

EDITOR'S PROFILE of this issue

from a historical perspective ...

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

July, 1968:

Cover: Artist's rendition of power transfer for Wanlass' PARAX system with its crossed core fabrication technique. Details are on the back cover of this GRID.

Page 4ff: Preparing for Wescon 1968, with 1,150 exhibitors. Half or the exhibits are at the Hollywood Park race track, and the other half at the L.A. Sports Arena, with 32 sessions of program at the Biltmore Hotel. It includes the concurrent Microelectronics and Electronic Circuit Packaging Symposium, at the Statler Hilton Hotel, sponsored by the IEEE's Parts, Materials and Packaging Group (which becomes my Components, Packaging and Manufacturing Technology Society, and now the Electronics Packaging Society, where I was VP-Pubs for many years).

Pag 6: Floyd Kvamme, president of National Semiconductor, chairs the first session; Don Hoefler of Electronic News (and who coins the term "Silicon Valley" in 1971) chaired session A on Management Succession.



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

rid-bulletin

JOINT PUBLICATION/LOS ANGELES & SAN FRANCISCO, IEEE

JULY 1968

wescon '68

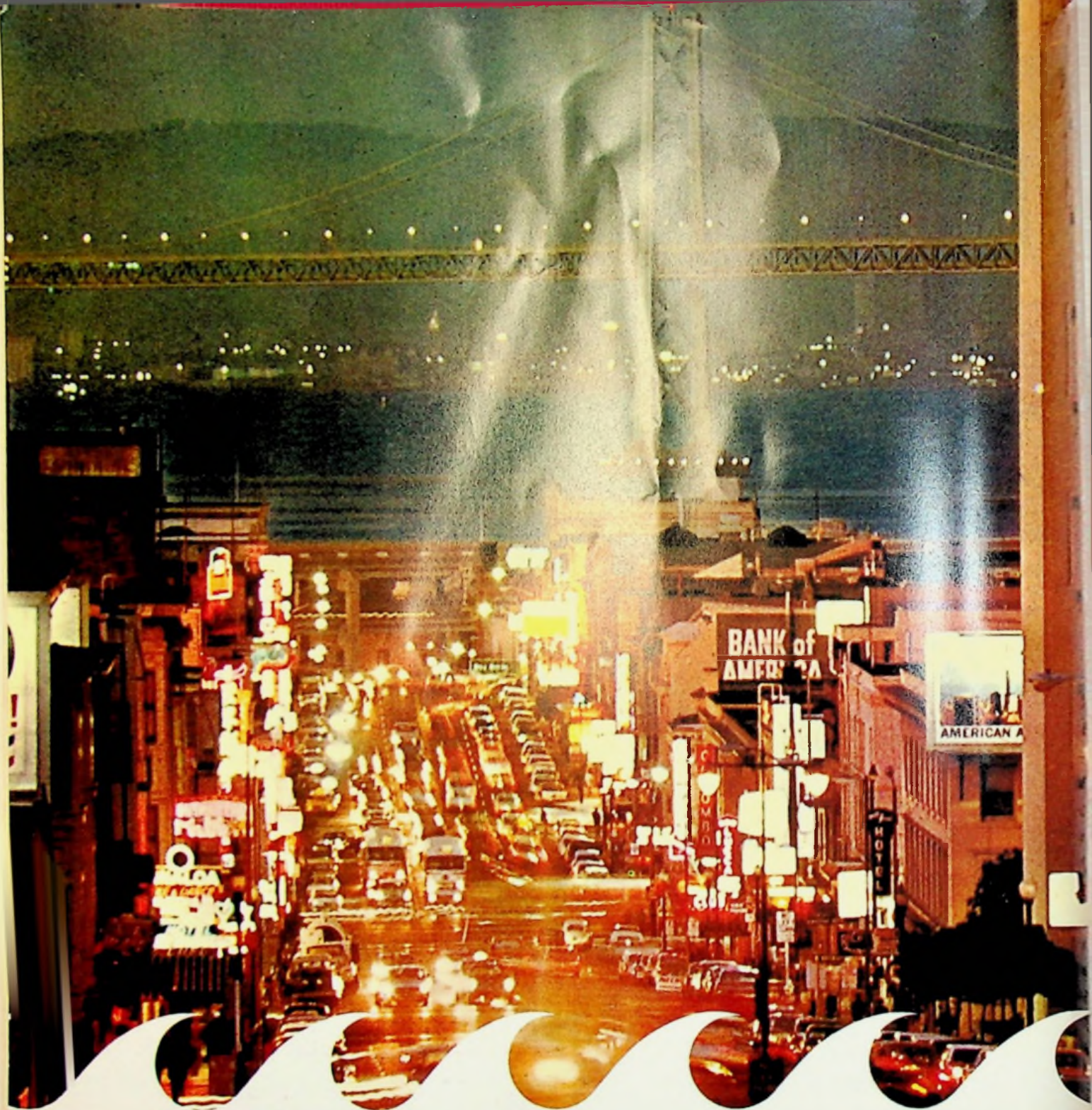
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PARAMETRIC POWER

Cover Story on Page 1

AUGUST 20, 21, 22, 23/LOS ANGELES SPORTS ARENA—HOLLYWOOD PARK—BILTMORE HOTEL



Swimming limited to the dance floor, however. San Francisco's North Beach doesn't have gentle waves tickling your toes, nor does it offer surfing, but it has everything else: World renowned restaurants, night clubs, Broadway shows, headliners in the entertainment field. An additional fringe benefit of Sylvania and the Sylvania-California way of life.

There's another kind of excitement here, too. The sound excitement offered the creative engineer. Here you'll have the opportunity to grow outward as well as upward—offering the career-minded person a chance to broaden his capabilities in a number of areas as well as to sharpen them in his specialty. Here you'll have the excitement of choosing—and the opportunity of achieving—your own career goals, experiencing the satisfactions derived from doing significant work in an advanced area of electronics.

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grid-bulletin

Joint Publication/Los Angeles & San Francisco, IEEE

VOLUME 13

JULY, 1968

No. 1

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ON THE COVER

Wanlass' PARAX tm, the application of PARAMETRIC POWER, newly invented technique for the transfer of filtered power, as it is interpreted by the artist.

The crossed core fabrication technique and the newly developed electrical symbol for the device is represented here. Information on the design of the device is shown on the back cover of this magazine.

"THE PARAFORMER — A NEW PASSIVE POWER CONVERSION DEVICE" will be the subject of a paper prepared by the inventors which will be presented by Dr. S. Dean Wanlass, President of Wanlass Electric Co., A Subsidiary of AMBAC Industries, Inc. during the WESCON session 17 titled: "Significant Developments in Magnetic Devices", scheduled from 9:30 to Noon, Thursday, August 22, in the Galeria Room, Biltmore Hotel. See page 7, this issue.

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Published monthly. Grid-Bulletin office of publication: 3600 Wilshire Boulevard, Los Angeles, California 90005.

Second class postage paid at Los Angeles, California. Subscription: Members: \$1.00 per year, non-members: \$2.00 per year.



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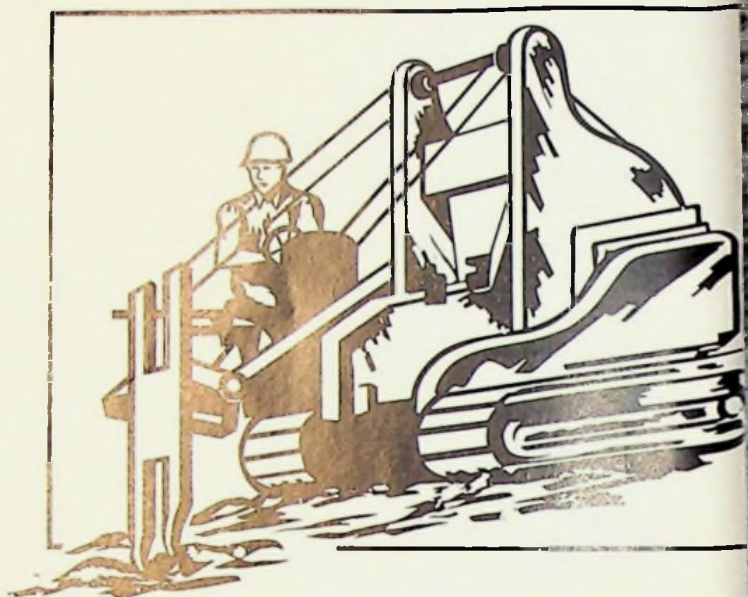
Published monthly. Grid-Bulletin office of publication: 3600 Wilshire Boulevard, Los Angeles, California 90005.

