

# ORLANDO SECTION NOTES



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VOLUME XII, NUMBER 1

SEPTEMBER, 1976

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CIRCULATION OF THIS ISSUE: 657

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PROGRAM FOR COMMUNICATIONS SOCIETY  
TOUR AND DINNER – THURSDAY, SEPTEMBER 9, 1976

TOPIC: WALL STREET JOURNAL SATCOMM LINK  
SPEAKER: MR. WILLIAM HARMER  
PRODUCTION MANAGER, WALL STREET JOURNAL

TOUR LOCATION: Wall Street Journal Communications and Publishing Facilities  
2301 Presidents Drive, Orlando Central Park

The Social and Dinner will be at the Holiday Inn Airport, 7900 South Orange Blossom Trail

SOCIAL:	5:45 P.M.
DINNER:	6:15 P.M.
PROGRAM:	7:00 P.M.
DINNER COST:	\$6.50

Call Miss Susan Ching - 898-9093 (On or Before September 6th) for Reservations

## BARBEQUE NOTICE:

Our annual BBQ is tentatively scheduled for Saturday, November 6, 1976 at the FPC Bear Lake Facility in Northeast Orlando.

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**PUBLISHED BY ORLANDO SECTION  
INSTITUTE OF  
ELECTRICAL AND ELECTRONICS ENGINEERS**

# **COPPERHEAD** (CLGP)

**Until it's fired, it's just another round.**

COPPERHEAD (CLGP), the Army's cannon-launched guided projectile, is handled and fired just like any other 155 mm round by gun crews with no special training. (In the highly successful prototype test program, every round was fired by an Army test crew using standard artillery loading procedures.)

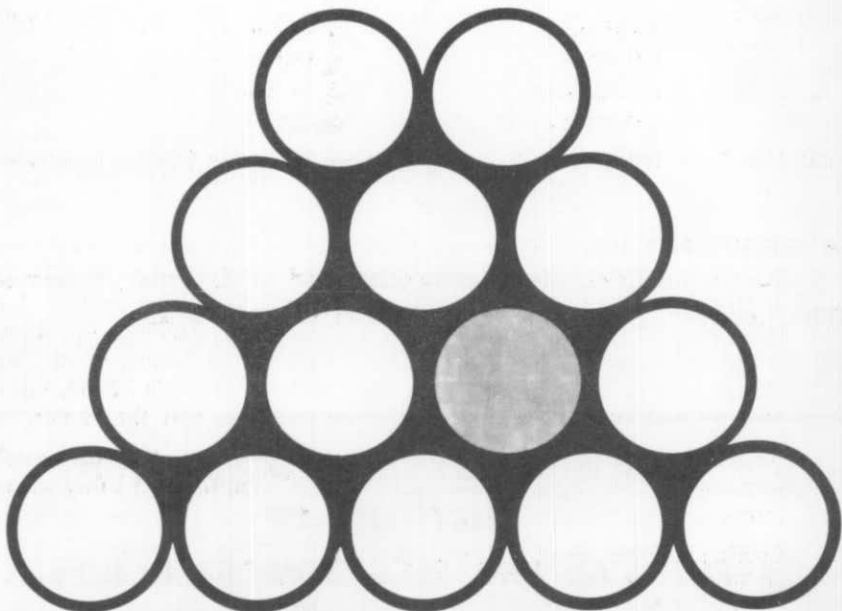
Once fired, it gives artillery something it's never had before—the capability of destroying a moving tank from miles behind the front lines with a single round.

How does it work? A forward observer, a remotely piloted vehicle, or a helicopter,

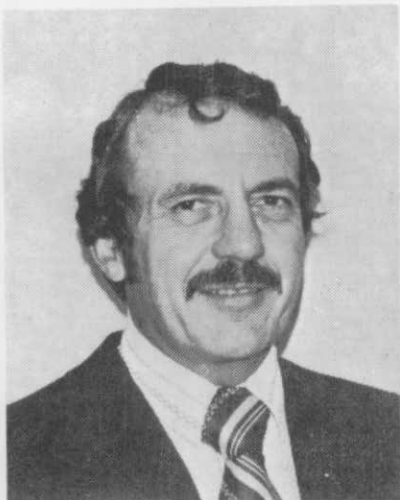
equipped with a laser designator, marks the target with an invisible light even under conditions of darkness. The round is fired from artillery positions miles away and homes in on the target with pinpoint accuracy.

Developed by the Orlando division of Martin Marietta Aerospace under the leadership of the U.S. Army Armament Command, COPPERHEAD (CLGP) should soon be ready for field use—providing a major deterrent to the threat of enemy armor dominance.

**MARTIN MARIETTA**



## Chairman's Corner



I wish to extend to our past chairman, Harold Downing, a big vote of thanks and appreciation for his fine efforts and leadership during the past year.

We have a very fine group of committee and chapter chairmen who are planning an excellent series of meetings and events during the coming year. I am sure these men will welcome your support, and that your professional development will be enhanced by your participation in the upcoming events.

Headquarters now has a list of short courses available to IEEE members. I would like to receive any thoughts you may have for an appropriate short course (one to three days) for our Section. I will be looking forward to an educational and productive year for all of us.

Ed R. McCarter  
Section Chairman

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The **FTU STUDENT CHAPTER** will hold its first meeting of the 1976-77 academic year on Thursday, September 23, 1976. Discussion will include: Tutoring for the (November) E. I. exam. and assistance for the November SWE conference at FTU. Coffee and donuts will be available, and a movie will be shown.

### S-MTT CHAPTER SOLICITS SUGGESTIONS

The Orlando chapter of the Microwave Theory and Techniques Society is organizing for the 1976-77 year. Acting Chairman Dean Bowyer (352-2483) and acting Vice-Chairman Hal Buscher (352-2976) are looking for an additional officer candidate to assist in activity planning. Members are requested to submit nominations to the above, by phone, or at: Martin Marietta Corp. MP-200, P. O. Box 5837, Orlando, Florida 32808. Elections will be held at the first meeting, to be announced in the section notes.

Suggestions are solicited in regards to lecture topics, potential speakers, meeting formats and locations, plant tour possibilities and other events of interest.

Chapter activities await your response!

FTU—SOUTH ORLANDO RESIDENT CENTER  
 DIRECTOR: Dr. Richard C. Harden, P. E.  
 TELEPHONE: 305-855-0881

7300 Lake Ellenor Drive  
 (Orlando Central Park)  
 Orlando, Florida 32809

**FALL 1976 SCHEDULE**

PFX	No.	Qtr. Hrs.	Course Title	SORC Time	
<b>COLLEGE OF BUSINESS ADMINISTRATION</b>					
	MGMT	311	3	Human Behavior	18-205OW (Cont Ed)
<b>COLLEGE OF EDUCATION</b>					
EDAD	EDAD	611	4	Educ. Supervision Functions	18-215OT (Cont Ed)
	EDTA	480	3	Overview of Education	18-205OT
	EDVE	421	4	Curriculum Planning—Voc. Educ.	18-215OT (Cont Ed)
	EDVE	491	4	Occup. Safety Hazard Adm.	18-215OM (Cont Ed)
	EDVE	602	4	Administration - Voc. Education	18-215OW (Cont Ed)
<b>COLLEGE OF HUMANITIES AND FINE ARTS</b>					
	REL	401	4	Comparative Religion	18-215OM
<b>COLLEGE OF SOCIAL SCIENCES</b>					
	SOC	304	4	Development of Social Thought	18-215OR

