

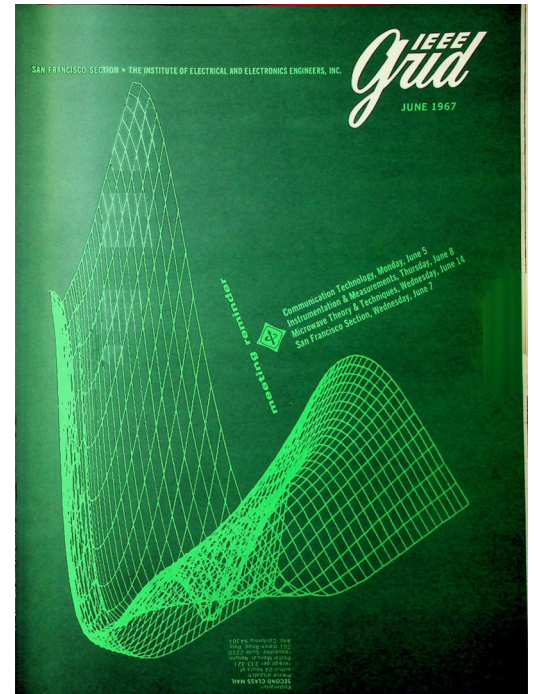
# EDITOR'S PROFILE of this issue

*from a historical perspective ...*

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

June, 1967:

Cover: A plot using a CalComp (California Computer Products) plotter demonstrates the versatility of their Model 835 unit.



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

[https://ethw.org/IEEE\\_San\\_Francisco\\_Bay\\_Area\\_Council\\_History](https://ethw.org/IEEE_San_Francisco_Bay_Area_Council_History)

At time of scanning, the bound volumes are held by Paul Wesling. July, 2021 Contact p.wesling@ieee.org

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

# IEEE *Grid*

JUNE 1967

meeting reminder



Communication Technology, Monday, June 5  
Instrumentation & Measurements, Thursday, June 8  
Microwave Theory & Techniques, Wednesday, June 14  
San Francisco Section, Wednesday, June 7

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## SYSTEMS ENGINEERS

For Field Assignments. Experience or interest in electronic design, development, testing and integration of sub systems into complete operational systems. Provide consulting service and operational aid plus training assistance. Must be capable of handling a broad spectrum of electronic problems. A knowledge of military radar and microwave desirable, BS Degree required; 1-5 years systems experience desirable.

## RECEIVER ENGINEERS

To design and evaluate receiver circuits such as low noise RF amplifiers and oscillators, IF and video amplifiers, parametric upconverters, and wave from generators. Work will involve network synthesis, control systems, and information theory, and will consist of receiver system design, technique investigation and equipment development. BSEE or MSEE required plus 1-6 years' applicable experience.

## TRANSMISSION ENGINEERS

Designs a wide variety of transceiver circuits and equipment. Assumes responsibility for the coordination and technical direction of small projects (1 to 5 engineers). Has thorough grasp of equipment and circuit design, including RF, nonlinear, and simple digital circuits. Makes significant individual contributions to the more difficult design problems. Assist in preparation of estimates and proposals for future work. Significant design capability in most of the following areas: RF circuits, modulation theory, information theory, feedback techniques, digital circuits, voltage tuning techniques, mixer and detector design, and environmental resistance. MSEE or BSEE required; 5 to 10 years of progressively maturing circuit and equipment design experience. Proven high level technical competence in equipment design areas mentioned above.

## MECHANICAL ENGINEERS

To perform physical design of electronic equipment including antenna structures, tuning and drive mechanisms and enclosures. Perform engineering analysis for stress heat transfer, aerodynamics, fluid flow dynamics and related subjects, investigate methods, techniques and materials for design and fabrication. Requires some travel and contact with suppliers. BSME plus 0-5 years' related experience; MSEE preferred.

## ADVANCED SECURITY SYSTEMS DESIGN ENGINEERS

Equipment and circuit design of security devices, security systems and special purpose detection equipment. Will be a member of a small engineering group responsible for the application of various types of sensors to security and detection systems, for the design, development and worst case analysis of solid state circuitry required for system implementation and for the testing, evaluation and analysis of test data to determine system sensitivity, effectiveness and false alarm criteria. BSEE required, MSEE desired with 3-6 years of experience designing solid state circuitry for military equipment.

## SIGNAL PROCESSING ENGINEER

Design and development of solid state circuits using discrete components and integrated circuits. Circuits to be associated with signal analysis, signal processing and display techniques. Supervision of technicians and support to other engineers in the design and development of complex analysis equipment using both analog and digital techniques. Prime responsibility to be in the area of circuit design, but must also be capable of documentation of work performed. BSEE required, MS desired with 0-4 years in design and development of circuits analog and digital.

## SENIOR PRODUCT ENGINEER

To be responsible for converting bread-board and developmental models of electronic devices into final pre-production items of hardware. Responsibility will include test and integration of sub-systems and complete systems and development of new product engineering technology and advanced packaging techniques. Supervision of engineers and technicians. BS required, MS preferred.

## DEVELOPMENT ENGINEER

Position in the laser device development which requires knowledge and experience in one or more of the following areas: (1) laser fabrication techniques; (2) laser system fabrication and design; (3) infrared optical devices; and (4) electronic control systems. The position will require technical responsibility in several research programs directed toward the development of sophisticated infrared laser devices.

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# 4 ways to view displays with the Tektronix Type 564

## split- screen storage oscilloscope

The Tektronix Type 564 is virtually two instruments in one. It offers all the advantages of a storage oscilloscope plus those of a conventional oscilloscope.

### Split-Screen Displays

An unique split-screen display area enables you to simultaneously use either half of the screen for storage and the other half for conventional displays, or use the entire area for stored or conventional displays.