Second class postage paid at Los Angeles, California. Subscription: Members: \$1.00 per year, non-members: \$2.00 per year.

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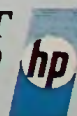
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WESCON '68 expects an attendance of 50,000 this year, during its four day run, August 20-23, 1968, in Los Angeles.

Committees

Indispensable and Indefatigable

Behind the scenes at WESCON each year are dedicated groups of volunteers who oil the smooth-running machinery of the show. They constitute the show committees, twelve in number this year.

Two WESCON veterans head up the Attendance Committee, charged with passing the 50,000 mark this year for an all-time record. General Electric's Bruce Angwin and Jack Bishop, of Dana Laboratories are co-chairmen.

Chairman of the Cocktail Party Committee is John F. O'Halloran. He's assisted by Larry Courtney. Both are well-known California reps and know how to host a good party.

Responsible for a topflight Distributor-Manufacturer-Representative Conference in August are Chairman Jack Berman, of the company bearing his name, and his assistant, Don Cassidy of Wesco Electronics.

Bearing one of the most important burdens of the show is the Exhibits Committee, led by Chairman Herb Becker, of the Herb Becker Company, and two vice chairmen. The latter are Robert C. Tetherow, of Arnold Engineering, and Leach Corporation's Beverly Johnson.

The Facilities Committee — the group which may be

seen posting signs, arranging equipment, and performing myriad other tasks — is chaired this year by Jack Easterbrook of Delco Radio. His assistant is TRW semiconductors' S. H. Barnes, better known as "Sandy."

The Future Engineers Committee has as its chairman N. L. Brotzman of Pacific Telephone Co. He is assisted by Ling Electronics' Robert Irvine.

We've been unable to find why the name was changed, but the Hospitality Committee will be known for the first time this year as the Host Committee, and will be headed by Thomas P. Walker. Helping him will be Edward C. Bertolet, also a veteran of many WESCON hospitality skirmishes.

Translating technical jargon into understandable English for the press and performing other important propaganda functions are the responsibilities of the Public Relations Committee, chaired this year by William H. Herman of Hughes Aircraft. His assistant chairman is Beckman Instruments' Larry Bishop.

Any complaints in the registration department should be directed at Committee Chairman Jack L. Kasperak, of Wesco Electronics. Helping him with this harrassing task is Robert Lepard, of the Rowel Company.

In the long-hair department, Autonetics' Robert M. Ashby chairs the Technical Program Committee. He is ably assisted by

John M. Salzer of Salzer Technology Enterprises.

Gerald Goldenstern, of Signal Electronics, has the Number One spot on the Visitors Services Committee. His assistant chairman is Harry J. Delaney of Quest Electronic Development.

And last but far from least, the most important Committee in the eyes of the show's staff is the Ladies Committee. Co-Chairmen are Mrs. Douglas Maure and Mrs. John C. McAdam.

Exhibits

1150 To Choose From

If you have a thing against legalized gambling, like betting on the horses, this may be your last opportunity to visit Hollywood Park where roughly one half of WESCON's exhibitors will set up shop for the third Southern California show running.

Los Angeles' controversial Convention Center is scheduled for completion prior to WESCON '70, but don't bet on that one either. When this happens, exhibits presently split between the Sports Area and the Racetrack will be lumped together under one ultra-modern roof.

In its continuing effort to optimize rapport between exhibitors and visitors, WESCON has followed through with its intention to re-design exhibit categories. The new arrangement, consisting of eight categories, is the result of an extensive three-month visitor survey. Show management now probably has better insight into the visitor's requirements than he himself has.

Hollywood Park will house Circuit Components and Microelectronics and Electronic Circuit Packaging. Product displays at the Sports Arena will include Instruments and Instrumentation, Computers and Electronic Data Processing, Science Systems and Communications Systems, Microwave Equipment and Laser Systems, Solid State Fabrication Equipment and Production and Processing Equipment.

Color coding of categories has been introduced as an additional aid to get the visitor to the booths he considers most important to him, in a minimum of time. Signs, floor tags and other traffic indicators follow the coded pattern.

Show officials again suggest that, in the best interests of

both exhibitors and visitors, visitors curb their literature-snatching instincts. Your plastic "charge-a-plate" will enable exhibitors to send your desired material later.

Technical Program

WESCON '68 To Feature Another Topflight Program

A 32-session technical program under the sponsorship of Dr. Robert M. Ashby is scheduled for presentation in five major meeting rooms at the Biltmore Hotel during the four days of WESCON. The morning and afternoon session at the Biltmore will be supplemented by two special-subject symposia, each two days in length, to be presented at the Statler Hilton Hotel.

Four of the 32 sessions announced are special invited programs organized by the WESCON technical program committee. The remaining 28 were selected from among session proposals submitted in answer to the committee's nation-wide call for sessions.

Programs of the two concentrated symposia, scheduled to run concurrently, are focused on the subject areas of electronic packaging and hybrid microelectronics. The balance of the WESCON program was tailored to offer wide variety in subject matter.

Technical management and marketing topics, for example, come under scrutiny during three of the sessions. Four are devoted to electronics and law enforcement, urban affairs, and education instrumentation. Advances in digital systems are covered in two sessions, while medical instrumentation, fluid-

HOLLYWOOD
PARK



SPORTS
ARENA



Artful Dodgers — Field-level conference helped set details of a "WESCON Night" at Dodger Stadium on August 22 during the big electronics exposition in Los Angeles. Conferring in executive session above are Bill Moreland (WESCON executive committee chairman), Dodger Manager Walter Alston, and Floyd Goss (convention director). Dodgers will block 2000 seats for WESCON visitors for pivotal game against the San Francisco Giants.



ics, utility power, computer controls and new materials for electronic application are the subject of other sessions. The 1968 Technical Program starts on page 6.

WESCON's Science Film Theater will again supplement the technical program with daily programs at Hollywood Park.

Electronic Circuit Packaging Symposium

New Techniques for Design & Production Problem Solving

Problem-solving hints for your electronic packaging troubles will be wrapped up neatly in a six-session technical bundle slated for August 19 and 20. Location is Los Angeles' Statler Hilton Hotel,

with activities getting under way at 9:30 a.m. on Monday and at 8:30 a.m. on Tuesday.

Mounting interest in the event — the ninth annual one of its kind held in conjunction with WESCON — indicates there will be a full house with more than 500 engineers attending, so come early to assure yourself a place to sit.

Morgan Sparks, executive director of Bell Telephone Laboratories' semiconductor components division, will keynote the symposium. Chairman of the 12-man program committee, IBM's Edward J. Lorenz, reports that the emphasis will be on new techniques for design and production problem-solving.

"Beam Lead Interconnection Technology," for example, describes a new process developed for use with sealed-junction, beam-lead semiconductor devices. Innovations in the areas of packaging materials, concepts, and processes are detailed in the program's second session bannered "New Hybrid Microelectronic Packaging Techniques."

Chairman Lorenz points out that the format of the sessions stresses open discussion with a full one-third of the time devoted to questions and answers between speakers and audience and a commentary among the members of the audience. "We feel that this interchange is the most valuable portion of the program," he observes. All IEEE members will receive their ECPS Technical Program under separate cover.

Dr. William Pickering

Director, JPL, will keynote the Eta Kappa Nu luncheon, August 22, at the Statler Hilton.



Technical Program/WESCON '68

NOTE: THE CONCURRENT MICROELECTRONICS & ELECTRONIC CIRCUIT PACKAGING SYMPOSIUMS' TECHNICAL PROGRAM IS NOT FEATURED IN THE JULY ISSUE. ALL MEMBERS WILL RECEIVE THEIR PROGRAMS UNDER SEPARATE COVER.

1/New Directions in Linear Microcircuits

Tuesday, August 20, 9:30-Noon
Biltmore Ballroom
Session Organizer: Robert A. Hirschfeld, National Semiconductor Corporation, Santa Clara, California. Session Chairman: E. Floyd Kvamme, National Semiconductor Corporation.
1/1 LINEAR INTEGRATED CIRCUITS FOR THE ENTERTAINMENT INDUSTRY. C. H. Klasing, P. R. Mallory & Company, Indianapolis, Indiana.
1/2 INTEGRATED POWER CONTROL. Bill Williams, Westinghouse Molecular Electronics Division, Elkridge, Maryland.
1/3 LINEAR INTEGRATED CIRCUITS IN COMMUNICATION SYSTEMS. Robert A. Hirschfeld, National Semiconductor Corporation.