*Most of the above-listed courses apply toward a GENERAL STUDIES DEGREE, which can now be earned at the Center. A 3-year tentative course program is available upon request. Contact the Center for further information.*

**COLLEGE OF ENGINEERING**

T = Lecture on TV Tape

T	CEES	411	4	Environmental Engr-Water Supply	20-215OMW
T	CEES	501	3	Environmental Engr-Chemistry I	19-195OMW
	CEES	501		Lab meets at FTU	9-115OS
T	CEES	601	4	Unit Oper/Proc-Sanitary Engr.	18-195OTR
T	CEES	620	3	Groundwater and Seepage	20-205OT; 20-215OR
T	EECS	513	3	Introduction to Digital Systems	20-205OM; 20-215OW
T	EECS	543	3	Coherent Optics Applications	17-185OM; 17-175OW
	EECS	551	3	Signal and System Analysis	17-175OT; 17-185OR
T	EECS	591	3	Digital Signal Processes	20-215OT; 21-215OR
T	EECS	653	3	Communication Theory	19-195OT; 19-205OR
T	EMCS	471	3	Engineering Mathematical Analysis	21-215OM; 20-215OW
T	EMMS	654	3	Dynamics of Structures	20-215OM; 20-205OW
T	IEMS	502	3	Probability for Engineers	19-205OT; 19-195OR
T	IEMS	602	3	Engineering Economic Analysis	17-185OM; 17-175OW
T	IEMS	624	3	Operations Research I	19-205OM; 19-195OW
T	IEMS	626	4	Linear Programming	17-185OTR
T	MEAS	601	4	Energy Analysis	17-175OM; 17-185OW
T	MEAS	642	3	Principals of Design	17-175OM; 17-185OW
T	MEAS	653	3	Adv. Engineering Instrumentation	18-195OM; 19-195OW

Aug. 16 **DEADLINE FOR RECEIPT OF APPLICATION FOR ADMISSION OR REACTIVATION.** There will be no Temporary Applications accepted this term.

Aug. 17 **REGULAR REGISTRATION AT SORC.** 12 Noon-5:00 P.M., later by appointment. After  
 thru contacting your advisor you may process your registration at SORC only if your total FTU course  
 Sept. 14 load is SORC courses; otherwise, you must register at the Main Campus for both SORC and Main Campus courses.

**IMPORTANT:** If you must register for SORC and Main Campus courses, do so during regular campus registration. Should you wait until ADD-DROP you take the chance of the course being filled, or cancelled due to lack of enrollment.

Previously admitted students may register at SORC by TELEPHONE TO SORC (excluding Continuing Education) subject to the above cited rules.

Registration after Sept. 14 can be done at the Main Campus until Sept 16, 1976. Fee Statements must be picked up at the Center beginning Sept. 14.

Students registering for Continuing Education (Cont Ed) courses must register in person beginning Aug. 17, but no later than the first night of class.

Aug. 30 **LAST DAY TO SUBMIT READMISSION APPLICATION.** No late Readmission Applications will be accepted this quarter.

Sept. 30 **CLASSES BEGIN**

Sept. 21 **LAST DAY FOR DROP, ADD, WITHDRAW AT SORC** with full refund. After this date, DROP/ADD and late registration **must be accomplished on the Main Campus** at the following times:

Sept 22: 9-11:30 AM	Sept. 23: 4:30-6:30 PM	Sept. 24: 1-4 PM
1- 3:30 PM		

Sept. 24 **FEES DUE IN CASHIER'S OFFICE.** Midnight postmark accepted.

Textbooks on sale first week of class. Check or Money Order ONLY.

### MEETING NOTICE – COMPUTER SOCIETY

Wednesday, September 15, 1976

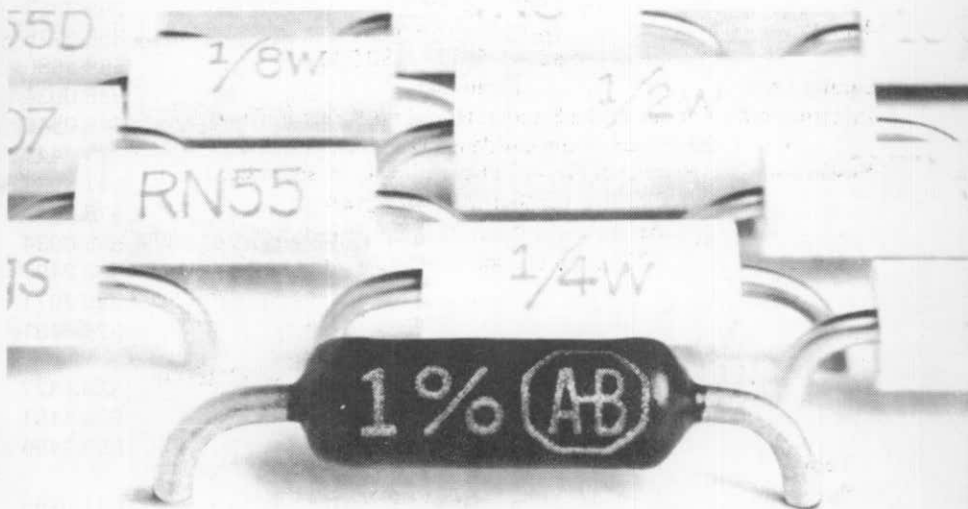
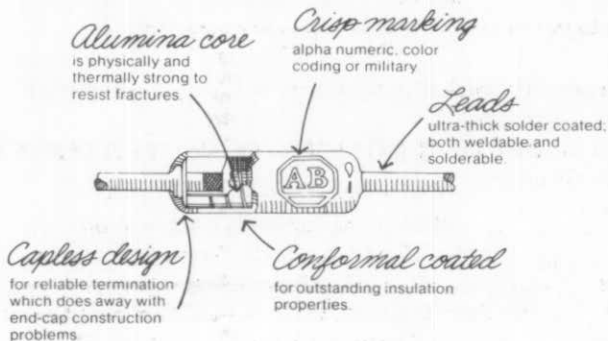
- Topic:** Microprocessor Design Application  
in the DRAGON Missile Training Simulator
- Speaker:** Mr. Bruce Baker  
**(Title:)** Sr. Staff Engineer, Guidance Development Center
- Location:** Martin Marietta Corporation  
Sand Lake Road
- Times:** Dinner: 7:30 P.M.  
Program: 5:30 - 7:30 P.M.
- Dinner Cost:** From Menu
- Information:** Dinner at the Sweden House on Kirkman Road  
after tour of the Guidance Development Center.
- Reservation:** Required. Please call Walt Steele at 352-4305  
or Ed Griffin at 352-2140
- Attendees will have an opportunity to  
"Shoot a Dragon" using the Trainer.

### MEETING NOTICE – POWER AND I.A. GROUP

- Tuesday, September 14, 1976
- Topic:** Electrical Energy Management
- Speaker:** Mr. Kenneth BuShea  
**(Title:)** Chief Electrical Engineer
- Location:** International Minerals and Chemical Co.  
Orlando Armature Works  
600 West Central
- Time:** Program: 8:00
- This is an open meeting,  
all members are invited to attend.

