOUR OF FACILITIES. Richard A. Scholl, Project Engineer, SLAC.

NOV. 21, Tuesday, dinner at 6:00 PM, meeting at 7:00 PM. Tour at 8:00 PM, starting from Main Gate Parking Lot, SLAC, 2575 Sand Hill Road. Dinner: 6:00 PM, Velvet Turtle, 325 Sharon Park Drive, Menlo Park. Reservations: Mrs. L. Burch (415) 854-3300 x 2401.

PARTS, HYBRIDS & PACKAGING
NOV. 1, 8, 15 & 29

SIX-SESSION COURSE ON ADVANCED INTEGRATED CIRCUIT TECHNOLOGY. Session 3: **V-ETCH**. K. Taft. Session 4: **N-CHANNEL MOS**. Mike McCoy and Dr. John Paul. Session 5: **CHARGE COUPLED DEVICES**. Dr. J. E. Iwerson; Session 6: **SOSMOS**. Dr. Joseph Burnes, Inselek.

NOV. 1, 8, 15 and 29, Wednesdays, 7:30 to 9:30 PM, Hewlett-Packard Auditorium, 5301 Stevens Creek Blvd., Santa Clara. See Oct. GRID for details. Information: Jim Ostendorf (415) 941-0336 or Bill Littell (415) 326-1970.

POWER ENGINEERING SOCIETY
NOV. 11

Story on page 2

TOUR OF THE PG&E'S PITTSBURG POWER PLANT SPRAY CANAL.

NOV. 11, Saturday, 10 AM to 12 noon, Pittsburg Power Plant, Pittsburg. No Lunch. Reservations: Jim Malinowski (415) 781-4211 x 1170 or T. C. Petrich, (415) 781-4211 x 1556 by 5 PM Nov. 6th. Maps will be mailed to those making reservations.

RELIABILITY
NOV. 15

Story on page 5

PLASTIC SEMICONDUCTOR PACKAGES. Bill Beecher, R&QA Reliability Engineering Manager, Fairchild.

NOV. 15, Wednesday, 8:00 PM, Stanford Physics Lecture Hall PH 104. Dinner: 6:30 PM, Stanford View Restaurant, El Camino & Stanford Ave., Palo Alto. Reservations: Phil Guillot (408) 742-9371 by Nov. 14th.

SANTA CLARA VALLEY SUBSECTION
NOV. 8

Story on page 7

KEEPING NUCLEAR POWER PLANTS SAFE: ONE APPROACH. Britton P. Grim, GE Nuclear Energy Div., San Jose.

NOV. 8, Wednesday, 8:00 PM, Pacific Telephone, 111 No. Market St., San Jose - Cafeteria on 2nd floor. No dinner. Parking available at rear of building.

SYSTEMS, MAN & CYBERNETICS
NOV. 8

Story on page 8

A SOCIETAL ACCOUNTING SCHEME. Dr. Louis Fein, Consultant, Palo Alto.

NOV. 8, Wednesday, 8:00 PM, SRI Building 1, Conference Room B. Dinner: Red Cottage 6:15 PM, 1706 El Camino, Menlo Park. Reservations: Section office (415) 327-6622, by Nov. 6th.

VEHICULAR TECHNOLOGY
NOV. 20

Story on page 5

DIGITAL AIR-TO-GROUND COMMUNICATION SYSTEMS. Bob Johnson, Mgr., Communication Engineering for United Air Lines.

NOV. 20, Monday, 7:30 PM, International Inn, Bayshore Hiway, South San Francisco. Cocktails at 6:00 and dinner at 6:30 PM. Reservations: Pauline Hawkins (408) 277-4000 x 4533 by Nov. 17th.

CS – REVIEW OF FACTORS AFFECTING SYSTEM LOAD IN MULTICHANNEL F.D.M. CARRIER SYSTEMS

The November 28 meeting of the Communications Society will feature a talk by Neale A. Zellmer entitled, "A Review of the Factors Affecting the System Load in Multichannel F.D.M. Carrier Systems". This timely talk will start with a brief historical review of "average talker level", its measurement with a VU meter and conversion to DBM, The dynamic characteristics of the voice signal in the telephone plant and typical statistical models will be discussed leading naturally to the prediction on the dynamic characteristics of various multichannel signals by use of the theory of convolution. If time permits, the effect of data channels and/or compandored voice channels will be discussed. The conclusion will relate the impact of the RMS and peak powers of the net signal on the linearity of a broadband amplifier.