Independent control of both halves of the screen permits you to take full advantage of the storage facilities. For example, you can use half the screen to store a reference waveform, the other half to display waveforms for comparison. You can erase or retain either half of the display area as you choose.

### Bistable Storage Advantages

With bistable storage oscilloscopes, such as the Type 564 and Type 549, the contrast ratio and brightness of stored displays are constant and independent of the viewing time, writing and sweep speeds, or signal repetition rates. This also simplifies waveform photography. Once initial camera settings are made for photographs of one stored display, no further adjustments are needed for photographs of subsequent stored displays.

Storage time is up to one hour, and erase time is less than 250 milliseconds. An illuminated 8 cm by 10 cm graticule facilitates measurements and aids in taking photographs with well-defined graticule lines. Adding to the operating ease is a trace position locator that indicates, in a nonstore area, the vertical position of the next trace or traces.

Tektronix bistable storage cathode ray tubes are not inherently susceptible to burn-damage and require only the ordinary precautions taken in operating conventional oscilloscopes.

### Plug-In Unit Adaptability

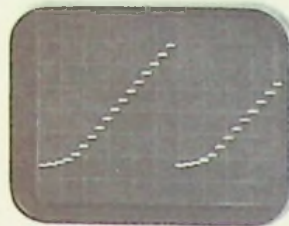
The Type 564 accepts Tektronix 2 and 3-series plug-in units for both vertical and horizontal deflection. Display capabilities of these units include single and multi-trace with normal and delayed sweep; single and multiple X-Y; low-level differential; dual-trace sampling; spectrum analysis, and many other general and special purpose measurements.

Type 564, without plug-in units . . . . .	\$875
Rack-Mount RM564 . . . . .	\$960
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Entire screen can be used for a stored display.

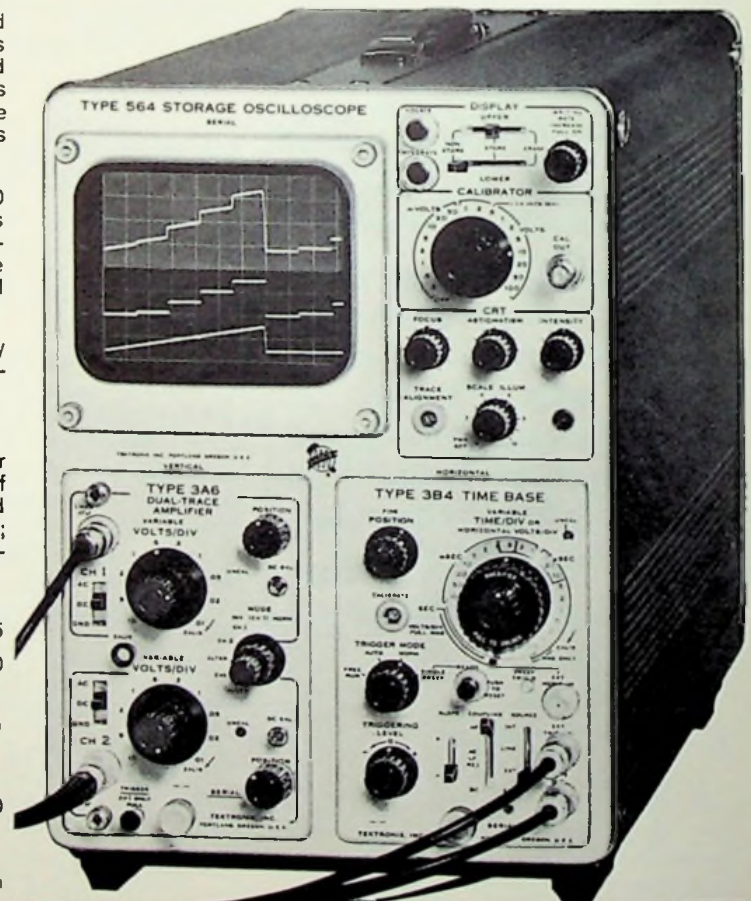


Entire screen can be used for a nonstored display.



Each half of split-screen can be used independently for stored displays.

Either half of the split-screen can be used for a stored display, the other half for a nonstored display. (Shown below).



For complete information, contact your nearby Tektronix Field Engineer or write: Tektronix, Inc., P. O. Box 500, Beaverton, Ore. 97005.

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*IEEE*  
*Journal*  
volume 13  
number 10  
june, 1967

*the section*

### MEMBERSHIP

Following are the names of individuals who have been elected to current membership:

R. B. Anderson	A. R. Saunders
R. E. Devidson	K. F. Schultz
E. H. Ferguson	S. Shayer
J. R. Hubbard	R. D. Showman
E. Koda	J. D. Simoni
J. J. Miller	K. E. Vogel

*power news*

### SUMMER MEETING

A full and active program for the 1967 Summer Power meeting to be held July 9-14 in Portland, Oregon, has been announced by Carl Bjorquist, Bonneville Power Administration, general chairman of the meeting.

This meeting is sponsored by the Power Group and will be devoted to the field of power apparatus and systems, including electrical insulation, telemetering and communications. The headquarters hotel will be the Portland Hilton Hotel in downtown Portland, Oregon.

Over 150 papers will be presented at the 37 technical sessions at this 5-day meeting, including the latest developments in generation, transmission and distribution.

In addition to the technical programs, several inspection trips and social events have been planned for this important meeting.

Portland, Oregon promises to be an especially appropriate location since it will provide a base from which inspection trips may be made to examine high-voltage DC test facilities, 500-kV AC substations and lines,  $\pm$ 400-kV converter stations, and construction progress of large generating stations such as the 2160 MW John Day Dam.

The major entertainment event of the meeting will be an outdoor western barbecue featuring barbecued beef, pork ribs, and Columbia River salmon. Following the barbecue will be a ride on a steam logging train through the rugged mountains of the Pacific Coast Range.