# A resistor for all reasons

Here's a way to cut the daylight out of your fixed resistor inventory. Standardize on our Type CC cermet. It's sized like a ¼-watt but you get performance that ranges from ¼-watt at 125°C to ½-watt at 70°C (250 volt max.) Tolerance is 1% over the complete resistance range of 10 ohms to 22.1 megs or 0.5% from 10 ohms to 499K. TCR is as low as  $\pm 50$  ppm/°C. The one resistor for all reasons: industrial, RN55C, RN55D and RLR07 needs to 1% and 2% tolerance. We have what you need; our distributors have it when your need is now. Ask for Publication EC33.



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cramer/orlando 894-1511

## ORLANDO SECTION NOTES

Published monthly by the Orlando Section except during the months of July and August. Inquiries concerning advertising and/or announcements should be forwarded to Mr. Leo Mallette, Route 8 Box 781, Orlando, Florida 32807.

### 1976 - 1977 EXECUTIVE COMMITTEE

		Business	Residence
Chairman	Dr. Ed McCarter	275-2548	647-0134
Vice Chairman	John Boynton	423-0555	339-8077
Secretary	Russel E. Theisen	834-1000x288	671-4139
Treasurer	Bill Rhoden	859-2900	671-3469
Group Chapter Rep	(In Process)		
Jr. Past Chairman	Harold Downing	351-9962	628-0676
Sr. Past Chairman	Dr. Jim Wiltse	352-4255	876-2561
Program,			
Arrangements	Dick Bergen	898-9013	862-0347
Membership	Melvin Kelch	843-8484	859-1533
Education Committee	Dr. Dave Flinchbaugh	831-2788x325	859-4855
Conference			
Committee	George McClure	352-3782	647-5092
Publicity	Dr. Fred O. Simons Jr.	275-2786	299-3857
Student Activities	Dr. Richard C. Harden	855-0881	855-5775
Publications	Leo Mallette	275-2786	568-4586
Barbeque	Homer Wilson	646-8230	855-0934
Awards	Dr. Bruce Mathews	275-2786	645-0549
Student Chapter	Bruce Fitzgerald	275-2786	273-6441
IEEE - FES Liason	Jim Ashwell	352-3842	647-1968
Engineer's Week	Dr. Brian Petrasko	275-2549	678-1177
Member-At-Large	Homer Wilson	646-8230	855-0934
Member-At-Large	Gene Dashiell	859-2900	859-2497
Area 4 Chairman	Jim Walter	898-9033	339-2071
PAC Cahirman	Richard McCoy	352-2718	628-4181
Region III			
Pac Chairman	Joe Pullara	352-4516	339-1327
AES Chairman	Richard McCoy	352-2718	628-4181
CS Chairman	Walt Steele	352-4305	859-2496
VTG Chairman	(In Process)		
PS & IA Chairman	Dr. Herbert Towle	275-2610	671-0265
MTT Chairman	Dean Bowyer	352-2483	299-7368
COMSOC Chairman	A. J. Levy	352-3247	843-7619

\*Members of the Executive Board

REMINDER! The Executive Committee meets the first Tuesday of the month. This is an open meeting and all members are invited to attend. The meeting is held at the Florida Power Corporation, 510 Park Ave. So., Winter Park, at 5:30 P. M.

ORLANDO SECTION  
I.E.E.E.  
ORLANDO, FLORIDA

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NEW  
PRODUCT  
INFORMATION

The HP Model 3435A is a 3-1/2 digit multimeter that provides up to 1999 counts full scale with five full functions. AC volts, DC volts, and ohms are either manual or autoranging. Current is manual ranging only. All functional and ranging capabilities are conveniently selected with front panel push buttons. The new high efficiency low power 7-segment LED display is pleasant to view. The selected function is indicated on the lighted display whether selected manually or automatically. New features make this DMM exciting because now you have a 3-1/2 digit meter with many more uses. The new touch-hold probe lets you measure AC and DC volts, and hold the DMM display until you want to release it. The 3435A ACV bandwidth is from 30 Hz to 100kHz up to the maximum of 1200V. The 20 $\Omega$  range gives you 10 milliohm resolution which is 10 times more sensitive than most other competitors. This function is useful for checking contact resistance and transformer windings.

The 3435A is priced at \$400.00 (including rechargeable lead-acid battery). Delivery is currently two weeks.

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ORLANDO  
SECTION  
NOTES



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VOLUME XI, NUMBER 2

OCTOBER, 1976

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CIRCULATION OF THIS ISSUE: 659

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# Annual B. B. Q.

FOR MORE EXCITING DETAILS . . .  
TURN TO PAGE 4

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# COPPERHEAD (CLGP)

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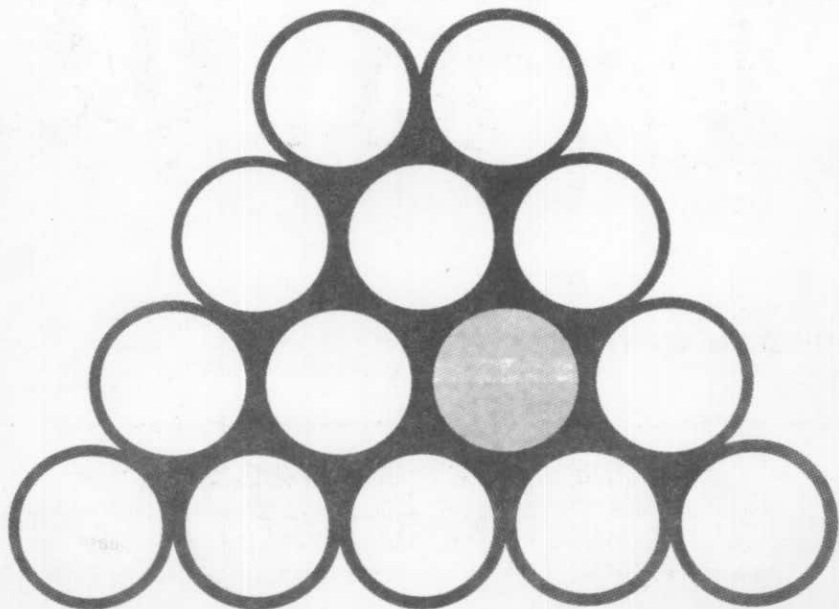
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equipped with a laser designator, marks the target with an invisible light even under conditions of darkness. The round is fired from artillery positions miles away and homes in on the target with pinpoint accuracy.

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**MARTIN MARIETTA**



## Chairman's Corner



Area 4, which contains most of the IEEE Sections located in Florida, held a workshop August 14, here in Orlando. This workshop was organized by our Area 4 Chairman, Jim Walters, and was conducted primarily for the Section and PAC Chairmen. We were privileged to hear from our Region 3 Director L. K. Wilson, our USAB Vice Chairman H. C. Chervey and R. K. Asdal from headquarters. With regard to the professional activities, a survey sheet is enclosed which, I hope all of you will take a few minutes to complete and send to Richard McCoy.

Our first Section event of the year, "The Annual BBQ", will be held November 6, 1976. Let us all make plans for a large turnout that evening.

### EDITORIAL COMMENT:

Lacking for space last month, in my first issue of the NOTES, I had the opportunity to perform one of the duties as editor. That was to edit! This month the center sheet is a survey of IEEE members in selected sections. The Orlando Section being one. The ideas appear to be important concepts, worthy of more than just casual thought. Please take a few minutes to fill out the survey. I am looking forward to meeting you at the Barbecue next month.