Mr. Zellmer studied at Upper Iowa University from 1939 to 1942, majoring in Chemistry and Mathematics. He obtained the B.S. degree in EE from Iowa State College in 1947. Before joining GTE Lenkurt in May 1953, Mr. Zellmer had over ten years of electrical and communications experience. Since 1960 he has served as a Senior Staff Engineer in the Advanced Development Laboratory and at present heads the Carrier Systems and Techniques Section of the Laboratory. He has eight patents in the general field of control devices such as compandors, line regulators, and voltage and current regulators.

AP – DETECTION OF UNDERWATER SOUND SOURCES

A series of relatively simple experiments has been carried out to investigate the feasibility of detecting a low frequency underwater sound source by illuminating the water surface with microwave or laser radiation and analyzing the scattered fields. These experiments and some of the results will be discussed in this talk.

Dennis Tremain received his BSEE degree from University of California at Davis in 1969 and his MS degree from University of California at Berkeley in 1970. He is currently completing requirements for his PhD degree in electrical engineering at Berkeley.

ED – LASER METHODS FOR REMOTE AIR POLLUTION DETECTION

"The laser is a solution looking for a problem." One problem is the remote detection of air pollution, and here the laser may be the solution. The recent development of tunable laser sources has stimulated more interest in this area.

Dr. Byer, Professor of Applied Physics at Stanford University, will discuss the use of lasers in remote air pollution detection. He will review the basic methods that have been proposed in the past. One of these, Raman backscatter from pollutant molecules is conceptually the simplest scheme but it suffers from lack of sensitivity. Dr. Byer and co-workers have recently proposed two new detection methods which make sensitive absorption measurements but retain the depth resolution and ranging capabilities inherent in the Raman scheme. These methods will be described and evaluated in light of Environmental Protection Agency's requirements for remote pollutant detection measurements.

IT – CONCEPTIONS OF PROBABILITY

A variety of views as to the proper formalization, interpretation, and use of probability will be presented. These include modal, comparative and qualitative formalizations and empiricist, inductivist and subjectivist types of interpretation. The past fifty years has seen a greater growth of ideas concerning the concept of probability than has the preceding 400 years since Cardano's monograph on gambling. Whether this flurry of activity marks a new birth is one of several speculations in which we will engage.

Terrence L. Fine received his BEE from the City College of New York in 1958 and his MS and PhD from Harvard University. Before joining the faculty at Cornell University in 1966 he was a research associate and lecturer at Harvard and a Miller Institute Fellow at U.C., Berkeley. He is currently an associate professor of electrical engineering at Cornell University and is visiting Stanford this year. Dr. Fine is the author of "Theories of Probability; An Examination of Foundations."

EBSS – DECEMBER TOUR OF GENERAL MOTORS ASSEMBLY PLANT

The East Bay Subsection has arranged a tour of the General Motors Assembly Plant in Fremont for Monday, December 11 at 7:00 p.m. (One hour tour). Attendance is limited to 50 persons and it will be by reservation. If you plan to attend, please call Hadi Monsef, Bechtel Corporation, (415) 764-6000 as soon as possible. All participants are requested to arrive at the main gate of the GM Plant (45500 Fremont Blvd.) by 6:45 p.m. The GM Assembly Plant is located beside Highway 17.

See CALENDAR for Program Arrangements

MAG – CARTRIDGE TELEVISION

A Communication System for Home, Business and School

Mr. Philip Smaller of C.T.I. will describe the CARTRIVISION video magnetic tape system and its related technology to the Magnetics Group on December 7 at the Memorex Education and Training Center. The CARTRIVISION system is a multistep serial process whereby educational and entertainment programs are transferred to video tape cartridges for mass distribution. The various steps in the process include dubbing from 35mm film to high coercive force magnetic tape, high speed contact duplication, loading of copies into cartridges and reproduction of copies on the cartridge video recorder.

Mr. Smaller has worked at the Physical Research Unit of Boeing Aircraft, the Research Divisions of Ampex and Memorex, where he was Manager of Magnetic Recording Research. He is presently Senior Staff Engineer at Cartridge Television working on the duplication process and other areas related to magnetic recording. Mr. Smaller has published papers on the information storage capabilities of magnetic recording systems, magnetic transducers, magnetic particle interaction and the theory of the recording process.