Further details concerning the IEEE 1967 Summer Power Meeting may be obtained from W. L. Carey, publicity chairman, Portland General Electric Company, 621 S. W. Alder Street, Portland, Oregon 97205.

*cover*

"The Bat" is a perspective view, developed by California Computer Products, Inc., to show the versatility of their Model 835 plotting system in the presentation of complex functions to study hidden lines.

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Paul Ely

meeting ahead

### AUTOMATED MICROWAVE

Paul Ely, engineering manager, Hewlett-Packard microwave division, will discuss automated microwave systems at the June 8 meeting of the Instrumentation & Measurement chapter.

The speaker has been active in the microwave and radar instrumentation field for fifteen years. He holds a BS in engineering physics from Lehigh University and received the MS in EE from Stanford University.

meeting ahead

### INTERNATIONAL MTT PAPERS

The MTT chapter is contacting the authors of the following papers in the expectation that they will be able and willing to give a repeat performance for the local chapter at their June 14 meeting:

- 1) "A frequency transformation for commensurate transmission-line networks" by E. G. Cristal of Stanford Research Institute.
- 2) "Computer designed, 720 to 1 microwave compression filter" by H. S. Hewitt of System Techniques Laboratory, Stanford.
- 3) "Yig tuned and varactor tuned L-band transistor oscillator" by Keith Hunton of Sylvania.
- 4) "A subnanosecond X-band pulse modulator", by D. K. Adams, B. M. Schiffman and R. B. Larrick of Stanford Research Institute.
- 5) "Frequency modulation and translation with magnetoelastic waves in Yig", by D. A. Auld, J. H. Collins and H. R. Zadd of Stanford University.

*H. Christian Zweng, M.D., focuses fundus camera on eye of monkey, assisted by Earl Scribner. Dr. Zweng will discuss lasers in medicine at the June 7 section annual meeting.*

# Meeting Calendar

## JUNE 5, MONDAY, 7:30 PM — Communication Technology An experimental 224 MB/S PCM System

*J. M. Sipress, Bell Telephone Labs, Holmdel, New Jersey*

Place: Pacific Telephone auditorium, 140 New Montgomery (between 2nd & 3rd Sts. San Francisco)

No host cocktails 5:30

Dinner: 6:00 PM, Iron Horse, 19 Maiden Lane, San Francisco: choice of entrees: chicken bonne femme \$4.35 or beef stroganoff \$4.50 (plus tip)

Reservations: Robert Howland, (408) 291-4039; George Griffith (415) 591-8461, ext. 525, or Ed Combs, 397-1471 by noon 6/5

## JUNE 7, WEDNESDAY, 8:00 PM — San Francisco Section/All Subsections and Chapters, ladies night Lasers in medicine

*H. Christian Zweng, M. D., research associate, Palo Alto Medical Research Foundation; staff member Palo Alto Clinic; assistant clinical professor, Stanford University Medical Center*

Place: The Bold Knight, 769 No. Mathilda Ave., Sunnyvale (2 blocks west of Bayshore)

Social hour: 6:00 PM (refreshments 65¢)

Dinner: 7:00 PM — roast sirloin of beef, \$4.50 incl. tax & tip

Reservations: Mrs. Jean Helmke, Section Office, 327-6622 by June 5

Tables of six or more may be reserved for Subsections, Chapters, Committees and Companies

## JUNE 8, THURSDAY, 8:00 PM — Instrumentation & Measurement Automated microwave systems

*Paul Ely, engineering manager, Hewlett-Packard Co., microwave div.*

Place: Meeting room 5M, 1501 Page Mill Road, Palo Alto

Dinner: 6:30 PM, Rick's Chalet, 4085 El Camino Way, Palo Alto

Reservations: Dr. Kay Magleby, 326-1755, ext. 378 by June 6

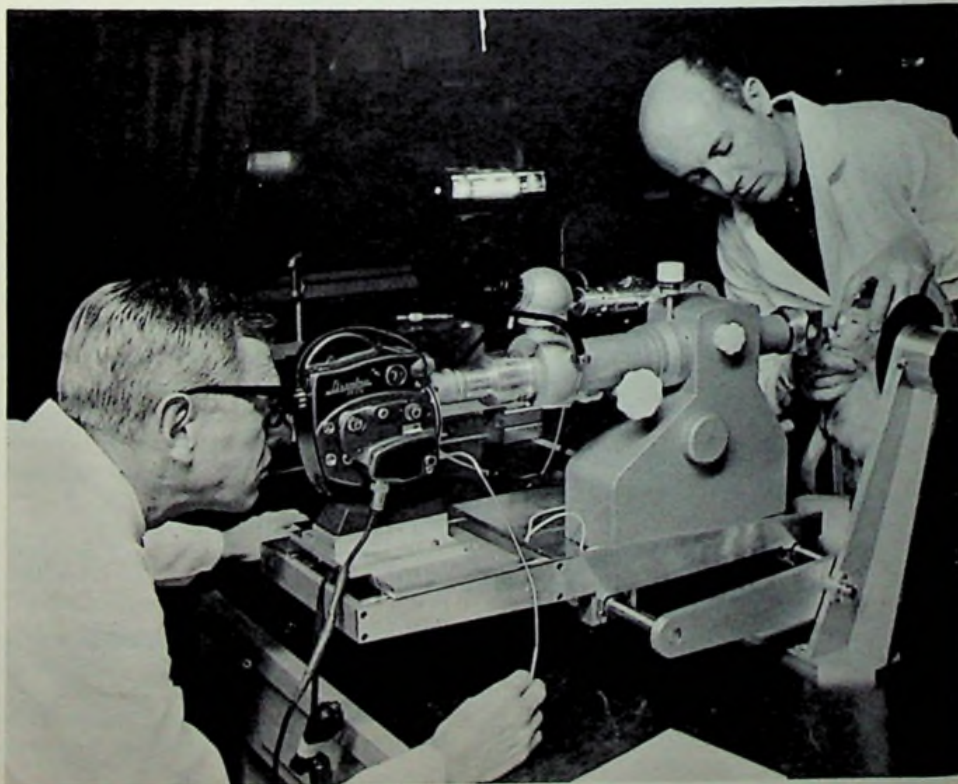
## JUNE 14, WEDNESDAY, 8:00 PM — Microwave Theory & Techniques Symposium of international MTT papers by Bay area authors