Publications Chairman

Leo A. Mallette

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### GOVERNMENT MICROCIRCUIT APPLICATIONS CONFERENCE — NOVEMBER 9-11, 1976

At Lake Buena Vista, Florida on memory technology, digital and analog processing, microwave, integrated optical devices, fiber optics, micro-processors and other microelectronics topics. For information contact: Robert Larson, Air Force Avionics Lab. AFAL/DHR, WPAFB, OH 45433.

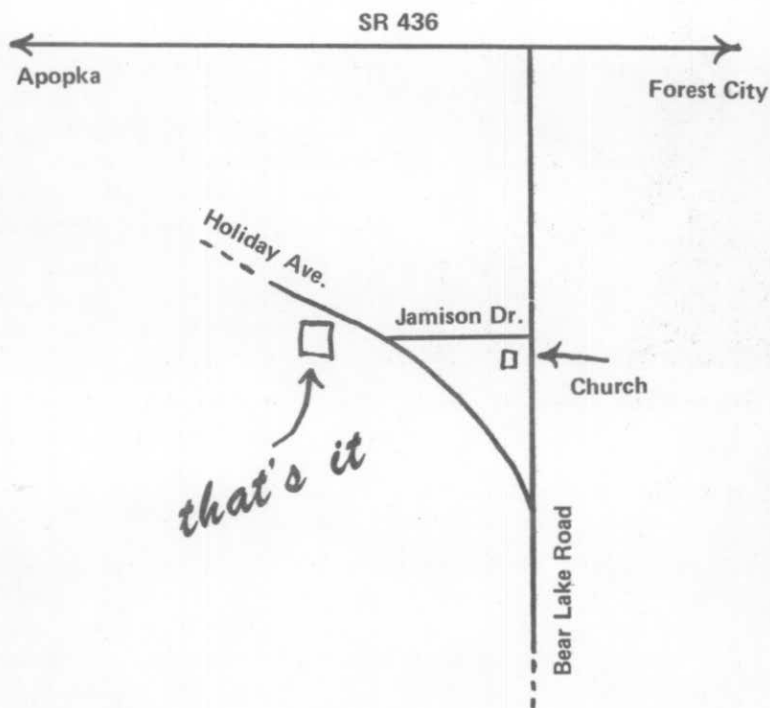
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MTT plan to hold a meeting on the second Thursday of November. The speaker will give a presentation on **Millimeter Wave Technology**. The group is still looking for meeting suggestions and help. Please call Dean Bowyer (352-2483), or Hal Buscher (352-2976).

STEAK DINNER!

SQUARE DANCING!

DOOR PRIZES!



### ANNUAL BARBECUE SATURDAY, NOVEMBER 6, 1976

The barbecue will be held at the Florida Power Corporation's Employees Club on beautiful Bear Lake. (See map above).

Social hour will begin at 6:00 P.M. Cocktails, beer and soft drinks will be available from the cash bar. STEAK DINNER with all the trimmings will begin at 7:00 P.M. Twelve ounce steaks will be char-broiled on an open barbecue to your liking.

The entertainment will be SQUARE DANCING with fun for all. A professional caller will be on hand to guide the neophytes and conduct the festivities.

The price is only \$6.00! Buy your tickets from any IEEE Executive Committee member, whose names can be found on page seven.

## MEETING NOTICE COMPUTER SOCIETY

Program for Thursday October 21, 1976

- Topic:** Computer Architecture for a Multiport Optical Memory
- Speaker:** Dr. Cecil Alford  
Associate Professor E. E.  
Georgia Institute of Technology
- Location:** Dutch Pantry  
640 Lee Road-West from I-4
- Times:** Social: 6:00 P.M.  
Dinner: 7:00 P.M.  
Program: 8:00 P.M.
- Dinner Cost:** From Menu
- Reservation:** Mr. Walt Steele 352-4305  
Dr. Ben Patz 275-2816  
Mr. Don Mendorf 299-6200  
Mr. Edward Griffin 352-2140  
Mr. Allen Sullivan 834-1000  
Mr. John Booker 646-4437

## MEETING NOTICE COMMUNICATIONS SOCIETY

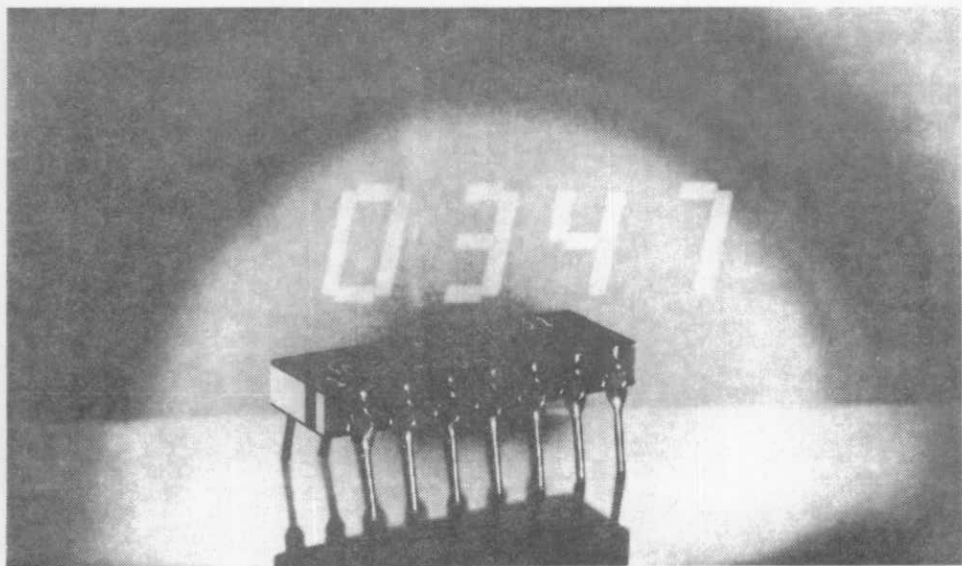
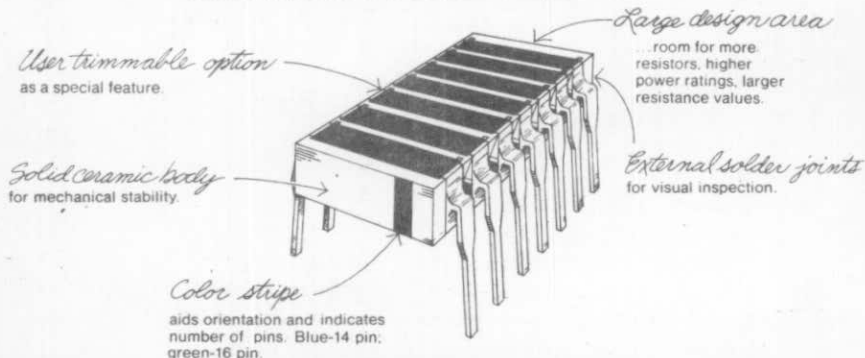
Program for Wednesday October 13, 1976

- Topic:** Telephone Forecasting Techniques
- Speakers:** Mr. John Wesson  
Forecasting Manager, Winter Park Telephone  
Mr. C. M. Goodman  
Division Forecasting Supervisor, Southern Bell
- Location:** Hilton House of Beef  
3200 W. Colonial Dr.
- Times:** Social: 6:30 P.M.  
Dinner: 7:00 P.M.  
Program: 8:00 P.M.
- Dinner Cost:** \$6.75
- Reservation:** Miss Garnet Maurer at 898-9093 on or before  
Monday, October 11, 1976.