2/Microwave Integrated Circuit and Solid-State Technologies

Tuesday, August 20, 9:30-Noon
Biltmore, Renaissance Room
Session Organizer and Chairman: Gerald D. Carey, Autonetics, Anaheim, California.
2/1 NEW MICROWAVE MODULES. Wesley G. Matthei, Micro State Electronics, subsidiary of Raytheon Company, Murray Hill, New Jersey.
2/2 INTEGRATED MICROWAVE COMPONENTS AND SUBSYSTEMS USING BEAM LEAD SEMICONDUCTOR DEVICES. Arthur H. Solomon, Sylvania Electronic Products, Woburn, Massachusetts.
2/3 AVALANCHE AND GUNN OSCILLATORS. Meyer Gilden, T. Buntschuh and T. Ramachandran, Microwave Associates, Inc., Burlington, Massachusetts.
2/4 MICROWAVE INTEGRATED CIRCUIT FOR "L" BAND PROXIMITY FUSE. Norman E. Dyer, Motorola, Inc., Scottsdale, Arizona.

3/Electronics and High Education Achievement

Tuesday, August 20, 9:30-Noon
Biltmore Music Room
Session Organizer and Chairman: H. Glenn Davis, Lincoln Demonstration School, Paramount, Calif.
3/1 HIGHER EDUCATIONAL ACHIEVEMENT THROUGH LEARNING INSTRUMENTATION. H. Glenn Davis, Lincoln Demonstration School.
3/2 PROGRESS IN THE APPLICATION OF TECHNOLOGY TO EDUCATION. Martin L. Klein, North American Rockwell, ISD, Downey, California, and Rosalie L. Klein.
3/3 SOUTHERN CALIFORNIA REGIONAL OCCUPATIONAL CENTER. Dr. Wayne Butterbaugh, Superintendent, Southern California Regional Occupational.
3/4 IT'S OUR MOVE. Tom Wood, California Elementary School Administrators Assoc., Burlingame, Calif. Center, Torrance, California.

4/Coherent Light Technology

Tuesday, August 20, 9:30-Noon
Biltmore Galeria Room
4/1 CONTINUOUS OPTICAL PARAMETRIC OSCILLATORS. R. G. Smith, Bell Telephone Laboratories, Murray Hill, New Jersey.
4/2 FUTURE OF HOLOGRAPHY. H.M.A. El-Sum, El-Sum Consultants, Atherton, California.
4/3 LASER SCANNING TECHNIQUES. B. Thompson, T. Holland, and R. Sherman, Technical Operations West, Mountain View, California.

WESCON Special Session

A/Management Succession

Tuesday, August 20, 2:4-3:30 pm
Biltmore Ballroom
Session Organizer and Chairman: Don C. Hoefer, Electronic News, San Francisco, California.
A/1 IDENTIFICATION OF TALENT FOR TECHNICAL MANAGEMENT. W. Hardie Shepard, Payson & Trask, New York, N.Y.
A/2 RECRUITMENT OF TOMORROW'S MANAGERS. Jack Yelverton, Wilkinson, Sedwick & Yelverton, San Francisco, California.
A/3 TRAINING: HOW TO DEVELOP MANAGEMENT SKILLS. Lloyd Kelly, General Precision, Tarrytown, N.Y.
A/4 HOW TO PLAN FOR MANAGEMENT IN A GROWING ORGANIZATION. (Speaker to be announced).

5/Microwave Solid-State Receivers

Tuesday, August 20, 2:4-3:30 pm
Biltmore Renaissance Room
Session Organizer and Chairman: David K. Adams, Stanford Research Institute, Menlo Park, California.
5/1 DESIGNING MICROWAVE MIXERS FOR INCREASED DYNAMIC RANGE. R. Ernst, P. Torriano, W. Y. Pan, RCA, New York, and M. Morris, U.S. Army Electronics Laboratories, Fort Monmouth, N.J.

5/2 TUNNEL DIODE AMPLIFIERS AS COMPONENTS IN WIDE DYNAMIC RANGE SYSTEMS. Arthur Leber and Herman C. Okean, Airborn Instruments Laboratory, Melville, N.Y.
5/3 DYNAMIC RANGE CONSIDERATIONS FOR BROADBAND TRANSISTOR AMPLIFIERS. Franz McVay, Avanteck, Inc., Santa Clara, California.
5/4 PARAMETRIC AMPLIFIER DESIGN FOR LARGE DYNAMIC RANGE AND LOW DISTORTION. Donald R. Chambers, Stanford Research Institute, Menlo Park, California.

6/State Variable and Optimal Control Techniques for Communications

Tuesday, August 20, 2:4-3:30 pm
Biltmore Galeria Room
Session Organizer and Chairman: Harry L. Van Trees, M.I.T.
6/1 OPTIMAL SIGNAL DESIGN FOR ADDITIVE COLORED NOISE CHANNELS VIA STATE VARIABLES. A. B. Baggeroer, M.I.T., Cambridge, Massachusetts.
6/2 ASYMPTOTIC APPROXIMATIONS TO THE ERROR PROBABILITY FOR DETECTING GAUSSIAN SIGNALS. Lewis D. Collins, Cambridge, Massachusetts.
6/3 COMPLEX STATE VARIABLES. THEORY AND APPLICATIONS. H. L. Van Trees, M.I.T.
6/4 OPTIMAL BINARY DETECTION OF KNOWN SIGNALS IN A NON GAUSSIAN NOISE RESEMBLING VLF ATMOSPHERIC NOISE. D. L. Snyder, M.I.T.

7/Marketing Electronic Products in Europe

Wednesday, August 21, 9:30-Noon
Biltmore Ballroom
Session Organizer and Chairman: C. Gerald Diamond, Sensus International, San Francisco, California.
7/1 HOW TO RESEARCH AND PLAN FOR EUROPEAN ELECTRONICS MARKETING. G. B. Levine, Mentor International, San Francisco, Calif.
7/2 U.S. EXPORT CONTROLS AND ELECTRONICS MARKETING IN EUROPE. Rauer H. Meyer, U.S. Department of Commerce, Washington, D.C.
7/3 HOW TO SELECT AND WORK WITH REPRESENTATIVES AND LICENSEES IN EUROPEAN ELECTRONICS. Pierre F. Simon, Machine & Products Company, New York, N.Y.
7/4 HOW TO ESTABLISH AND MAINTAIN A COMPANY SALES FORCE IN EUROPE. William P. Doolittle, Hewlett-Packard Company, Palo Alto, Calif.

8/Digital Encoding (Source Encoding) Systems

Wednesday, August 21, 9:30-Noon
Biltmore Renaissance Room
Session Organizer and Chairman: J. B. O'Neal Jr., North Carolina State University, Raleigh, N.C.
8/1 INFORMATION RATES FOR DATA COMPRESSION. L. D. Davison, Princeton University, Princeton, New Jersey.
8/2 PREDICTIVE CODING OF SPEECH SIGNALS. B. S. Atal and M. R. Schroeder, Bell Telephone Laboratories, Murray Hill, New Jersey.
8/3 CONTOUR CODING OF IMAGES. W. F. Schreiber and T. S. Huang, M.I.T., Cambridge, Massachusetts.
8/4 FRAME-TO-FRAME DIGITAL PROCESSING OF TV PICTURES TO REMOVE REDUNDANCY. F. W. Mounts, Bell Telephone Laboratories, Holmdel, New Jersey.

9/Integrated Circuits: How Do You Test Them? How much Testing Must You Do?

Wednesday, August 21, 9:30-Noon
Biltmore Bowl
Session Organizer and Chairman: Raymond D. Speer, Electronic Design Magazine, New York, New York.
9/1 IC TESTING—THE PROBLEMS OF THE INDUSTRIAL USER. Dick Hall, Syston Donner Corporation, Concord, California.
9/2 THE PROBLEM OF THE MILITARY-ORIENTED USER. (Speaker to be announced.)
9/3 THE MANUFACTURER'S VIEWPOINT. Gene Blanchette, Motorola Semiconductor Products, Phoenix, Arizona.
9/4 THE CAPABILITIES OF THE LOW-VOLUME TESTER. Gary Strong, Signetics Corporation, Sunnyvale, California.
9/5 THE CAPABILITIES OF HIGH-VOLUME TESTER. Gordon Padwick, Fairchild Instrumentation, Sunnyvale, California.