Place: Hewlett-Packard meeting room 5M, 1501 Page Mill Rd., Palo Alto

Social Hour: 5:30 PM

Dinner: 6:00 PM, Rick's Chalet, 4085 El Camino Way, Palo Alto; steak \$3.85 inc. tax & tip

Reservations: Joan McClung, 326-7000 ext. 2703 by June 13





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student branch news

### SUBREGION PAPER CONTEST

The subregion student papers contest for student branches of the San Francisco and Sacramento Sections was held at Sacramento State College on April 13 with six universities and state colleges represented.

Winners in the graduate paper contest were: first place, LCDR Ernest C. Ball, Royal Canadian Navy, U.S. Naval Post Graduate School, Monterey, "Frequency Sensitivity of Oscillators"; second place, Bruce Edgar, Stanford University, "Ion Drag in Dielectric Liquids"; third place, Ronald K. Mitooka and Stephen T. Mori, University of Santa Clara, "Description of Program Flowtran."

Undergraduate winners were: first place, David Owens, Stanford University, "A Statistical Least Squares Curve Fit for RF Impedance Circles"; second place, Jack Seimas and Phillip D. Neketin, University of Santa Clara, "Detection of Metals by the Use of Alternating Electromagnetic Fields"; and third place, Lee W. Ritchey, Sacramento State College, "Design of a Plethysmograph with Automatic Gain Control".

Other participants were Demetrius Sakkaris, Fresno State College, "Theoretical Application of Maxwell's Equations in Resonant Cavities"; and Ron Lee, University of Nevada, "Morse Code Decoder."

All participants were awarded a certificate and \$5 in IEEE dues by Chairmen Hulse and Jerome of the San Francisco and Sacramento Sections. First place winners were awarded \$50, second place \$30, and third place \$20, the first place winners to compete in the semi-finals at the Region 6 Con-

*Undergraduate contestants are (left to right) Demetrius Sakkaris, Fresno; Phillip D. Neketin, Santa Clara; Ron Lee, University of Nevada; Lee Ritchie, Sacramento State; David Owens, Stanford.*

ference in Albuquerque. Stanford University, the school of the first place undergraduate winner, was awarded a traveling trophy.

In addition to Hulse, the section was represented by Gordon Longerbeam, student branch coordinator, R. C. Maninger and J. W. Savage, contest judges, and Prof. James Smith, Fresno State, Prof. Raymond Yarbrough, San-

ta Clara, and Prof. John Bouldry, Monterey, student counselors. Representing Prof. R. J. Smith, Stanford counselor, were Arthur Heers, chairman of the Stanford Student Branch and Charles Chernack, industrial co-sponsor of the branch.

The sections hosted the students and counselors for dinner in the faculty dining room.



*Chairman Hulse and LCDR Ernest C. Ball RCN, USNPG, Monterey, graduate winner. Photos by Gordon Longerbeam.*

**PROFESSIONAL  
PLACEMENT AID**

Once used by engineers to solve problems and by college students to find dates, computers are now also helping people find jobs.

A Cornell law student and a recently discharged Army engineer have become the first to find new jobs with the help of a new computerized job-hunting system called GRAD.

Both lawyer and engineer have been hired by the Eastman Kodak Company here, through the College Placement Council's new GRAD system. The College Placement Council is a non-profit organization servicing thousands of colleges and employers throughout the United States.

"I was very surprised,"—was the reaction of the Cornell law graduate when he was asked how it felt to be hired with the help of a computer. The new Kodak attorney explained that he had submitted his resume to GRAD shortly before the system became operational in early July. He wasn't sure then what would happen. "Now", he said, "I'm convinced that computer job placement has a tremendous future."

"When we received the resume", said Robert F. Herrick, executive direc-

**DOWNWARD ENGINEERING CAREER CHOICE  
CONTINUES—WHY?**

Results of a survey of Stanford freshmen recently conducted in cooperation with the American Council on Education, compared to a similar survey in 1961:

CAREER CHOICE	1966	1961
Physician	12.0%	10.5%
Lawyer	10.9	7.9
Research scientist	9.6	5.7
Businessman	8.5	4.6
Engineer	7.9	10.9
Artist, musician	7.1	0.9
School teacher	6.2	8.1
College professor	6.1	3.0

tor of the College Placement Council, "it was recorded along with thousands of others on magnetic storage discs at the GRAD Data Center in Bethlehem, Pa.

An Army engineer completing his tour of duty in Thailand, a 1964 mechanical engineering graduate of the University of Rhode Island, was also picked by the computer as having the qualifications needed for the development engineering job. He visited one of Eastman Kodak's engineering departments and, two days after the

*(Continued on page 16)*


*student branch news*


**AREA CHAIRMEN**

Chairmen of the eight student branches of IEEE in the San Francisco Section area are: Fresno State College, William R. Day; Heald Engineering College, M. Ostrovsky; San Francisco State, Bert Stephens; San Jose State, James Jones; Santa Clara University, Rene Woc; Stanford, Arthur Heers; U.S. Naval Postgraduate School, Ernest C. Ball; University of California at Berkeley, Charles Welty.

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## 1968 CONVENTION

The IEEE board of directors has announced the appointment of Donald G. Fink, general manager of the institute, as general chairman of the 1968 IEEE International Convention and Exhibition, March 18-22 at the New York Hilton Hotel and the Coliseum.

Present plans include four days of technical sessions and exhibits. Approximately 300 papers, covering every area of electrical and electronics engineering will be presented in 60 sessions, hours of which will be announced at a future date.