PS and IA GROUP will hold a meeting the second Tuesday of November.  
The topic will be on **Grounds and Grounding**.

# Interested in network variety? Select from a spectrum of 347 standards.

Allen-Bradley has the popular configurations you need. Pull-ups. Pull-downs. Line Terminators. Networks to complement Core Memory Sense Amplifiers. TTL to ECL Translators. O-Pad Attenuators. All styles available from your Allen-Bradley Electronic Distributor. Call for specs or check your EEM Catalog. If you need specials, contact your local Allen-Bradley district office for fast turn-around. Ask for Publication 5840. A-B is an experienced twin-film manufacturer, i.e. precision thin film and thick film.



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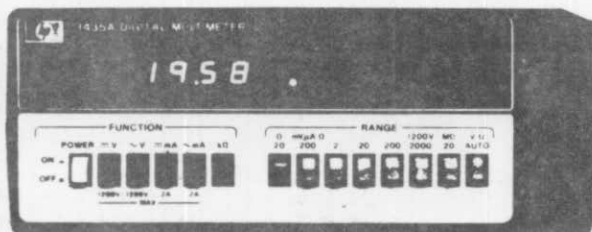
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ORLANDO SECTI  
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NEW  
PRODUCT  
INFORMATION

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# ORLANDO SECTION NOTES



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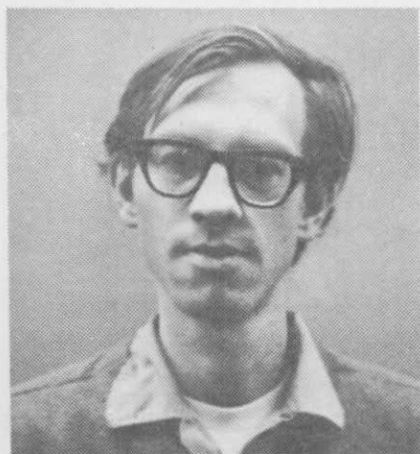
VOLUME XI, NUMBER 3

NOVEMBER, 1976

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CIRCULATION OF THIS ISSUE: 671

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**MTT-S  
MEETING  
9 Nov. 1976  
SEE PAGE 5**

DR. J. R. East EAST, from the Electron Physics Lab of the University of Michigan will speak on recent advances in the state of the art of BARITT self-oscillating detectors, and other devices. These devices combine low noise, high sensitivity with low operating power and low RF power, over a wide range of voltages. Operation of these devices has been demonstrated to 22 GigaHertz.

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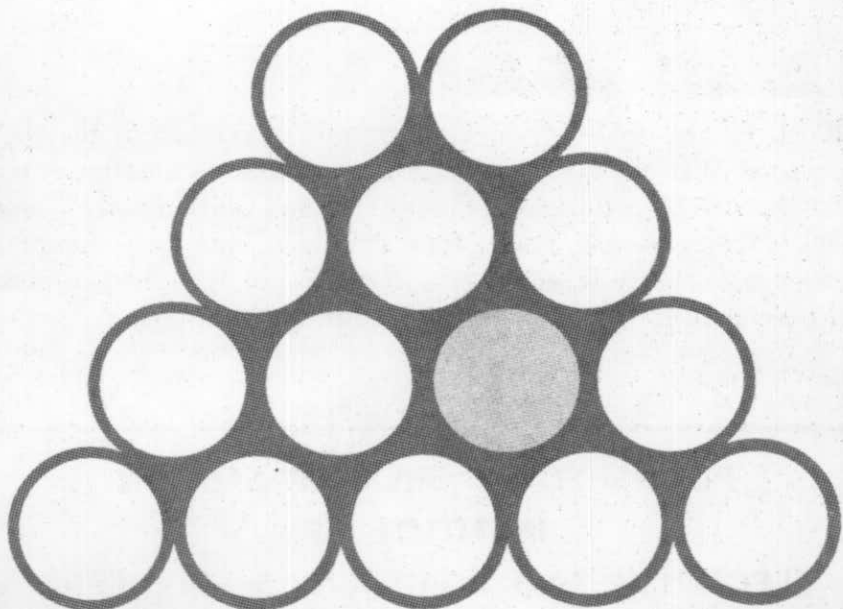
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**MARTIN MARIETTA**



## Chairman's Corner



Our BBQ Chairman, Homer Wilson, has planned a very nice meal and entertainment for "The Annual BBQ" on November 6, 1976. See any member of the executive committee for your tickets. I will look forward to seeing you there.

Richard McCoy reports a good response on the survey sheet included in the **NOTES** of last month, with approximately 80 percent in favor of regulating standards. If you haven't returned your survey, please take a minute, and mail it in.

A bill (H.R. 15228) is coming up soon to aid in the "wage-busting" problem that some engineers are experiencing. If you feel strongly on this subject, and would like to write your Congressman, please contact Jim Walters for details.

E. R. McCarter  
Section Chairman

---

### MEETING NOTICE COMMUNICATIONS SOCIETY

Program for Wednesday, November 10, 1976

- Topic:** Wall Street Journal SATCOMM Link  
REVISITED
- Speaker:** Mr. William Satterfield  
Manager
- Location:** 2301 Presidents Drive  
Orlando Industrial Park, (South of Sand Lake Road)

---

### MEETING NOTICE FTU STUDENT CHAPTER

The FTU student chapter will hold a meeting on Tuesday, November 23, 1976 in EN 305, at 12:00 Noon. Topics will include nomination of officers for the Winter-Spring term. Students interested in the Computer-Engineering Society, please contact Bruce Gardner for further details.

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The "Third Annual Symposium for Women in Engineering and the Sciences" will be held at FTU on November 11, 12 and 13. For more details contact: Cheryl Rutter, FTU, Box 26259, Orlando, Florida 32816.

## MEETING NOTICE

### COMPUTER SOCIETY

Program for Thursday, November 18, 1976

- Topic:** Problems of Machine Learning
- Speaker:** Dr. Ryszard Michalski  
 Professor in Computer Science  
 University of Illinois at Urbana-Champaign
- Location:** Dutch Pantry  
 640 Lee Road - West from I-4
- Times:** Social: 6:00 P.M.  
 Dinner: 7:00 P.M.  
 Program: 8:00 P.M.
- Dinner Cost:** From Menu
- Reservation:** Mr. Walt Steele - 352-4305 Mr. Edward Griffin - 352-2140  
 Dr. Ben Patz - 275-2816 Mr. Allen Sullivan - 834-1000  
 Mr. Don Mendorf - 299-6200 Mr. John Booker - 646-4437

## WAGE BUSTING

*The following is taken from a statement, written by the Area 4 Chairman, Jim Walters.*

"In government sponsored industries, particularly service contracts in support of government aerospace facilities, demand for the professional services of engineers has been reduced. Industries vying for support contracts have competitively bid down the services of engineers resulting in a drastic reduction in salaries for engineering personnel. During three periods of recompetition in 1969, 1972 and 1974 professional salaries suffered declines as high as 50%. The present salaries for professionals with 5 to 10 years experience working for contractors at government installations in the Canaveral area and at similar government installations are below the entry level salary for new graduates in the same field. The salaries of these professionals is significantly below the national average for like professionals and *less than the prevailing wage for skilled labor and subprofessionals protected by the Service Contract Act of 1965*. The situation is an injustice and requires correction."

The IEEE in Area 4 (State of Florida) support legislative amendment to the Service Contract Act, to eliminate injustice within our profession. Wage busting is not limited to EE's but to engineers in every discipline. Contacting friends, in other professional societies, Congressional Representatives, and Senators, would be a positive start to remedy this situation.