10/Flat-Panel Displays

Wednesday, August 21, 9:30-Noon
Biltmore Galeria Room
Session Organizer and Chairman: L. A. Murray, RCA Electronic Components, Somerville, N.J.
10/1 BATCH-PROCESS ALPHANUMERIC DISPLAYS. Richard Klein, A. Elsea and I. Hegyi, RCA Electronic Components, Somerville, New Jersey.

10/2 SOLID-STATE INJECTION ELECTROLUMINESCENT ARRAYS. S. Caplan, L. Murray and W. Agosto, RCA Electronic Components, Somerville, New Jersey.
10/3 A 5-VOLT SOLID-STATE NUMERIC READOUT WITH MONOLITHIC MEMORY-DECODER-DRIVER. J. F. Caldwell, D. K. Hillman, and D. Seymour, Monsanto Company, St. Louis, Missouri.
10/4 PLASMA DISPLAY PANEL. R. H. Willson, Defense and Space Center, Westinghouse Electric Corporation, Baltimore, Maryland.

WESCON Special Session

B/Planning for Company Growth

Wednesday, August 21, 2:4-3:30 pm
Biltmore Ballroom
Session Organizer-Chairman: Dr. John M. Salzer, Salzer Technology Enterprises, Los Angeles, Calif.
B/1 TECHNOLOGICAL FORECASTING. Dr. Harper North and Donald L. Pyke, TRW Inc., Los Angeles, California.
B/2 CHOOSING CORPORATE STRATEGY IN THE ELECTRONICS INDUSTRY. Phillip F. Meyers, Electronic Specialty Company, Los Angeles, Calif.
B/3 CORPORATE PLANNING FOR DIVERSIFICATION AND GROWTH. I. Gordon Odell, North American Rockwell, El Segundo, California.
B/4 NEAR-TERM IMPLEMENTATION OF LONG-RANGE OBJECTIVES. J. W. Stark, Librascope Group, General Precision Systems Inc., Glendale, California.

11/Medical Instrumentation—A New Horizon

Wednesday, August 21, 2:4-3:30 pm
Biltmore Bowl
Session Organizer: Saul W. Abel, City of Hope Medical Center, Duarte, California.
Session Chairman: Charles Miltman, M.D., Dept. of Respiratory Diseases, City of Hope Medical Center, Los Angeles, California.
11/1 ELECTRONIC MEDICAL SYSTEMS—AN ADMINISTRATORS POINT OF VIEW. Seymour Schulman, Los Robles Hospital, Thousand Oaks, California.
11/2 MARKETING OF MEDICAL INSTRUMENTATION. John N. McConnell, Scientific Products Division, American Hospital Supply Corporation, Evanston, Illinois.
11/3 THE REASONS FOR THE COMMUNICATIONS GAP BETWEEN PHYSICIAN AND ENGINEER, AND HOW TO OVERCOME IT. Selwyn S. Berg, City of Hope Medical Center.
11/4 MEDICAL INSTRUMENTATION—A NEW HORIZON. Irving Weiman, Micro-Data Operations, Electro-Optical Systems Inc., Pasadena.

WESCON Special Session

C/Systems for Law Enforcement

Thursday, August 22, 9:30-Noon
Biltmore Ballroom
Session Organizer and Chairman: Jules Appelman, Autonetics Division of North American Rockwell, Anaheim, California.
C/1 OVERVIEW OF LAW ENFORCEMENT. Chief Howard Earle, Los Angeles County Sheriff's Dept.
C/2 ELECTRONIC DATA PROCESSING AND COMMUNICATIONS. Inspector Victor Riesau, Los Angeles County Sheriff's Department.
C/3 PROJECT SKY NIGHT. Capt. R. E. Hoffman, Los Angeles County Sheriff's Dept., Aero Bureau.
C/4 COMMUNICATION AND DATA PROCESSING SYSTEMS FOR TACTICAL POLICE USE. Deputy Chief Edward M. Davis, Los Angeles Police Dept.

12/New Developments in Digital Communications

Wednesday, August 21, 2:4-3:30 pm
Biltmore Renaissance Room
Session Organizer and Chairman: R. E. Heckert, Hughes Aircraft Company, Fullerton, California.
12/1 ADEM, A NEW ADAPTIVE DATA EQUALIZED MODEM. D. M. Motley and G. K. McAuliffe, Autonetics, Anaheim, California, and R. Northrup, USAF Rome Air Development Center, Griffis AFB, Rome, New York.
12/2 SOME FEATURES OF THE HC-278 MODEM. J. E. Toffler and P. N. Winters, Hughes Aircraft Company, Fullerton, California.
12/3 QUADRATURE SIGNAL PROCESSING TECHNIQUES. P. N. Winters, Hughes Aircraft Company, Fullerton, California.
12/4 EQUALIZATION FOR DATA TRANSMISSION. D. M. Motley and G. K. McAuliffe, Autonetics, Anaheim, California.

13/The Computer as a Control Device for Testing Equipment

Wednesday, August 21, 2:4-3:30 pm
Biltmore Music Room
Session Organizer and Chairman: John J. Szalay, American Computer Technology Corporation, Los Angeles, California.

13/1 PROGRAMMING REQUIREMENTS FOR TESTING CONTROL COMPUTER. William W. McGhee, Litton Industries, Woodland Hills, Calif.
 13/2 INTERFACE DESIGN CONSIDERATIONS AND CONSTRAINTS. Wallace W. Mingus, Litton Industries, Woodland Hills, California.
 13/3 HARDWARE-SOFTWARE TRADEOFFS WHEN APPLYING COMPUTERS TO TESTING. James E. Stuehler, IBM Systems Manufacturing Division, San Jose, California.
 13/4 ADVANCES OF MAGNETIC RECORDING MEDIA. George E. Wilhelm, Thin Film Inc., Los Angeles, California.

14/Applications of Mathematical Programming in Design

Wednesday, August 21, 2:40-3 pm
 Biltmore Galleria Room
 Session Organizer and Chairman: Daniel Tabak, Wolf R&D Corporation, Riverdale, Maryland.
 14/1 IDENTIFICATION OF LINEAR SYSTEMS USING MATHEMATICAL PROGRAMMING. R. W. Harrison, Leeds & Northrup Company, North Wales, Pennsylvania and K. A. Fegley, University of Pennsylvania, Philadelphia, Pennsylvania.
 14/2 OPTIMIZATION OF A MULTISTAGE FLASH DESALINIZATION PLANT. J. H. Beamer and D. J. Wilde, Stanford University, Stanford, California.
 14/3 DESIGN OF DIGITAL CONTROLLERS FOR NONLINEAR SYSTEMS BY MATHEMATICAL PROGRAMMING. G. Porcelli, General Electric Company, Philadelphia, Pennsylvania; D. Tabak, Wolf R&D Corp.; K. A. Fegley, University of Pennsylvania.
 14/4 A COMPUTATIONAL PROCEDURE FOR FIXED-TIME FUEL-OPTIMAL CONTROL OF LINEAR STATE-CONSTRAINED SYSTEMS. A. F. Fath, Boeing Scientific Research Laboratories, Seattle, Washington.

15/Fluidic-Electronic Analogies

Thursday, Aug. 22, 9:30-Noon
 Biltmore Bowl
 Session Organizer: Dr. John M. Salzer, Salzer Technology Enterprises, Los Angeles, California.
 Session Chairman: Albertus E. Schmidlin, General Precision Systems Inc., Little Falls, New Jersey.
 15/1 ANALYTICAL TECHNIQUES FOR FLUID ANALOG SYSTEMS. Ruel Ross Clark, Imperial-Eastman Corporation, Salt Lake City, Utah.
 15/2 DEVELOPMENT OF A FLUIDIC AMPLIFIER TRANSFER MATRIX. Francis M. Manion, Harry Diamond Laboratories, Washington, D.C.
 15/3 A-C FLUIDICS. Carl W. Woodson, General Electric Company, Schenectady, New York.
 15/4 FLUIDIC DIAPHRAGM LOGIC. D. J. Jensen and R. R. Schaffer, IBM Systems Development Division, Endicott, New York.