Present plans call for the *Convention Guide* to contain brief abstracts of approximately 40-50 words. In addition the *Convention Record* should be published after the convention and will include both regular papers as well as some material from the panel sessions derived from stenographic and tape recordings.

As an innovation, a committee of microwave exhibitors and IEEE executives plan a dramatic identification of the microwave side of the electrical/electronics field. Special aisles on both the 2nd and 3rd floor of the New York Coliseum will be devoted to microwave exhibitors. In addition, a "microwave hall" meeting room on the first mezzanine, will provide morning and afternoon presentations in symposium form of the latest technical advances being shown by exhibitors in both microwave instrumentation and microwave components.

Other members of the convention committee are: R. M. Emberson, and J. M. Kinn, vice chairmen; E. L. Sirjane, secretary, R. H. Flynn, W. M. Baston, R. K. Eskeland, W. C. Copp, Lillian Petranek, P. L. Schwartz, J. B. Buckley, W. G. Vieth, R. L. McFarlan, Mrs. W. G. Vieth, E. K. Gannet, Marvin Mindell, E. W. Herold.

## microwave news

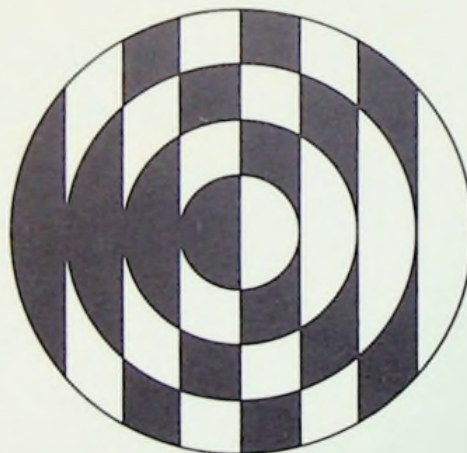
## NEW IEEE EXHIBIT AREA

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Microwave exhibitors are almost equally divided between instrumentation and components.



IEEE President W. K. MacAdam (right) presents the 1967 Browder J. Thompson Prize Award to co-winners, Prof. R. A. Rohrer, UC, Berkeley (left) and Prof. L. O. Chua, Purdue University, at the directors' reception during the international convention in March. The award honors the best paper in any IEEE publication by authors under 30.



## Electronics Engineers

Lockheed Missiles & Space Company is one of the largest electronics firms in the San Francisco bay area. Openings exist in a broad range of specialties and skills. Lockheed, in Sunnyvale, is deeply involved in many exciting, long-range programs in space, on land, and undersea. Such programs as Poseidon, Agena, Polaris, Deep Submergence Rescue Vehicle and advanced land vehicle systems; requiring people in all disciplines, at all levels. And, never before have benefits been more attractive. For more complete information, you are invited to write Mr. R. C. Birdsall, Professional Employment Manager, Post Office Box 504, Sunnyvale, California 94088. **LOCKHEED** MISSILES & SPACE COMPANY A GROUP DIVISION OF LOCKHEED AIRCRAFT CORPORATION Lockheed is an equal opportunity employer.



John M. Fluke

region six news

**COMMUNITY SERVICE AWARD**

John M. Fluke, president of the John Fluke Mfg. Co., Seattle, Wash., has been named to receive the Community Service Award of Region 6, IEEE, "for outstanding effort on behalf of the Seattle area and the State of Washington for industrial and economic expansion."

The award was presented in absentia by Dr. Stanley F. Kiesel, regional director of IEEE, at the Region 6 conference in Albuquerque, May 9-11. Dr. Kiesel is president of the Microwave Electronics division of Teledyne, Inc. The award was accepted for Mr. Fluke, who was in Europe, by Noble Bryan, chairman of the Seattle Section and electronics design engineer of the Boeing Co.

The award, subject to a majority vote of 32 sections making up the 30,000 member region, the eleven western states, gives recognition to an electrical or electronic engineer who has made an outstanding contribution to his community.

Mr. Fluke is past president of the Seattle Chamber of Commerce, the Seattle Area Industrial Council, the Northwest Council of the Western Electronic Manufacturers Assn., and the steering committee of the Committee for Students' Opportunity. He has also served on the boards of trustees of the Washington State Research Council, Junior Achievement of Greater Seattle, the Seattle Council of Boy Scouts, and the Seattle-King County Safety Council. He was also president of the South Snohomish County Chamber of Commerce and a member of the Five Man Trade Mission to England and Scotland in 1964. A patron of the Seattle Symphony, he is a member of Seattle Rotary No. 4, the Seattle Foundation, the Rainier Club, and the Visiting Committee, College of Engineering, University of Washington.

The Fluke Co. is a leading West Coast manufacturer of electronic instruments and components. It was established in 1949 and now has 750 employees.

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- CHEMICAL ENGINEER to program for process industries
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- SOFTWARE SYSTEMS ANALYST design, development, test and validation

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**MEDICAL MONITOR**

Philco-Ford Corporation's WDL division has announced plans to market an advanced version of a medical monitor which automatically records function of the human body without attaching sensors to the patient.

Called "MediScreen," the new apparatus is a monitoring and screening device for obtaining cardiac and cardiac-related conditions in permanent form on a chart record in 20 seconds.

It was evolved from a device called an automatic medical monitor or "Medi-Chair," which was demonstrated last April.

In a physician's office, MediScreen could serve as the doctor's electronic assistant. The patient sits fully dressed in a comfortably instrumented chair. No sensing wires are placed on the body as with conventional electrocardiograms. The patient places his hands, palms down, on metal arm rests and relaxes.

There is no feeling of what is happening. Heart sounds are picked up by a highly sensitive microphone embedded in the back of the chair.

In 20 seconds, MediScreen will have recorded automatically the patient's heart rate, electrocardiogram, heart sounds, pulse, volume and rate of breathing, and emotional reactions.