**MEETING NOTICE**  
**MICROWAVE THEORY AND TECHNIQUES SOCIETY**

Program for Tuesday, November 9, 1976

- Topic:** Self-Oscillating Detectors
- Speaker:** Dr. J. R. East  
Senior Research Associate  
Electron Physics Lab (University of Michigan)
- Location:** Hewlett-Packard Building  
6177 Lake Eleanor Dr. (Orlando Central Park)
- Times:** Social and Dinner: 5:30 P.M.  
Program: 7:15 P.M.  
Dinner at Gary's Duck Inn, 3974 S. Orange Blossom Trail.
- Information:** Dean Bowyer (352-2483) and Hal Buscher (352-4106)  
Chapter elections for 76-7 will be held at this meeting. Candidates selected by the nominating committee are:
- Chairman:** Dean Bowyer  
**Vice-Chairman:** Hal Buscher  
**Secretary:** Carl Schunemann  
Nominations from the floor will be encouraged.
- 

**MEETING NOTICE**  
**POWER SOCIETY AND INDUSTRIAL APPLICATIONS GROUP**

Program for Tuesday, November 9, 1976

- Topic:** Eagle Solid State Programmable controls and Industrial Applications
- Speaker:** From Ward Engineering Company
- Location:** Orlando Utilities Commission Administration Bldg.  
500 South Orange Ave.  
Parking on South side. Enter through back door. Guard will direct you to basement meeting room.
- Time:** Program: 8:00 P.M.
- 

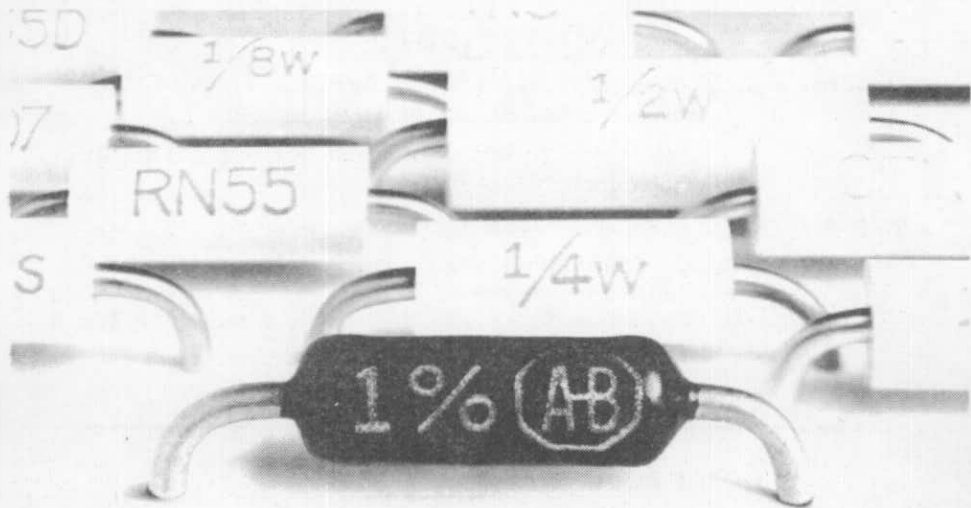
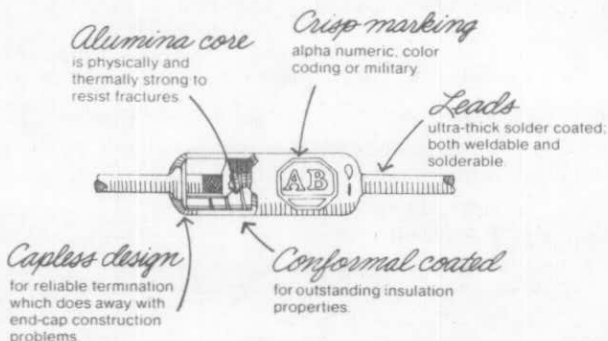
**DON'T FORGET THE BARBEQUE**

The barbeque is only a few days away (November 6th). There is still time to get your ticket(s) from anyone on the Executive Committee (Page 7). Twelve ounce steak and square dancing is something to look forward to, but not after it's over! I'll be wearing red suspenders, come over and introduce yourself.

Leo Mallette, Publications.....

## A resistor for all reasons

Here's a way to cut the daylight out of your fixed resistor inventory. Standardize on our Type CC cermet. It's sized like a ¼-watt but you get performance that ranges from ¼-watt at 125°C to ½-watt at 70°C (250 volt max.) Tolerance is 1% over the complete resistance range of 10 ohms to 22.1 megs or 0.5% from 10 ohms to 499K. TCR is as low as ± 50 ppm/°C. The one resistor for all reasons: industrial, RN55C, RN55D and RLR07 needs to 1% and 2% tolerance. We have what you need; our distributors have it when your need is now. Ask for Publication EC33.



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## ORLANDO SECTION NOTES

Published monthly by the Orlando Section except during the months of July and August. Inquiries concerning advertising and/or announcements should be forwarded to Mr. Leo Mallette, Route 8 Box 781, Orlando, Florida 32807.

### 1976 - 1977 EXECUTIVE COMMITTEE

		Business	Residence
* Chairman	Dr. Ed McCarter	275-2548	647-0134
* Vice Chairman	John Boynton	423-0555	339-8077
* Secretary	Russel E. Theisen	834-1000x288	671-4139
* Treasurer	Bill Rhoden	859-2900	671-3469
* Group Chapter Rep.	William Cram	841-9015	647-4123
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Sr. Past Chairman	Dr. Jim Wiltse	352-4255	876-2561
Program, Arrangements	Dick Bergen	898-9013	862-0347
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Publications	Leo Mallette	275-2786	568-4586
Barbeque	Homer Wilson	646-8230	855-0934
Awards	Dr. Bruce Mathews	275-2786	645-0549
Student Chapter	Bruce FitzGerald	275-2786	273-6441
IEEE - FES Liason	Jim Ashwell	352-3842	647-1968
Engineer's Week	Dr. Brian Petrasko	275-2549	678-1177
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Member-At-Large	Gene Dashiell	859-2900	859-2497
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PAC Chairman	Richard McCoy	352-2718	628-4181
Region III Pac Chairman	Joe Pullara	352-4516	339-1327
AES Chairman	Richard McCoy	352-2718	628-4181
CS Chairman	Walt Steele	352-4305	859-2496
VTG Chairman	Herbert Zwarra	339-1894	339-1894
PS & IA Chairman	Dr. Herbert Towle	275-2610	671-0265
MTT Chairman	Dean Bowyer	352-2483	299-7368
COMSOC Chairman	A. J. Levy	352-3247	843-7619

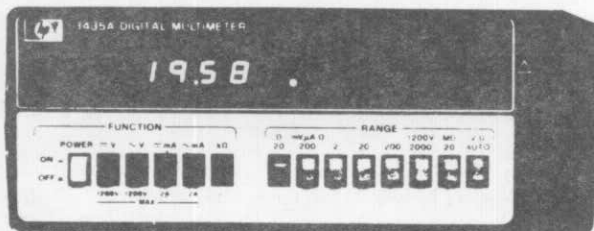
\*Members of the Executive Board

REMINDER! The Executive Committee meets the first Tuesday of the month. This is an open meeting and all members are invited to attend. The meeting is held at the Florida Power Corporation, 510 Park Ave. So., Winter Park, at 5:30 P. M.