IAS – CHINA'S ELECTRICAL POWER INDUSTRIES

5 MEV VAN DE GRAFF GENERATOR USED FOR NUCLEAR PHYSICS STUDIES IN SHANGHAI, CHINA.

Mr. Tseng, Chief Electrical Engineer of Stanford Linear Accelerator Center has just returned from China where he led a 26 day tour as Chairman of the Chinese American Institute of Engineers.

The talk accompanied by slides will be on the latest double water cold 300,000 KW Large Generator Manufacturing Plant, Circuit Breaker and SW Gr. Plant Precision Instrument Plant and Underground Hydro Generating status technical advancements, social changes, employee benefits, universities and schools, and electrical shocks used on acupuncture techniques.

Mr. Tseng, born in Peking, China, a graduate of E.E. from National Central University, worked at North China Power System. From 1947-1950 he was with Illinois Institute of Technology, receiving degrees on M.S.-E.E. and B.S.I.E. He thereafter worked on various large consulting firms including Stone & Webster, Boston, Mass.; Bechtel Corp., S.F., Ca.; served as Electrical and project Engineer.

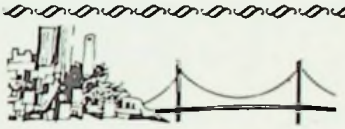
He is a registered Professional Engineer in seven states. His professional interests are in power systems and industrial general applications area. He is a senior member of IEEE; served as first chairman of the San Francisco IEEE-IGA Group.

In 1963 he joined the Stanford Linear Accelerator Center as Chief Electrical Engineer with the overall responsibility of the ultimate load capacity of 300 MW power system.

REL – PLASTIC SEMICONDUCTOR PACKAGES

In the last several years, a great deal of interest has been generated and many claims have been made about plastic encapsulated semiconductors. This presentation will be a common sense discussion of the problems associated with plastic encapsulated products. In particular, the speaker will show how methods used by manufacturers to control products can be used by equipment manufacturers to evaluate vendor control.

Bill Beecher is the R&QA Reliability Engineering Manager for Discrete Components at Fairchild. His department has been active in evaluating encapsulation techniques for semiconductors and working with customers on plastic packaging problems. Considerable work has been accomplished by his group in the application of plastic encapsulated products to large computers and to various consumer applications.



GGSS – O.S.H.A.

Public Law 91-596 91st Congress, S-2193 or the WILLIAM-STEIGER OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970.

Speaker: Mr. Raymond W. White, Manager, Claims and Safety Department of PG&E Co. Author of numerous articles on Safety and a EEI committee member on OSHA.

We have learned to live for decades with: SAE, ANSI, ASTM, NEC, and now let's find out about OSHA? What is it, who enforces it; and how does it affect the Electrical Engineer in his profession.

Since we are on the same floor with the PG&E Co. Cafeteria, select your own lunch and come to the meeting with it. At least you'll eat what you like. Guests are invited. No reservations. Take the 1st to 3rd Floor elevators.

VT – DIGITAL AIR-TO-GROUND COMMUNICATIONS SYSTEMS

Recent experiments in digital air-to-ground communications will highlight a talk by Bob Johnson, Manager of Communications Engineering for United Airlines.

Johnson will also speak on the use of multiplexing techniques in the internal communications systems of wide-bodied jets. These techniques are used to reduce weight in jet aircraft by eliminating heavy multiple conductor cables.

Mr. Johnson is a graduate of Oregon State University and has been with United Airlines for 20 years.

The meeting will be held at the International Inn Restaurant on the Bayshore Highway in South San Francisco. Guests are welcome. Reservations for dinner must be made before 5 p.m. Friday, Nov. 17th. Phone Pauline Hawkins, City of San Jose Communications, (408) 277-4000, ext. 4533.

See CALENDAR for Program Arrangements

NS – DISCUSSION AND TOUR OF NEW SLAC STORAGE BUILDING

Richard A. Scholl will discuss instrumentation and control for the new SPEAR Storage Ring. This unique facility for studying interactions produced by colliding beams of positrons and electrons, which has just recently become operational, is monitored and controlled using an on-line Sigma 5 computer.