The result is screening data on possible cardiac and respiratory problems obtained rapidly and automatically, thus enabling the doctor to have more time to spend with the patient.

Sol Zechter, director of ground instrumentation operations at WDL, said that a marketing test program for MediScreen will be started soon. The device will be available in limited quantities.

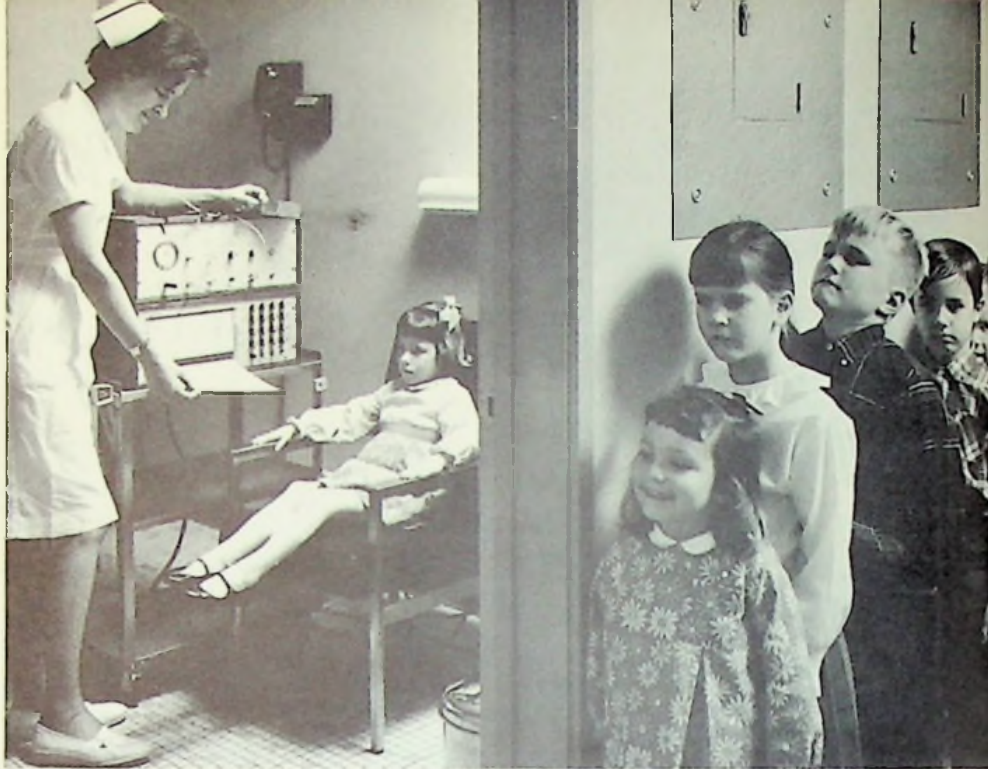
"MediScreen will be available in a variety of configurations", Zechter said. A physician's chair, dental chair, couch, operating table, or office chair are some of the designs obtainable.

Prices for the chair begin at \$5,250 and will range upward, depending upon the system and accessories.

Work on MediScreen began two years ago in response to a NASA requirement for a monitoring system which would not require electrodes being attached to the body. Philco-Ford undertook a development project with its own funds to design such a device. NASA's electronics research center now is evaluating the technique for astronaut monitoring. A MediScreen chair also is being used at the University of Minnesota to study circadian rhythm changes.

Dr. dePaul J. Corkhill, who heads the program at WDL Division, outlined possible applications of MediScreen as follows:

Fast, simple screening of the apparently healthy is seen as a growing need.



*"It didn't hurt, nurse!" New electronic monitor can screen and chart heart rate, electrocardiogram, heart sounds, pulse volume, rate of breathing, and emotional reactions in 20 seconds.*

With something like 2,000,000 people walking about unaware that they have diabetes and with heart attack, cancer and stroke costing the nation an estimated \$27,000,000 per year in lost gross national product, MediScreen and

other new monitoring instruments like it can play an important role in the nations' health program.

Perhaps one of the most dramatic roles will be that of mass screening in  
*(Continued on page 16)*

## What's new from Technipower?

### 1. PC-80 SERIES

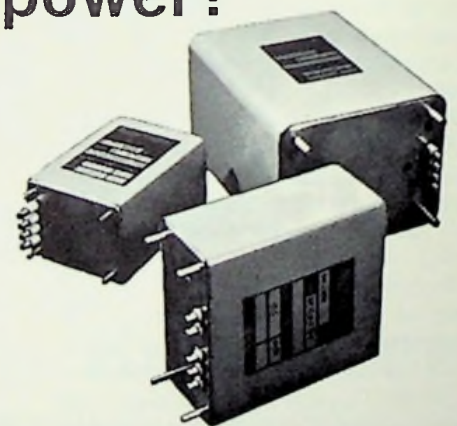
ultra-compact AC-DC power modules — all silicon.  
25% smaller, 25% lighter, temperature rating 80°C, specifications to meet critical requirements. More than 200 models, with outputs ranging from 4.1 to 152VDC, and up to 60 watts.

### 2. MC-65 SERIES

more-watts-per-dollar AC-DC power modules — all silicon. This series will replace the former "standard" line of Technipower modules, and features 25% more power in the same volume. Improved circuitry and characteristics — for less money! More than 600 models, outputs 3 to 152VDC and up to 750 watts.

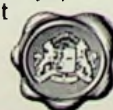
**MIL Environment modules —** Series PM-95 and F/FD-115 modules were recently tested by an independent lab and proved fully qualified for MIL environment applications.

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### 3. DP-80 SERIES

compact dual output AC-DC power modules — all silicon. Designed for operational amplifier and potentiometric applications, these doubtless will find other uses as well. Meet all applicable MIL environment specs. Models from 5.7 to 158VDC to 8 watts, each output.