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NEW  
PRODUCT  
INFORMATION

The HP Model 3435A is a 3-½ digit multimeter that provides up to 1999 counts full scale with five full functions. AC volts, DC volts, and ohms are either manual or autoranging. Current is manual ranging only. All functional and ranging capabilities are conveniently selected with front panel push buttons. The new high efficiency low power 7-segment LED display is pleasant to view. The selected function is indicated on the lighted display whether selected manually or automatically. New features make this DMM exciting because now you have a 3-½ digit meter with many more uses. The new touch-hold probe lets you measure AC and and DC volts, and hold the DMM display until you want to release it. The 3435A ACV bandwidth is from 30 Hz to 100kHz up to the maximum of 1200V. The 20Ω range gives you 10 milliohm resolution which is 10 times more sensitive than most other competitors. This function is useful for checking contact resistance and transformer windings.

The 3435A is priced at \$400.00 (including rechargeable lead-acid battery). Delivery is currently two weeks.

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# ORLANDO SECTION NOTES



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VOLUME XI, NUMBER 4

DECEMBER 1976

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CIRCULATION OF THIS ISSUE: 674

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BILL CRAM and DR. ED McCARTER patiently await their steak at the annual BBQ held early last month. An attendance of about 75 engineers and wives enjoyed a fantastic meal and several hours of square dancing. Turn to page 9 for more pictures.

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**PUBLISHED BY ORLANDO SECTION  
INSTITUTE OF  
ELECTRICAL AND ELECTRONICS ENGINEERS**

# COPPERHEAD (CLGP)

**Until it's fired, it's just another round.**

COPPERHEAD (CLGP), the Army's cannon-launched guided projectile, is handled and fired just like any other 155 mm round by gun crews with no special training. (In the highly successful prototype test program, every round was fired by an Army test crew using standard artillery loading procedures.)

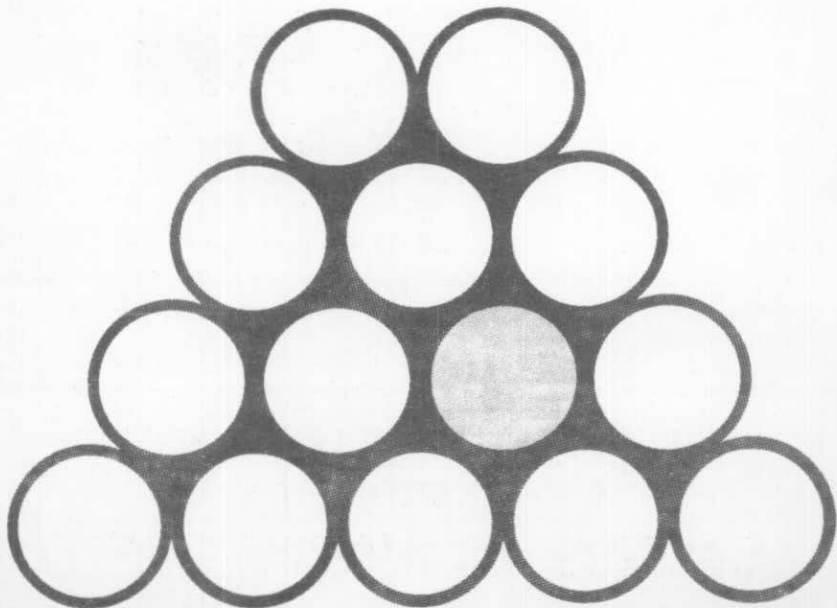
Once fired, it gives artillery something it's never had before—the capability of destroying a moving tank from miles behind the front lines with a single round.

How does it work? A forward observer, a remotely piloted vehicle, or a helicopter,

equipped with a laser designator, marks the target with an invisible light even under conditions of darkness. The round is fired from artillery positions miles away and homes in on the target with pinpoint accuracy.

Developed by the Orlando division of Martin Marietta Aerospace under the leadership of the U.S. Army Armament Command, COPPERHEAD (CLGP) should soon be ready for field use—providing a major deterrent to the threat of enemy armor dominance.

**MARTIN MARIETTA**



## Chairman's Corner



Our annual awards banquet will be coming up early in 1977. I encourage each of you to submit your choice of candidates to your chapter representatives for "Engineer of the year" award.

A good time was had by all who attended our BBQ last month. Homer Wilson and his committee are to be commended for their excellent work in making this a very pleasurable evening. Thanks to Leo Mallette for his fine photography.

See page seven for the PAC report on our recent survey.

We will be polling the membership shortly for the suggestions on workshops, or short courses. If you have additional suggestions for polling questions, please forward them to a member of the executive committee.

Merry Christmas  
Ed R. McCarter  
Section Chairman

The IEEE Code of Ethics for Engineers is something I have not seen recently, and periodic rereading has made me think about my profession, where it is going, and my role in it. The Code is composed of five parts. The preamble and four articles. To give us some time to think about the concepts, I will present only one or two sections each month.

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### IEEE CODE OF ETHICS FOR ENGINEERS

#### PREAMBLE

Engineers affect the quality of life for all people in our complex technological society. In the pursuit of their profession, therefore, it is vital that engineers conduct their work in an ethical manner so that they merit the confidence of colleagues, employers, clients and the public. This IEEE Code of Ethics is a standard of professional conduct for engineers.

#### ARTICLE I

Engineers shall maintain high standards of diligence, creativity and productivity, and shall:

1. Accept responsibility for their actions;
2. Be honest and realistic in stating claims or estimates from available data;
3. Undertake engineering tasks and accept responsibility only if qualified by training or experience, or after full disclosure to their employers or clients of pertinent qualifications;
4. Maintain their professional skills at the level of the state of the art, and recognize the importance of current events in their work;
5. Advance the integrity and prestige of the engineering profession by practicing in a dignified manner and for adequate compensation.

The above is taken from IEEE SPECTRUM, FEBRUARY 1975.

FTU—SOUTH ORLANDO RESIDENT CENTER

Director: Dr. Richard C. Harden, P.E.

Telephone: 305-855-0881

7300 Lake Ellenor Drive

(Orlando Central Park)

Orlando, Florida 32809

WINTER 1977 SCHEDULE

PFX	QTR NO.	HRS	COURSE TITLE	SORC TIME	DAY
<b>COLLEGE OF BUSINESS ADMINISTRATION</b>					
ECON	401	3	Managerial Economics	6 PM — 8:50 PM	Thurs
<b>COLLEGE OF EDUCATION</b>					
EDEX	642	4	*Personalized Program Behavior Disorders	6 PM — 9:50 PM	Mon
EDEX	643	4	*Educational Program Behavior Disorders	6 PM — 9:50 PM	Wed
EDTA	307	4	*Teaching Analysis	6 PM — 9:50 PM	Tues
EDVE	402	5	*Methods of Teaching Vocational Subjects	6 PM — 10:50 PM	Wed
EDVE	512	4	*Contemporary Programs in Vocational Educ.	6 PM — 9:50 PM	Wed
EDVE	603	4	*Supervision of Vocational Education	6 PM — 9:50 PM	Tues

\*Continuing Education Courses

**COLLEGE OF SOCIAL SCIENCES**

SOC	311	4	Social Anthropology	6 PM — 9:50 PM	Tues
SOC	325	4	Urban Sociology	6 PM — 9:50 PM	Wed

**COLLEGE OF HUMANITIES AND FINE ARTS**

REL	300	4	Hebrew and Christian Heritage	6 PM — 9:50 PM	Mon
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An analysis of Biblical material. A brief overview of Israelite history with emphasis on covenant, law, election, and prophecy. A survey of the New Testament centered on the personalities and teachings of Jesus and Paul. Contemporary theological trends related to Biblical Studies.