Richard A. Scholl is Project Engineer for the design and implementation of the total SPEAR instrumentation and control system. Mr. Scholl holds a Bachelor's Degree in Physics from San Jose State College and an MSEE from University of Santa Clara. He joined SLAC in 1963, and has specialized in beam instrumentation and associated computer control systems.

SLAC POSITRON – ELECTRON STORAGE RING

SC – ONE DAY SHORT COURSE: ADVANCED MEMORY SYSTEMS

The IEEE Computer Society and the Division of Continuing Education, University of Santa Clara, jointly will present a one day short course on "Advanced Memory Systems" at Daly Science Hall, Room 207, University of Santa Clara on Dec. 2, 1972, from 8:30 A.M. to 4:00 P.M.

IEEE Computer Society
December 2, 1972, One Day Short Course on "Advanced Memory Systems))

(If possible, mail before November 28)

Enclosed is check (Payable to University of Santa Clara) in amount of $ _____

Name: _____

Address: _____
(Street)

_____
(City, State, Zip)

Telephone: _____

Check one: _____Regular Member

_____ Student Member _____Unemployed Member

_____ Non-Member

Mail this form and payment to:
IEEE Computer Society Short Course
Division of Continued Education
University of Santa Clara
Santa Clara, California 95053

This is the second in a series of one day short courses to be presented in 1972-73 covering state of the art developments and indicated trends in various sectors of the fast moving computer technology. The courses are designed for and aimed at the needs of the practicing engineer.

Program chairman and organizer of the December 2 course is Ted Laliotis, Fairchild Memory Systems Operations.

Speakers: John Warnock, Ames Research Center: ILLIAC IV System Overview with emphasis on the Memory System Complex of ILLIAC IV. Ted Laliotis: Virtual Memories (The SYMBOL IIR Memory).
Dave Hodges, Professor of Electr. Eng. U.C. Berkeley: Alternative Component Technologies (Semiconductor, Bubbles, Moving Surface, Optical). Other speakers to be announced.

Co-organizers of the short courses throughout the year will be: Frank Greene, President of Technology Learning Corporation, William Dunn, Professor of Electr. Engnr. Univ. of Santa Clara and Peter Gise, Instructor of Electr. Engr. Univ. of Santa Clara.

Fees: IEEE or ACM members $20.00. Non-members $25.00. Fees include notes and lunch on campus. Student Members or Unemployed Members $4.00 without lunch, or $6.00 with lunch.

EBSS – TO HEAR OF FUTURE FOR EAST BAY WATER SUPPLY

Mr. Orrin H. Harder, Manager of East Bay Municipal Utility District's Water Resources Planning Division, will be the speaker at the November meeting of the East Bay Subsection scheduled for Tuesday, November 14th, at 7:30 P.M. The meeting will be held at PG&E's Service Center located at 4801 Oakport Street in Oakland. He will discuss the present and future sources of water for the East Bay cities and the problems involved.

Mr. Harder is a graduate of the U.S. Merchant Marine Academy and has a bachelor's degree from the University of California at Berkeley. He is a member of the American Society of Civil Engineers and chairman of the Hydraulic Section in San Francisco. He is also a member of the Commonwealth Club and the U.S. Naval Institute.

See CALENDAR for Program Arrangements

HOW TO START AND FINANCE A NEW BUSINESS

REGISTRATION FORM

(Should be received before November 5, 1972)

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

Enclosed is check (payable to San Francisco Circuit Theory Group) in the amount of $..... to cover the enrollment fee.

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

Home Address: .....
(Street)

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

Business Address: .....
(Street)

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

Position or Title: .....

Business Phone: .....

IEEE Affiliation (Check One)

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

IEEE Membership No.: .....

HOW TO START AND FINANCE A NEW BUSINESS

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. **To ensure enrollment individual names must be received before November 5, 1972.** For additional applications, use separate sheet giving information requested on enrollment form.

INFORMATION

For additional information concerning the program, write or call:

Les Besser, Farinon Electric
935 Washington Street
San Carlos, Calif. 94070 (415) 593-8491

Donald Dible, Entrepreneur Press
48 Washington St., 19,
Santa Clara, Calif. 95015 (408) 248-7770

A ONE-DAY SHORT COURSE ☐ NOVEMBER 11-12, 1972 ☐ AT SLAC ☐ PRESENTED BY THE IEEE CIRCUIT THEORY GROUP, SAN FRANCISCO CHAPTER IN COOPERATION WITH THE ENTREPRENEUR PRESS

WHEN

November 11 - 12, 1972
Saturday and Sunday
9:00 a.m. - 5:00 p.m.