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*information theory*

**ATHENS, ANYONE?**

Quite a few seats are still available on the west coast charter flight to the 1967 International Symposium on Information Theory planned for Sept. 11-15 in Athens, Greece. Leaving Los Angeles on Sept. 9 for London and returning from Paris to Los Angeles on October 1, the flight will be via World Airways and is open to all IEEE members and families. The round-trip fare is approximately \$345, and connecting flights to and from Athens have been arranged. For additional details write: Flight Chairman, Los Angeles Council, IEEE, 3600 Wilshire Blvd., Los Angeles, Calif. 90005. Tel: (213) 387-1203.

*events of interest*

**ASILOMAR CONFERENCE**

The Asilomar Conference on Circuits & Systems will be held November 1-3 at the Asilomar Hotel, Pacific Grove. Papers are invited in the areas of circuits, system theory, cybernetics and related subjects for presentation in twenty to thirty minutes. Titles and abstracts should be sent to Prof. S. R. Parker, Dept. of Electrical Engineering, USNPGS, Monterey, and must be received prior to September 1.

Sponsors are the USNPGS, University of Santa Clara, IEEE Group on Circuit Theory and San Francisco chapters on Circuit Theory and Automatic Control.

*stanford news*

**HEAT TRANSFER INSTITUTE**

Up to 50 engineers and related specialists are expected to participate in a two-week special summer institute on two-phase flow and heat transfer—a subject of particular importance to designers of boiling-water nuclear power reactors—scheduled July 24 to Aug. 4 at Stanford.

Visiting experts Dr. Graham B. Wallis of Dartmouth's Thayer School of Engineering, and John G. Collier of Atomic Power Construction Lt., England, will serve as faculty for the institute. The administrative director is Prof. James P. Johnston of Stanford's Mechanical Engineering Department, whose Internal Flow Program is sponsoring the Institute.

Applicants for the Summer Institute may write to Prof. Johnston for further information. University residences will be available for attendees and their families if arrangements are made in advance.



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If you wonder how much importance we attach to an EE, you could ask some of the EEs we already have. Our President, for instance, or our #2 man, or our #3.

Now, if all these "ifs" have evoked the proper response, write *our* initials on an envelope and enclose your resumé. Attention Ron Fried.



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### NETWORKS COURSE

An intensive nine-day program, "Communication and Transmission Networks," will be presented August 28 to September 8, 1967, by Engineering Extension and The College of Engineering, University of California, Berkeley.

The program will include lectures and workshops covering the newest research material on deterministic and random network models used to represent communication, power transmission, traffic and economic flow systems. Emphasis will be on basic methods of analyzing and designing networks as a function of parameters such as reliability, vulnerability, maximum information rate and cost. Detailed examples will be developed to illustrate the theory.

Howard Frank and I. T. Frisch of the Department of Electrical Engineering and Computer Sciences at Berkeley will head the instructional staff. Registration fee is \$200. For further information write to Engineering Extension, University of California, 2223 Fulton Street, Berkeley, California 94720.

### HIBSHMAN RETIRES

N. S. Hibshman, Executive Secretary of the American Institute of Electrical Engineers from 1954 to 1962, retired from the IEEE staff at the end of January.

cal extension

### BIOENGINEERING COURSE

A ten-day intensive program on bioengineering will be presented September 18-28, by Engineering Extension and the College of Engineering, University of California, Berkeley.

The program is planned to provide a broad introduction to human physiology for engineers and physical scientists working on engineering systems in such areas as vehicle design for space and underwater exploration, medical electronic instrumentation, artificial organ design, and design of plant and machinery to be controlled by a human operator.

Topics covered will include the muscular, skeletal, neurosensory, pulmonary, and cardiovascular systems, and metabolism and growth. Wherever possible the material will be presented in quantitative and engineering terms—for example, the analysis of the nervous system as an information processing network, and the description of the pulmonary system as a mass transfer process.

Irving Fatt, Professor of Engineering Science in the Department of Mechanical Engineering at Berkeley, will head the instructional staff for the program. The registration fee is \$250. Further information may be obtained from Engineering Extension, University of California, 2223 Fulton St., Berkeley, Cal.

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**IT IS REPORTED:**

E. Jack Shannahan has been named head of Memorex Corp.'s new industrial relations division. Robert Bendit has been promoted to the new position of manager, personnel administration.

Robert G. Bonato has been appointed quality control operations manager at the Oakland plant of E-H Research Laboratories, Inc., was formerly a quality control supervisor.

Dr. Stanley F. Kaisel, founder and president of Microwave Electronics, Inc., Palo Alto, division of Teledyne, Inc., has been appointed to the first advisory council of the Stanford School of Engineering. The council is made of 33 of the nation's leading engineers from industry, education and government.

Henry W. West, Jr., group vice-president of Ampex Corp., has been appointed to the board of directors of the Western Electronic Manufacturers Assn.

Robert H. Light has been appointed engineering specialist at Melabs, Palo Alto, with responsibilities for the generation and analysis of systems concepts, with assignment to project management on contracts for systems in his field of contribution. He formerly directed the design of a radio crane control system for the Insul-8 Corp., San Carlos, and was chief of data acquisition on the Titan III C program for United Technology Center and project leader for the Argus experiment while employed by Stanford Research Institute.

Joseph Rolfe has been appointed chief engineer for Micom, Inc., Palo Alto, manufacturer of precision electronic instrumentation.



Light

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**Dr. Burton J. McMurtry** has been appointed manager of the equipment engineering laboratories at the electronic defense laboratories of Sylvania Electric Products, Inc., Mountain View. He is responsible for the development of equipment in the areas of optics, receivers, transmitters, antennas, microwave devices and signal processing. He succeeds Leroy Evans, who has been named technical staff assistant to the director.