16/Optics and Electro-Optics In Computers

Thursday, August 22, 9:30-Noon
 Biltmore Music Room
 Session Organizer and Chairman: B. R. Shah, IBM Corporation, Poughkeepsie, New York.
 Session Co-Chairman: T. J. Harris, IBM Corp.
 16/1 CONSIDERATIONS IN THE DESIGN OF A LASER THERMAL-MICRO IMAGE RECORDER. C. O. Carlson, D. Ives, National Cash Register Corporation.
 16/2 OPTICS IN INPUT/OUTPUT TO DATA PROCESSING. R. J. Patter, Xerox Corporation.
 16/3 A HOLOGRAPHIC READ-ONLY STORE FOR INFORMATION STORAGE APPLICATIONS. R. L. Gambelin, M. A. McCormack, J. A. McDonnell, B. M. Updike, N. M. Krewson, IBM Corporation.
 16/4 RESEARCH ON LASERS FOR LOGIC CIRCUITS. W. F. Kosonocky, RCA Laboratories, Princeton, N.J.
 16/5 OPTICAL INTERCONNECTIONS IN COMPUTERS. K. L. Konnerth, B. R. Shah, IBM Corp.
 16/6 UNCOMMON ELECTRO-OPTICS FOR DISPLAY AND PROCESSING. W. J. Poppelbaum, M. Faiman, University of Illinois.

17/Significant Developments In Magnetic Devices

Thursday, August 22, 9:30-Noon
 Biltmore Galleria Room
 17/1 RELIABILITY CONSIDERATIONS IN ELECTRONICS TRANSFORMERS FOR SPACE APPLICATIONS. E. Wiler, Jet Propulsion Laboratory, Pasadena, Calif.
 17/2 THE PARAFORMER—A NEW PASSIVE POWER CONVERSION DEVICE. S. D. Wanlass, Wanlass Electric Company, Santa Ana, California.
 17/3 MINIATURE LAMINATED CORES OF IMPROVED PERMEABILITY FOR LOW FREQUENCY TRANSFORMERS AND REACTORS. G. B. Finke and W. T. Mitchell, Magnetic Metals Company, Camden, N.J.
 17/4 NEW MAGNETIC SWITCH EXPLODING BRIDGE WIRE FIRING SYSTEM AND DESIGN PROCEDURE. K. Aaland, Lawrence Radiation Laboratory, Livermore, California.

17/5 DESIGN CONSIDERATIONS OF A TWO-TRANSFORMER SERIES FEEDBACK CONVERTER. R. L. Peterson, Litton Industries, Van Nuys, Calif.

18/Electronic Devices for Law Enforcement

Thursday, August 22, 2:40-3 pm
 Biltmore Ballroom
 Session Organizer and Chairman: R. W. Franks, Lockheed Missiles and Space Co., Sunnyvale, Calif.
 18/1 ELECTRONIC CRIME COUNTERMEASURES. John S. Jackson and Robert L. Cosgriff, University of Kentucky.
 18/2 COMPUTER PROCESSING OF FINGER-PRINTS. William J. Hankley, University of Utah.
 18/3 DIRECT MOBILE-TO-COMPUTER ACCESS SYSTEM. David C. Brown, John D. Hawks and Richard L. Larson, General Electric Company, Lynchburg, Va.
 18/4 PROJECT CLEAR. Paul Flaughner, Systems and Data Processing Division, City of Cincinnati.
 18/5 FUTURE TRENDS IN CCTV SECURITY SYSTEMS. John Campbell, Fairchild Space & Defense Systems.

19/Electromagnetic Compatibility

Thursday, August 22, 2:40-3 pm, Biltmore Bowl
 Session Organizer and Chairman: J. F. Fischer Jr., Genisco Technology Corp., Compton, Calif.
 19/1 PROBLEMS RELATED TO THE TESTING OF EQUIPMENTS TO MIL-STD-704A. Stephen A. Jensen, Genisco Technology Corporation.
 19/2 A NEW APPROACH TO ELECTROMAGNETIC FIELD STRENGTH MEASUREMENTS IN SHIELDED ENCLOSURES. Horacio A. Mendez, IBM Corporation, San Jose, California.
 19/3 INTERFACE STANDARDIZATION FOR FUNCTIONAL AND ELECTROMAGNETIC COMPATIBILITY. D. W. Matthias, Lockheed, Georgia.
 19/4 NUCLEAR ELECTROMAGNETIC PULSE (NEMP) PROTECTION FOR COMMUNICATIONS FACILITIES AND EQUIPMENT. D. B. Clark and H. A. Lasitter, U.S. Naval Civil Engineering Laboratory, Port Hueneme, California.

20/New Electronic Devices and Systems for Nuclear Reactors

Thursday, August 22, 2:40-3 pm
 Biltmore Renaissance Room
 Session Organizer: G. L. Swezea, Douglas United Nuclear Inc., Richland, Washington.
 Session Chairman: Dr. Eugene Greenfield, Washington State University, Pullman, Washington.
 20/1 NEED FOR NEW ELECTRONIC DEVICES AND SYSTEMS FOR NUCLEAR REACTORS. E. W. Greenfield, Washington State University.
 20/2 ELECTRONIC SYSTEMS FOR NUCLEAR REACTOR PROTECTION. G. L. Swezea, Douglas United Nuclear Inc.
 20/3 DESIGN CONCEPTS COMMUNICATIONS FOR THE FAST FLUX TEST FACILITY. Roy C. Hoffman, Douglas United Nuclear.
 20/4 MINIATURE ISOTOPE ELECTRIC POWER SOURCES AND THEIR APPLICATION TO NUCLEAR REACTOR INSTRUMENTATION. Dr. K. A. Gasper, McDonnell Douglas Company, Richland, Washington.
 20/5 RELIABILITY ANALYSIS OF NUCLEAR REACTOR ELECTRONIC SYSTEMS. R. A. Rohrbacher, Douglas United Nuclear.
 20/6 A SURVEY OF SEMICONDUCTOR NUCLEAR RADIATION DETECTOR DEVELOPMENT IN EUROPE. Alastair McKenzie, Nuclear Enterprises Ltd., Edinburgh, Scotland.

21/Computerized Pattern Recognition and Communication

Thursday, August 22, 2:40-3 pm
 Biltmore Music Room
 Session Organizer and Chairman: Edward A. Patrick, Purdue University, Lafayette, Indiana.
 21/1 FEATURE SELECTION IN PATTERN RECOGNITION AND COMMUNICATIONS. K. Fukunaga, Purdue University, Lafayette, Indiana.
 21/2 ESTIMATION AND RECOGNITION WITH COMPUTER OUTPUT DISPLAY. E. A. Patrick, Purdue University.
 21/3 DEMO 1—A SUPERVISED/UNSUPERVISED PORTABLE LEARNING COMPUTER. F. C. Monds, The Queen's University of Belfast, Northern Ireland, and G. Carayannopoulos, Purdue Univ.
 21/4 FEEDBACK SIGNAL DESIGN FOR MULTICLASSES SOURCES. J. Y. S. Luh, Purdue Univ.

22/Terrain Radar Scatter—Experimental and Theoretical

Thursday, August 22, 2:40-3 pm
 Biltmore Galleria Room
 Session Organizer and Chairman: W. W. Koepsel, Kansas State University, Manhattan, Kansas.
 22/1 RADAR STUDIES OF THE EARTH. Walter E. Brown Jr., Jet Propulsion Laboratory, Pasadena, California.

22/2 BISTATIC MEASUREMENTS OF THE ECHO AREA OF TERRAIN AT 10 GHz. Stephen T. Cost, IBM Corporation, Rockville, Maryland and William H. Peake, The Ohio State University, Columbus, O.
 22/3 ANTENNA POLARIZATION AND TERRAIN DEPOLARIZATION EFFECTS ON RADAR RETURN FROM THE GROUND. Charles S. Williams, James A. Cooper, Sandia Corp., Albuquerque, N.M. and J. Richard Huynen, Lockheed Missiles & Space, Palo Alto, Calif.
 22/4 ELECTROMAGNETIC WAVE REFLECTION FROM ROUGH LAYERS. Kumar Krishen, W. W. Koepsel and K. H. Lenhart, Kansas State University, Manhattan, Kansas.
 22/5 FREQUENCY DEPENDENCE OF ULTRASONIC SCATTER FROM STATISTICALLY ROUGH KNOWN SURFACES. Adrian K. Fung and Anthony Leovaris, Center of Research in Engineering Science, University of Kansas, Lawrence, Kansas.

Wescon Special Session

D/Space Exploration for Land Resources

Friday, August 23, 9:30-Noon
 Biltmore Ballroom
 D/1 THE INFINITE VARIETY OF LAND RESOURCES. William A. Fischer, U.S. Department of the Interior, Washington, D.C.
 D/2 REMOTE SENSING IN GEOLOGY. Ronald J. P. Lyon, School of Earth Sciences, Stanford University.
 D/3 REMOTE SENSING IN FORESTRY AND AGRICULTURE. Dr. Robert M. Caldwell, University of California, Berkeley, Calif.
 D/4 REMOTE SENSING OF FRESH WATER RESOURCES. Paul Bock, Travellers Research Center Inc., Hartford, Connecticut.