WHERE

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

FEE

The fee for this course is $45.00 for IEEE regular members, $35.00 for student members and $55.00 for non-members. The fee also includes the lunch at SLAC and the book "Up Your Own Organization."

COURSE DESCRIPTION

A program faculty of 16 small business experts has been assembled for this purpose. The first day's presentation will include the following subjects: "Company-Sponsored Entrepreneurship, the Alternative to Spinoffs," "Idea Protection, Employment Contracts and Liability of the Entrepreneur," "The Founding Team and the Board of Directors," "Sources of Help in Preparing a Business Plan," "How to Prepare a Market Study and Plan Market Strategy," and "How to Prepare Pro Forma Financial Statements."

The second day will be set aside for the subjects of "Sources of Capital," and speakers will include attorneys, investment bankers, venture capitalists, commercial bankers and other representatives of financial institutions.

TEXT BOOK

All attendees will receive a complimentary copy of the book Up Your OWN Organization! A Handbook for the Employed, the Unemployed, and the Self-Employed on How to Start and Finance a New Business, by Donald M. Dible.

HOW TO START AND FINANCE A NEW BUSINESS

November 11 - 12, 1972

Main Auditorium

Stanford Linear Accelerator

2575 Sand Hill Road

Palo Alto, California

COURSE SCHEDULE

SATURDAY MORNING

OPENING REMARKS
Donald M. Dible, Author of Up Your OWN Organization! A Handbook for the Employed, the Unemployed, and the Self-Employed on How to Start and Finance a New Business

I. SO YOU WANT TO START YOUR OWN BUSINESS?

WHAT MAKES A WINNER?
Dr. John L. Komives, Director Center for Venture Management, Milwaukee, Wisconsin

GOVERNMENT SERVICES AVAILABLE TO THE ENTREPRENEUR
J. Jerry Jeremy, Chief Domestic Trade Division U.S. Dept. of Commerce Office of Business Services, San Francisco

COFFEE

COMPANY SPONSORED ENTREPRENEURSHIP THE ALTERNATIVE TO SPINOFFS
Wes Fisher, President, Farinon Electric

IDEA PROTECTION, EMPLOYMENT CONTRACTS AND LIABILITY OF THE ENTREPRENEUR
Tom Skornia, Senior Partner Skornia, Rosenblum & Gyemant, Attorneys at Law

LUNCH

AFTERNOON

THE FOUNDING TEAM AND THE BOARD OF DIRECTORS
Roy Rogers, Partner, Hambrecht and Quist investment Bankers

PROBLEMS CHARACTERISTIC OF THE NEW TECHNICAL ENTERPRISE
William I. Koch, President, Koch Venture Capital Cambridge, Massachusetts

II. THE BUSINESS PLAN--PANEL

WHY DO YOU NEED A BUSINESS PLAN? SOURCES OF HELP IN PREPARING A BUSINESS PLAN
Dr. John L. Komives, Director Center for Venture Management, Milwaukee, Wisconsin

COFFEE

HOW TO PREPARE A MARKET STUDY AND PLAN MARKET STRATEGY
Norman Moore, Vice President, Farallon Industries, Belmont, California. Fred Hoar, Vice President Communications, Fairchild

HOW TO PREPARE PRO FORMA FINANCIAL STATEMENTS
George Kelly, Principal, Haskins & Sells, Certified Public Accountants, San Francisco

SUMMARY

SUNDAY MORNING

III. SOURCES OF CAPITAL

LOAN AND EQUITY FINANCING
Donald M. Dible

LOAN SOURCES

BANK FINANCING
R. P. (Dee) Tolles, Regional Vice President Union Bank, Palo Alto

THE SMALL BUSINESS ADMINISTRATION
Elmer G. Foster, Supervisory Loan Officer SBA, San Francisco

COFFEE

COMMERCIAL FACTORING
Julius Lustig, Manager, Washington Thrift, San Jose

EQUIPMENT LEASING
Louis Starr, Secretary-Treasurer, Leasametric, San Francisco

LUNCH

AFTERNOON

EQUITY CAPITAL SOURCES--PANEL
Moderator: Donald M. Dible

OBJECTIVES OF THE VENTURE CAPITALIST
Dr. Burton J. McMurtry, President, Palo Alto Investment Company

FINANCING THROUGH AN INVESTMENT BANKER
Tom Cable, Partner
Robertson, Coleman & Siebel
Investment Bankers

STRUCTURING THE DEAL
David L. Anderson, Treasurer-Secretary
Sutter Hill Capital Corp.