**William F. Ruck** has been named Apollo program manager at Dalmo Victor, a Textron division, and will be responsible for the over-all management, planning, coordination and customer liaison on the project's communications antenna system.

**John J. Crane** has joined the product design and drafting department at Dalmo Victor, a Textron division, Belmont, and will manage all packaging design activities within the department.

**H. Foster Pendley** has been named manager of Computer Sciences Corp.'s operations in the San Francisco Bay area, headquartering at Los Altos.

**Genesys Systems, Inc.**, a new microwave manufacturing organization, has been formed in Palo Alto by Albert J. Morris, president and chairman of the board, John Gerling, vice-president and manager of the industrial microwave division, and Fred Kolleck, vice-president, finance and treasurer. Specializing in the application of microwave technology of processing industries, the new concern will build micro-wave equipment for such fields as food processing, chemicals, and pharmaceuticals and has headquarters at 770 Welch Rd.

**International Business Machines** has awarded a \$600,000 contract to Watkins-Johnson Co., Palo Alto, for power amplifiers.

**Robert E. Stone**, manager of Sylvania's countermeasures systems design department, Mountain View, has been named manager of Sylvania's new scientific and technical group established in Washington, D.C. to provide analytical support to government agencies in the electronic warfare and surveillance fields.

**Andrew J. Poulos** has been appointed manager of industrial relations for Pacific Plantronics, Inc., Santa Cruz manufacturer of light-weight headsets for the telephone industry, the airlines, and the military.

**Frederick T. C. Bartels** has been named to the newly created position of director of technology for Union Carbide Electronics' semiconductor operations and will be in charge of new product development, applications engineering, modular products engineering, and applied research in the product areas of transistors, FET devices, integrated circuits, and modular operational amplifiers.

**H. Weaver Jordan** has been named Kanto Plain project manager for Lenkurt Electric Co., Inc., San Carlos, will be responsible for management of the \$6 million project and provide liaison between Nippon Electric Co., Tokyo, and the various internal departments at Lenkurt. Lenkurt is supplying multiplex systems and auxiliary equipment to be used in the consolidation and expansion of U.S. military communications in the greater Tokyo area.

**Hewlett-Packard Co.** has announced plans to consolidate its magnetic recording products and operations into a new division to be headquartered in Mountain View. All of Datamec's products and activities will be incorporated into the Mountain View Division, at which time the Datamec name will cease to exist.

**Applied Technology, Inc.**, Palo Alto, has acquired an option to purchase all of the assets of Doban Laboratories, Inc. of Sunnyvale, organized in 1961 to develop an automatic bowling scorer called "ScoRite."



Stone



Apar

**Cortland Pearsall** has joined Western Gold & Platinum Co., Belmont, as senior scientist in the research and development laboratory after 11 years with Varian Associates, where he was head of ceramic and metallurgical research for the tube division.

**James A. Jolly**, an executive with Eimac Division of Varian Associates, has been elected president of the International Microwave Power Institute at the technical society's annual symposium at Stanford.

**Robert Sackman**, president, Time/Data Corp., Palo Alto, has been elected to the board of directors of Vidar Corp., Mountain View.

**Jorgen P. Vinding**, Monte Sereno consultant, has been awarded a patent for an "interrogator-responder identification system", utilizing the recently discovered principle of "modulated reaction."

**Ampex Corp.**, Redwood City, has formed a new department in the computer products division to design and fabricate non-standard products and to aid the conversion of new product designs into full-scale production.

**Martin Mazur** has been named production manager-solar operations by Applied Technology Inc., Palo Alto, to report to David Miley, manager, solar power systems. He was formerly associated with Watkins-Johnson Co., Palo Alto, and Huggins Laboratory, Inc., Sunnyvale.

**Robert A. Grimm**, former general manager of Hewlett-Packard's Dymec division, has been named assistant to the vice-president of marketing. Jack L. Melchor, former general manager of HP Associates, has been named Dymec general manager. Don A. Smith, former manager of microwave components for HP Associates, has been named general manager of that subsidiary.

**Michael Apar, Jr.**, has been named director of engineering for Dalmo Victor, Belmont, a Textron division, will report to J. A. Chartz, executive vice-president, and will have direct operating responsibility for all engineering functions at the firm.

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Components Sales California Palo Alto; 326-5317	L & M Engineering 2620 The Alameda Santa Clara; 243-6661	Stone & Assoc., Jay 140 Main Street, Los Altos; 948-4563
Dietrich-Heffner Associates 2555 Park Blvd., Palo Alto; 321-4321	Nickerson-Gray & Assoc., Inc. P. O. Box 11295 Palo Alto; 326-0152	Walter Associates 175 S. San Antonio Road, Los Altos; 941-3141
Dynamic Associates 1011 Industrial Way, Burlingame; 344-2521	O'Halloran Associates 3921 E. Bayshore, Palo Alto; 326-1493	Willard Nott & Co. 1485 Bayshore Blvd. San Francisco; 587-2091
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The new GRAD system, headquartered in Bethlehem, Pa., uses time-sharing computers to keep costs low and offer its services free to college graduates. Time-sharing is a relatively new computer technique whereby many customers share the use of a computer system and pay only for the amount of time they spend operating the expensive machine. The computer is so fast in operation, that many time-sharing customers can use the same computer from many distant locations at virtually the same time with no interference.

**MORE MEDICAL MONITOR**

non-clinical environments. Some of these non-clinical applications include driver's license applicants, physicals for insurance applicants, military inductees, industrial job applicants, and school children. In the insurance field, physicals take 30 to 40 minutes. MediScreen could greatly reduce time required for cardiac screening. The same "time-saving" effect could be applied to other non-clinical uses.

This new multiphasic clinical tool can be operated by paramedical personnel after a brief training. Interpretation of the chart records would require the services of an M.D.

In addition, it can be of significant assistance in other fields.

It can assist dentist and anesthesiologists by monitoring and recording a patient's condition during and after anesthesia.

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