23/Advancement of Urban/Regional Systems With Aerospace Technology

Friday, August 23, 9:30-Noon, Biltmore Bowl
 Session Organizer and Chairman: Roger W. Sampson, Douglas Aircraft Co., Huntington Beach, Calif.
 23/1 SOCIO-ECONOMIC ATTRIBUTES OF OUR TECHNOLOGICAL SOCIETY. Arthur L. Shef, Douglas Aircraft Company, Huntington Beach.
 23/2 SYSTEMS APPROACH TO THE URBAN COMMUNITY WITH SPACE CAPABILITY. W. H. Kuhlman Jr., Douglas Aircraft Company, Huntington Beach.
 23/3 SYSTEMS APPROACH TO REGIONAL TRANSPORTATION ANALYSIS. C. F. Hoppe, TRW Systems, Redondo Beach, California.
 23/4 SPACE TECHNOLOGY FOR NON-AEROSPACE APPLICATIONS. Melvin S. Day, National Aeronautics and Space Administration, Washington, D.C.

24/Advances in Materials for Tomorrow's Electronics

Friday, August 23, 9:30-Noon
 Biltmore Renaissance Room
 Session Organizer: P. Michael Sinclair, Industrial Research Magazine, Beverly Shores, Indiana.
 Session Chairman: Irwin Stambler, Industrial Research Magazine, Los Angeles, California.
 24/1 FOURTH PERIOD COMPOUND SEMICONDUCTORS. Rudolph August, Autonetics, Research & Engineering Division, Anaheim, California.
 24/2 FERROMAGNETIC MATERIALS. Eberhard Schwabe, RCA Memory Production Division, Needham, Massachusetts.
 24/3 ADVANCES IN SUPERCONDUCTIVE MATERIALS. Juri Matisoa, IBM Watson Research Center, Yorktown Heights, New York.
 24/4 THE ALL-PLASTIC TRANSISTOR. Jerome J. Surran, General Electric Electronics Laboratory, Syracuse, New York.

25/Qualitative Pattern Recognition Through Image Shaping

Friday, August 23, 9:30-Noon
 Biltmore Music Room
 Session Organizer and Chairman: H. Hermami, Ohio State University.
 25/1 QUALITATIVE PATTERN RECOGNITION VIA OPTICAL SYSTEMS. H. Hermami, Ohio State University, Columbus, Ohio.
 25/2 EDGE ENHANCEMENT OF PHOTOGRAPHIC IMAGERY—A MATHEMATICAL REPRESENTATION AND OPTICAL IMPLEMENTATION. W. F. Haagen, Bendix Electro-Optics Division, Ann Arbor, Michigan.
 25/3 CHARACTER RECOGNITION VIA FOURIER DESCRIPTORS. E. L. Brill, Battelle Memorial Institute, Columbus, Ohio.

CONTINUED ON PAGE 8

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Cocktail Party

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Ill be a snap for political pollsters to take a reading on the voting public's sentiments the evening of August 20th. They can simply tally the number of elbows hooked over the mahogany at the "Elephant Bar and over the "Donkey Bar" and compare totals. 'Cause that's the night of the famous WESCON Cocktail Annual, and the pervading theme is of the "jump-on-the-political-bandwagon" variety.

The doors of the Statler's Pacific Ballroom swing open promptly at 6:00 and will be bolted at exactly 8:00 p.m. In between, it's every man (and every gal) for himself, with an open bar and lots of delicious hors d'oeuvres. Tab for the evening is a mere \$6.50.

The manufacturers' reps somehow got control of the cocktail party planning this year. Which is all for the good, as reps are invariably excellent hosts. Committee chairman is John F. O'Halloran, president of the rep firm bearing his name. Assisting him is another well-known personality in the rep business, Larry Courtney.

Don't worry about the Ballroom getting too packed for comfort. While convention management anticipates a gregarious 1500 or so, there are provisions for a lot more. The adjoining Sierra Room will be done up in the proverbial trappings of conventioning, giving plenty of room for the party to expand.

So come re-acquaint yourselves with industry cronies you haven't seen in ages. Or, bring a business contact and his wife. Introduce them to the more frivolous side of WESCON.

These 15 greeters you'll see dressed up in red, white and blue outfits with the stripes and the stars aren't your Dads—they're your Uncles!

Technical Program Continued

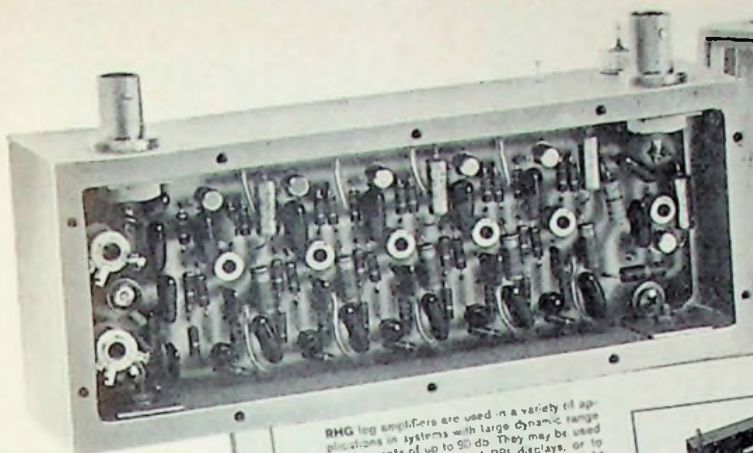
26/High Power Solid-State Inverters

Friday, August 23, 9:30-Noon
Biltmore Galeria Room
Session Organizer and Chairman: David W. Borst, International Rectifier, El Segundo, Calif.
26/1 THREE-PHASE STATIC INVERTERS. Stuart P. Jackson, Solidstate Controls Inc., Columbus, O.
26/2 STATIC INVERTERS IMPROVE CONTROL RELIABILITY. Robert Rosko, Public Service Electric and Gas Company, Newark, New Jersey.
26/3 INVERTERS AND APPLICATIONS. K. Lach and J. Riordan, Networks Electronic, Chatsworth, Calif.
26/4 INVERTER THYRISTORS—WHAT AFFECTS THEM—HOW TO CHARACTERIZE THEM. D. Cooper and D. Borst, International Rectifier, El Segundo, California.

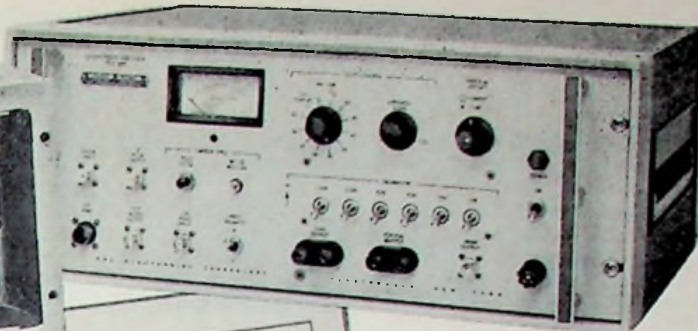
27/The Computer Impact on Power Systems

Friday, August 23, 2-4:30 pm
Biltmore Renaissance Room
Session Organizer and Chairman: P. G. Lowery, Department of Water and Power, Los Angeles, Calif.
27/1 GRAPHIC DISPLAY FOR POWER SYSTEM CONTROL COMPUTERS. Raymond C. Burt, Los Angeles Department of Water and Power.
27/2 DYNAMIC SIMULATION OF POWER SYSTEMS. Robert C. Durbeck, IBM Research Laboratory, San Jose, California.
27/3 COMPUTER CONTROL OF POWER SYSTEM. M. D. Leichly, Leeds and Northrup Company, San Francisco, California.
27/4 THE ROLE OF COMPUTERS IN VERY LARGE POWER INTERCONNECTIONS. (Author to be announced).

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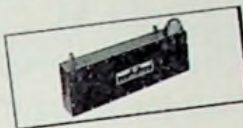


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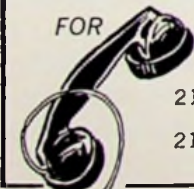
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Microelectronics Symposium

Designing With Hybrids

"Barely scratching the surface" is the phrase used by one expert in describing present-day exploitation of the possibilities for hybrid microelectronic circuits. That's one reason WESCON selected the topic for one of its two special symposia to run concurrently with the regular technical program.

Twenty lectures on designing with hybrids will be presented at the Statler Hilton Hotel on August 21 and 22. Sponsor of the series is the Parts, Materials and Packaging Group of IEEE.