PUBLIC OFFERING VERSUS PRIVATE PLACEMENT
Robert E. Gyemant, Partner
Skornia, Rosenblum & Gyemant
Attorneys at Law

CLOSING REMARKS
Donald M. Dible

SCVSS – KEEPING NUCLEAR POWER PLANTS SAFE

The safety of Nuclear Power Plants has been the subject of many recent environmental debates, and a controversial part of the defeated Proposition 18. To help in the understanding of this subject, the Santa Clara Valley Subsection has asked Mr. Brit Grim of General Electric's Nuclear Energy Division to discuss Protection systems used in the design of nuclear power generating stations. The meeting is open to all interested in this topic.

Mr. Grim's discussion will cover safety objectives, shutdown systems, containment and reactor vessel isolation, and emergency cooling systems. He will also cover IEEE's work in this area from his experience as a member of IEEE Working Group on Nuclear Power Plan Control and Protection.

Mr. Grim received his BSEE from Cal Poly and has done graduate work at California State University at San Jose. He joined G.E. in 1968 and since that time has been working primarily on Nuclear Power Plant Control and Protection.

A WORD OF APPRECIATION

Please know that the editor appreciates your assistance in submitting well prepared copy for the GRID. Nearly all Groups/Societies are submitting well-edited announcements, brief and to the point. Double spacing, and even the ultimate of short typed lines with 34-37 type characters per line, make it easy to Varitype.

EM – AES JOINT MEETING EPA ALKALI WET-SCRUBBING TEST FACILITY AT THE TVA SHAWNEE STEAM PLANT

With the present slowdown in the defense industry, an area of growing interest is technology transfer to areas such as environmental protection.

Dr. Michael Epstein, Assistant Project Manager with Scientific Development, Bechtel Corporation, will discuss the Environmental Protection Agency's alkali wet-scrubbing test facility at the TVA Shawnee steam plant at the November 14 meeting of the Engineering Management Group and Aerospace & Electronics Systems Group.

Dr. Epstein has responsibility at Bechtel for characterizing limestone/lime wet-scrubbing systems. He joined Bechtel three years ago and previously spent five years as a Senior Engineer with Rocketdyne. While a graduate student at the University of California at Berkeley, Dr. Epstein investigated nucleate and film boiling in liquid helium and hydrogen over wide ranges of reduced pressure.

MTT – MODERN DATA COMMUNICATIONS SYSTEMS – AN OVERVIEW OF SUPPORTING TECHNOLOGIES

The growth of data communications from its inception to the present dynamic expansion of digital communications will be described by Mr. Lewis Cruccia. A detailed discussion will be made of the system requirements of the numerous communications systems now in existence, based on the various types of modulation used and the link parameters which affect the amount and quality of the transmitted data actually appearing at the receiver output. The talk will conclude with a review of the supporting technologies of data communications systems. The key subsystem technologies to be highlighted will include microwave oscillators and their tunability, group delay and amplitude equalizers, low noise devices, phase lock systems, frequency converters and microwave frequency synthesis.

Mr. Cruccia is in the Advanced Communication Systems Activity at the Western Development Laboratories of Philco Ford Corp. where he has the responsibility for prototype development of new circuits and subsystems relating to high speed data communications and to the RF portion of satellite communications systems.

EMB – BIOMEDICAL ENGINEERING – A FORTHCOMING PROFESSION?

Engineering applications in the biomedical field have been divided by some into three categories: Each of these might be considered almost as complex as the human body itself. The challenges for the engineer range in scope from the simple development of a stethoscope or nerve reflex hammer to the scanning electron microscope, and from pressure mapping of the circulatory system to voltage measurements of brain waves. Tremendous growth in health care delivery systems is forecast for this decade. What will the market be for biomedical engineers? How should they be educated, and where will they work?