Co-chairmen are RCA's Wayne Martin and S. M. Stuhlbarg, of Raytheon. The latter will be remembered as the chairman of the '67 WESCON symposium titled "Microelectronics Comes of Age." Like that program, the hybrids series will be a compact, follow-on version of an eight-week lecture program currently being presented at MIT.

Interest in this symposium is bound to run high, as many knowledgeable engineers feel that hybrid devices can virtually replace conventional printed wiring boards and discrete component parts during the next five years. This holds true for both government and commercial electronics equipment applications.

WESCON's general program is aimed at presenting needs, trends, and applications of new technology in a broad range of disciplines," explains Convention Director Floyd L. Goss. "We recognize and encourage concurrent meetings in which specialists talk to specialists at length, and in which a tutorial survey of a new engineering field can be presented."

Such a meeting is the 1968 Hybrid Microelectronic Symposium.

All IEEE members will receive their technical program under separate cover.

D-M-R- Conference

Vital Issue
Airing Time

A national aura will pervade this year's WESCON Distributor - Manufacturer - Representative Conference, marking the first time these activities have been open to interested firms nationwide. Previously, conference table assignments had been doled out to those

CONTINUED ON PAGE 12



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D-M-R CONFERENCE (Cont.)
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The one-day meeting (Monday, August 19) will convene at the Century Plaza Hotel at 7:30 a.m. and wind up at 5:30 p.m.

The D-M-R conference format will be made up of twenty segments of 20 minutes each. More than 50 distributor companies are assigned conference tables at which they host manufacturers and the manufacturer's representatives in individual pre-arranged meetings to discuss vital business issues.

Jack Berman, head of the company bearing his name and chairman of the conference, has invited Gail Carter, Editor/Publisher of the NEDA (National Electronic Distributor Association) Journal to be on hand for informal discussion. Carter will hold an open seminar for manufacturers not presently distributing through reps and distributors but who may have an interest in so doing. He will explain how the process works and examine the advantages and disadvantages of the system.

The early morning arrival allows for a continental breakfast, business sessions, trade fellowship and a no-speaker lunch followed by more sessions. Registration, including meals is \$9.00 per person.

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Secretary of Commerce
Keynotes WESCON

The keynote address for the opening day of WESCON, Tuesday, August 20, will be presented by Secretary of Commerce C. R. Smith.

To be held in the Biltmore Bowl of the Biltmore Hotel, the event is expected to draw an attendance of nearly 1000, and will pay tribute to the Western Electronic Manufacturers Association on its 25th anniversary. The cost per person: \$6.50. Full table reservations are available.

Along with the Los Angeles and San Francisco Institute of Electrical and Electronic Engineers, WEMA is a co-sponsor of WESCON.

Topping a 30-year career as a world leader in aviation, Secretary Smith was appointed to the Cabinet last March. He has served as president and later board chairman of American Airlines since 1934, except for three years during World War II.

He served as a major general during the war, and was deputy commander of the Air Trans-

CONTINUED ON PAGE 15

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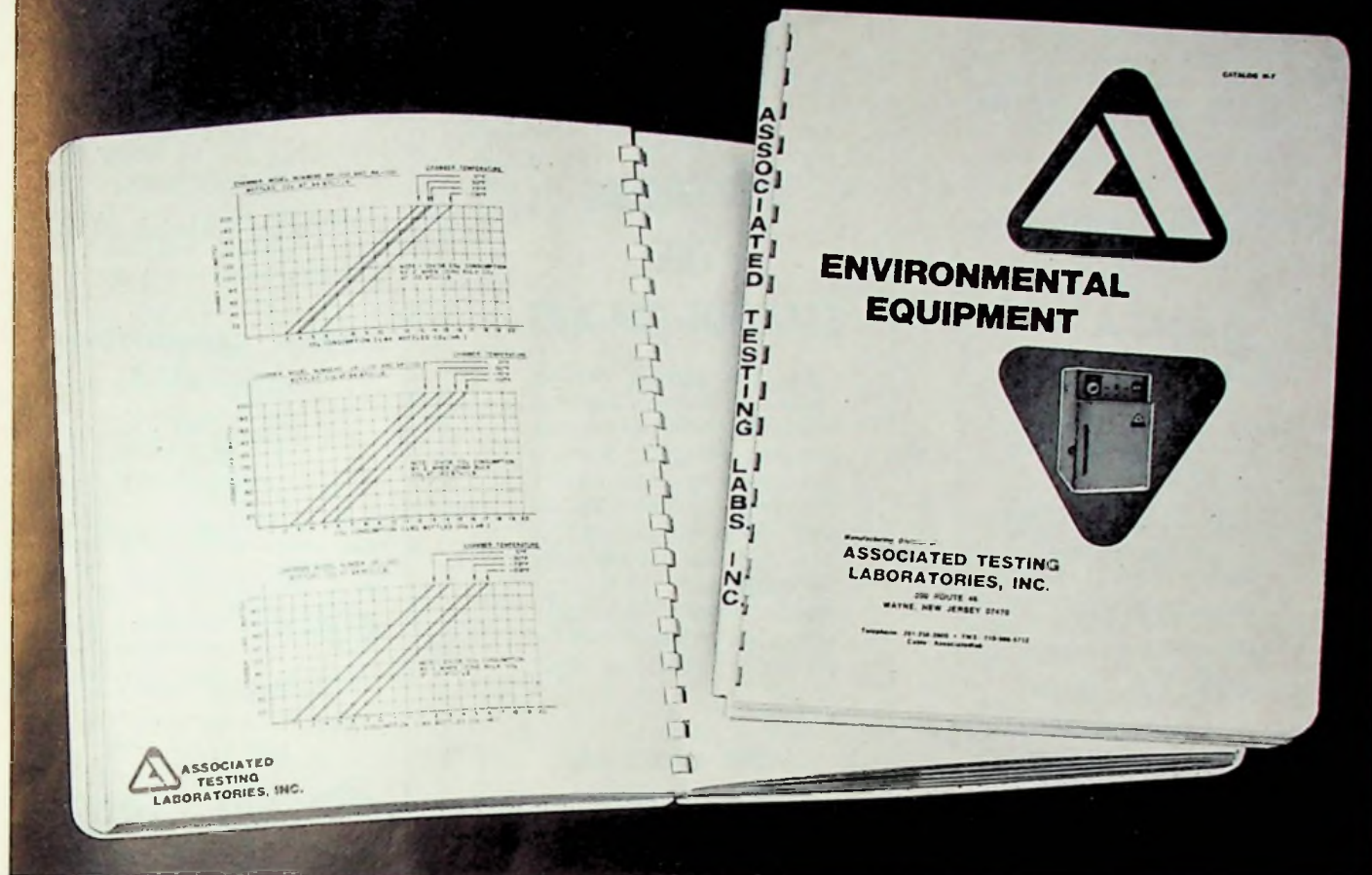
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A graduate of the University of Texas, Secretary Smith entered the air transportation field in 1928, and led American Airlines into the age of jet aviation. He is a recipient of the Billy Mitchell Award, honoring "the United States citizen making the outstanding contribution to aviation progress."

Ladies Program

Lunching With The Stars for Openers

A variety of exciting and fun-filled diversions have been planned for the wives of WESCON '68 attendees, highlighted by a tour of movieland's glamorous Universal City Studios.

Commencing the activities on Tuesday afternoon will be a combination fashion show and "welcome" tea. It will be held in the Music Room at the Biltmore Hotel from 2:00-4:00 p.m. More than a dozen models from Chana-Baker, internationally recognized design house, will present between 50 and 80 dramatic creations from the couturier's collection.

The main event of the women's program, co-chairmanned by Mrs. John C. McAdam and Mrs. Douglas Maure, is to take place on Wednesday. At 10:00 a.m. the ladies will board buses at the Grand Avenue exit of the Biltmore Hotel which will take them to Universal City Studios for a three-and-a-half-hour-long tour.

While at the studio they will have lunch in the commissary alongside prominent stars of television and motion pictures. Casual or sport clothes and comfortable shoes are in order for this jaunt. Tickets, including the tour and lunch, may be purchased for \$6.00 each from the Special Events counters in the major hotels and at exhibit areas. They may also be ordered in advance from the Los Angeles WESCON office.

Thursday is an optional day on which the distaff side may attend the Future Engineers Luncheon, rest, or go shopping and sight-seeing. Brochures on where-to-go-and-how-to-get there in Southern California will be available in the Hospitality Suite at the Biltmore Hotel which will be open daily during the convention from 8:30 a.m. to

4:00 p.m. Members of the Women's Activities Committee will be on hand to lend assistance to visitors who may wish help or information.

The final activity for the ladies begins at 10:00 a.m. on Friday, after a gratis continental breakfast served from 8:30 a.m. in the Hospitality Suite. Buses will embark from the Biltmore for a tour of the Future Engineers Exhibit and other displays at Hollywood Park. Again, comfortable shoes are suggested for the trip through the exhibits and science projects.

Industrial Design Awards

from 176 to 20 to IT

Ten years ago an experimental "show within a show" made its debut at WESCON — the Industrial Design Awards program. During the ensuing years, IDA has become one of the most popular regular features of WESCON.

In August, IDA celebrates its tenth anniversary by going national. Heretofore, an invited panel of western design executives provided the judging. A special judging committee of the Industrial Designers Society of America has now assumed that responsibility.

Also, as IDA comes of age, competition has been divided into six design categories, replacing one "open" classification.

Eligible companies numbered 2000, from which 176 entries showed up. Preliminary judging at Chicago's Palmer House narrowed the field to 20. Ten of the "interim winners" are in the computer and electronic data processing equipment category, four in instruments and instrumentation, three in communication equipment, two in production machinery, and one in shelf and shipment packaging.

The Big Winner will be announced at final judging during WESCON week the IDA exhibit area at the Sports Arena. Drop by and see how your taste compares with that of the experts!

Dr. Fred Eyestone

President of Autonetics Division of North American Rockwell will address the Future Engineers at their scholarship luncheon, August 20, in the Pacific Ballroom of the Statler Hilton.

Full detail on this and other WESCON events in the August issue.

Girding for A Career in Electronics

instructors or engineering professionals who have recognized their talents.

Initial screening for the '68 FES was based upon information from entry forms submitted to 2300 high schools in the 11-state western area. Included were academic records, extracurricular activities, a 250-word statement-of-purpose, and a description of proposed projects.

Twenty finalists will travel to WESCON for a crack at four scholarships ranging from \$1500 to \$400. They will also receive \$50 U. S. Savings Bonds, air travel allowances, living expenses during the week-long activities, and commemorative plaques according to committee chairman N. L. Brotzman of Pacific Telephone Company. Travel allowances and expenses will be given to accompanying science instructors, too.

For a look at how students should demonstrate, drop by the special FES area at Hollywood Park and get a firsthand run-down by the 20 finalists on-station by their exhibits.

Yes, there will be student demonstrations at WESCON, too. But, they'll be a cut above the average, and will be linked with student science exhibits and prize-winning technical paper presentations. All part of the Future Engineers Show, which has been an important feature of WESCON for the past 11 years, they'll contribute to the new format tailored for this year's "show within a show."

Previous years saw the primary emphasis on the student's science experiment and exhibit, with participation in a local science fair a prerequisite for the judging. Science projects will still play a major role this summer, but additional criteria enter into the selection of students as Future Engineers and in the awarding of scholarships totalling \$3400.

The science fair requirement has given way to a practice designed to broaden the entry list of deserving high school students. Students can now nominate themselves. They may also be nominated by their

Technical Program Continued / FROM PAGE 8

28/The Impact of New Technology On Data Communication

Friday, August 23, 2-4:30 pm
Biltmore Music Room
Session Organizer and Chairman: Richard A. Gibby, Bell Telephone Laboratories, Holmdel, New Jersey. Moderator: George Gilman, Mitre Corporation, Bedford, Massachusetts.
The panel will discuss imminent changes in the data communication field resulting from present-

day and predictable technological improvements.
28/1 James Babcock, Allen Babcock Computing Inc., Los Angeles
28/2 Dean Gillette, Bell Telephone Laboratories, Holmdel, New Jersey
28/3 Richard Petritz, Texas Instruments, Dallas, Tex.
28/4 Virgil Vaughan, AT&T, N.Y.
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As shown by Equation #1, electromotive force, and hence the transfer of electrical energy can be achieved in two ways: (1) by flux coupling, or (2) by parametric coupling. Existing passive devices such as transformers and ferroresonant transformers depend almost exclusively on the flux coupling term of Equation #1. However, Wanlass Electric has now invented a new component, the Paraformer™, which operates exclusively on the basis of parametric coupling and consequently is a device in which the flux coupling or mutual inductance is zero. (Thus, all energy is passed by the $i \frac{dL}{dt}$ term of Equation #1.)

$$E = \frac{d}{dt} (Li) = \underbrace{\frac{L di}{dt}}_{\text{Flux Coupling Term}} + \underbrace{i \frac{dL}{dt}}_{\text{Parametric Coupling Term}}$$

Equation #1

The relative advantages of the new device are summarized in the following table.

	Transformer	Ferroresonant Transformer	Paraformer™
All Passive Device	Yes	Yes	Yes
All Static Device	Yes	Yes	Yes
Number of Components	3 (Two coils & a core)	5 (three coils, a core & a capacitor)	4 (Two coils, a core & a capacitor)
Multiple secondaries permissible	Yes	Yes	Yes
Line Isolation	Yes	Yes	Yes
Voltage Transformation	Yes	Yes	Yes
Line Voltage Regulation	None	±1%	±¼%
Line Filtering (Noise)	No	Slight	Over 50 db attenuation
Load Filtering (Noise)	No	Slight	Over 50 db attenuation
Overload Protection	No	Partial	Yes
Low Line Voltage Protection	None	None	Yes

As will be noted from Table I, the Paraformer™ is inherently a line voltage regulator and line power filter. In fact, the Paraformer's most useful property appears to be its ability to prevent load voltage fluctuations from reaching the line and line voltage fluctuations from reaching the load. As will be noted from the above table, such fluctuations (noise, distortions, etc.) are attenuated by over 50 db for frequencies from a few cycles per second up to 1 megacycle per second.

Having noted the outstanding advantages of the Paraformer™, it is perhaps appropriate to note the simplicity of the device.

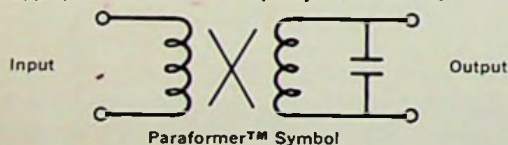


Figure 1

As shown in Figure 1 (see also Fig. 2), the Paraformer consists only of a primary winding, a secondary winding, a magnetic core and an AC capacitor. **NO OTHER COMPONENTS** are used. After reviewing the symbol, it is perhaps important to restate that the Paraformer™ is not a ferroresonant transformer. The mechanism for energy transfer is entirely different and most of the basic characteristics are entirely different. Table II highlights some of these differences.

Relative to Table II, the test results observed for the Paraformer are most easily understood if one thinks of this device as a power oscillator which is parametrically pumped by the line and hence is phase locked to the line frequency. (For instance, shutting the output of any oscillator causes the oscillations to stop, thus accounting for the results observed in Test #1).

TABLE II

TEST	Transformer	Ferroresonant Transformer	Paraformer™
1. Short circuit output terminals	High load currents	Twice rated load current	Zero load current
2. Remove output capacitor		Output voltage decreases by 25%	Output voltage goes to zero
3. Apply low input voltage (e.g. 50% of normal)	Low output voltage (e.g. 50%)	Low output voltage (e.g. 50%)	Output voltage goes to zero
4. Apply voltage to output terminals instead of input terminals	Bilateral Operation (Voltage observed on input terminals)	Bilateral Operation (Voltage observed on input terminals)	Unilateral Operation (no voltage observed at input terminals)
5. Measure phase shift through device	Constant at 180°	Highly variable (varies with load)	Constant at 90°

Figure #2 depicts the design of one version of the Wanlass Paraformer™ (two C-Cores rotated 90°).

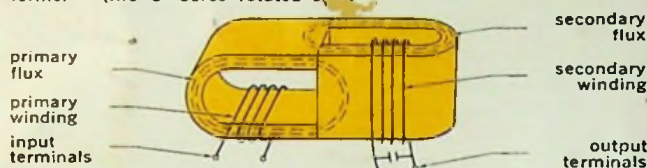


Figure #2

Note that the geometry is such that the primary flux does not link the secondary winding and that the secondary flux does not link the primary winding. (Accordingly, the classical flux coupling is zero). However, note that the primary flux does modulate the reluctance associated with the secondary flux, and hence the primary does modulate the inductance of the secondary. This modulation can be achieved only by transferring electrical power from the primary to the secondary. This power in turn sustains the secondary oscillations and delivers power to the load. It is this unique parametric power transfer mechanism that makes the Paraformer™ a revolutionary new component.

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