The challenge is here – how we meet it will be the topic of a panel discussion moderated by Professor Edwin Lewis, U.C. Berkeley. Panel members will be: Dr. William Brody, M.D.; Pat Daniels, Doctoral Candidate, U.C. Berkeley; Milton Kelly, Director of the Center for Advanced Medical Technology; Larry Prehn, Chairman, E-MB; and Professor James Meindl, Stanford University.

See CALENDAR for Program Arrangements

SMC – A SOCIETAL ACCOUNTING SCHEME

Dr. Louis Fein, a consultant, writer, and teacher in the computer field since 1955 will discuss "societal accounting" methods of evaluating institutions from a societal, rather than an economic point of view. The evaluation of institutions, including corporations, schools, government agencies, and courts, from this point of view has received much attention recently, and Dr. Fein will review the criteria used and the techniques available for this purpose.

Dr. Fein has worked in the design, application, and evaluation of computer systems; in education in computer-related fields; in information retrieval; in the management of computer firms; and in the social implications of computers. He received his B.S. from Long Island University, his M.S. from the University of Colorado, and his Ph.D. from Brown University – all in physics. He founded Computer Control Co. in 1952 and served as president and chairman of the board until 1955.

CSS – FREEWAY TRAFFIC CONTROL

Traffic Control Systems have been installed in several cities of the United States which allow real time surveillance and control of freeway traffic. Presence detectors are located on the freeways, and surveillance is effected by telemetry and digital computer processing. Control is effected by metering traffic entering the freeway.

This talk will present research on modeling freeway traffic flow, estimation of traffic conditions from presence detector data, and control of freeway traffic on an existing freeway segment. In some aspects, a sound theoretical foundation for practical traffic constraints has been established.

Dr. Lief Isaksen received his Ph.D. in EE from the University of So. Calif. in 1971, where he was a senior lecturer for three years in Electrical Engineering. He joined Systems Control, Inc., assigned to freeway traffic estimation and control; coordinated arterial signal control; and conceptual design, scheduling and control of dual-mode and personal rapid transit systems.

While at USC, he worked with the

Calif. Div. of Highways-Freeway Operations Dept. to develop traffic-responsive on-ramp freeway control strategies for a section of the 42 mile Los Angeles Freeway Surveillance and Control Project. At Systems Control, Inc., he participated in a study for Santa Clara County to develop improved procedures for coordinating traffic signals along a major arterial street.

Dr. Isaksen is author of several papers on this subject, which have been presented at important national meetings.

CALIFORNIA SOCIETY OF PROFESSIONAL ENGINEERS OFFERS SERVICES

Although the principal action in the NSPE-technical society liaison program is at the national level, there is also a growing interest among IEEE and other technical society members in action at the local level, inasmuch as that is where most NSPE policies and programs originate, and where engineers (whether NSPE members or not) can become personally involved in shaping the future of our profession in its nontechnical aspects.

IEEE members employed or residing on the San Francisco Peninsula who wish to be informed of what the Peninsula Chapter of NSPE/CSPE is doing can receive the chapter's monthly bulletin, the Peninsula Professional Engineer, for one year by sending $2.00 to: Kazu Oshima, Circulation Manager, PPE, 241 North Delaware Street, San Mateo 94401. Make checks payable to Peninsula Chapter, CSPE.

IEEE members are welcome, whether or not NSPE members, and whether or not subscribing to NSPE services under the liaison program, to visit all and even participate in many Peninsula Chapter activities and programs. This offer is made through Keith W. Henderson, Managing Editor, Peninsula Professional Engineer (Member and former national director, NSPE) (Senior Member, IEEE).

EMC – SEMICONDUCTOR FAILURE ANALYSIS

A review of the methods and techniques employed to determine the mechanisms responsible for the failure of semiconductor devices, and will illustrate the mechanisms with representative photomicrographs is presented. The discussion will review the major categories of semiconductor failure, the manufacturing deficiencies responsible for the failure, and the screening methods that can be employed to preclude the inclusion of devices with these defects into operational systems.

Mr. Berger, an engineering specialist in the Reliability Engineering Group, has the direction for the evaluation of development of new integrated circuit processing and fabrication methods. He has performed extensive investigations concerning the utilization of infrared detection techniques to determine potential failure mechanisms.

See CALENDAR for Program Arrangements