Most above courses apply toward a Bachelor degree in GENERAL STUDIES concentrating in Business, Education, Humanities & Social Sciences which can be earned at SORC. Three-year program available upon request.

**COLLEGE OF ENGINEERING**

T	CEES	412	4	Environmental Engineering — Wastewater	20-2150MW
T	CEES	431	4	Geotechnical Engineering I	19-2050TR
T	CEES	502	3	Environmental Engineering — Chemistry II	19-1950MW
T	CEES	581	4	Water Resources Engineering	17-1850TR
T	CEES	602	4	Unit Operations/Processes-Sanitary Engr.	17-1850MW
T	EECS	531	3	Environmental Control Systems	17-1750M;17-1850W
T	EECS	662	3	Amplifier Design	19-1950M;19-2050W
T	EMCS	572	3	Engineering Mathematical Analysis	17-1850T;17-1750R
T	EMMS	642	4	Continuum Mechanics	17-1850MW
T	IEMS	503	3	Statistics for Engineers	19-2050T;19-1950R
T	IEMS	521	3	Engr Reliability & Quality Assurance	17-1750T;17-1850R
T	IEMS	628	4	Dynamic Programming	19-2050TR
T	MEAS	643	3	Mechanical Design	19-2050M;19-1950W
T	MEAS	685	3	Conduction Heat Transfer	19-1950T;19-2050R

T = Lecture on TV Tape

TV courses can be adjusted in individual cases for work or schedule conflicts.

Nov. 29 Published **DEADLINE FOR RECEIPT OF APPLICATION FOR ADMISSION OR REACTIVATION.**

There will be no Temporary Applications accepted this quarter.

**GENERAL REGISTRATION INFORMATION**

- Registration at SORC 12 noon to 5 PM daily, later by appointment.
- After contacting your advisor you may register at SORC only if your total FTU course load is SORC courses; otherwise, you must register at Main Campus for both SORC and Main Campus courses.
- If you must register for SORC and Main Campus courses, do so during regular campus registration. Should you wait until ADD-DROP you take the chance of a course being filled, or cancelled due to lack of enrollment.

- Previously admitted students may register at SORC by TELEPHONE TO SORC subject to the above cited rules (excluding Continuing Education). Students registering for Continuing Education courses must register in person but no later than the first night of class.

Nov. 15 thru Dec. 2	<b>CURRENTLY ENROLLED STUDENT REGISTRATION AT SORC.</b> Registration after Dec. 2 can be done at Main Campus on Dec. 6, 7, 8, 1976 or at Late Registration with a \$25 late fee. Fee Statements must be picked up at the Center beginning Dec. 15, 1976.				
Dec. 13	<b>LAST DAY TO SUBMIT READMISSION APPLICATION.</b> No late Readmission Applications will be accepted this quarter.				
Nov. 15 thru Dec. 30	<b>NEW STUDENT AND READMITTED STUDENT REGISTRATION.</b> Registration after Dec. 30 can be done at Main Campus Jan. 4, 1977. Fee Statements can be picked up at SORC beginning Jan. 4, 1977.				
Jan. 6	<b>CLASSES BEGIN</b>				
Jan 7	<b>LAST DAY FOR DROP, ADD, WITHDRAW AT SORC</b> with full refund. After this date, DROP/ADD and late registration must be accomplished on the Main Campus at the following times: Jan. 10 = 8:45 AM - 3:30 PM; Jan. 11 = 4:15 PM - 6 PM; Jan. 12 = 1:45 PM - 4:30 PM				
Jan. 12	<b>FEES DUE IN CASHIER'S OFFICE.</b> Midnight postmark accepted.				
	<table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">TEXTBOOKS ON SALE 1st WEEK OF CLASS.</td> <td style="width: 50%;">PICK UP THE 3-YEAR SORC SCHEDULE</td> </tr> <tr> <td>CHECK OR MONEY ORDER ONLY.</td> <td>(EXCLUDING ENGINEERING COURSES)</td> </tr> </table>	TEXTBOOKS ON SALE 1st WEEK OF CLASS.	PICK UP THE 3-YEAR SORC SCHEDULE	CHECK OR MONEY ORDER ONLY.	(EXCLUDING ENGINEERING COURSES)
TEXTBOOKS ON SALE 1st WEEK OF CLASS.	PICK UP THE 3-YEAR SORC SCHEDULE				
CHECK OR MONEY ORDER ONLY.	(EXCLUDING ENGINEERING COURSES)				

The following statistics were taken from the November 1976 issue of the IEEE Membership Development Newsletter.

**MEMBERSHIP STATISTICS** - The IEEE membership still lags, slightly under 1975. On September 30, 1975, the membership was 170,883. The membership for September 30, 1976, was 170,358. Let's all try to pull the membership back up!

#### NEW 1977 OFFICERS

The following is taken from an IEEE News Release.

New York, Nov. 5: Election results just announced by the Institute of Electrical and Electronics Engineers, Inc., the world's largest engineering society, indicate that the President for 1977 will be Dr. Robert M. Saunders, Professor of Electrical Engineering of the University of California at Irvine.

The new Executive Vice President will be Carleton A. Bayless.

Three Constitutional amendments which were voted on failed to receive the number of necessary positive votes for adoption and were thus rejected. They included propositions to require approval by the membership prior to dues or assessment increases; to change the procedure for amending the Constitution of the Institute; and a third proposition requiring membership approval before dues increases or changes.

Total of 49,370 ballots were returned, or 36 percent of the voting membership. A total of two-thirds of the ballots returned is required for affirmative action on a proposed Constitutional amendment.

Howard B. Hamilton, Professor of Electrical Engineering at the University of Pittsburgh, Director of Region 2, the Eastern Region.

#### EDITORS NOTE

Due to the Christmas holidays next month, I would like to request that all material for publication be submitted to me on, or before, Friday December 10, 1976. The publications staff and the printer will return to "normal" deadlines in January. Take a moment to read the first part of the IEEE code of ethics on page nine, about high standards. Think about this during December, drive carefully (I want you to read my next issue), and have a enjoyable Hanukkah and/or Merry Christmas.

## IEEE ENGINEERS WEEK AWARDS PROGRAM

### CALL FOR NOMINATIONS-

As part of the Section meeting during National Engineer's Week in February '77, the Orlando Section will announce Engineer's-of-the-Year for all Chapters providing a nominee. From these, a Central Florida Electrical Engineer-of-the-Year will be chosen. All local Groups and Society chapters (including the Professional Activities Comm. and the FTU Student Chapter) are urged to submit nominees. Those Section members desiring to present additional nominees may nominate by petitions signed by 8 or more Orlando Section members.

### QUALIFICATIONS-

The nominee must be a current member of the IEEE in good standing and may be of any grade from Student through Fellow inclusive. The nominee need not be a member of any Group or Society of the IEEE.

### FORM OF NOMINATION AND SELECTION CRITERIA -

The form of the nominations is left to the groups providing the nominations. It is to be emphasized, that nominations should be in enough detail that the candidate may be fairly and completely evaluated for the Section award according to the criteria listed below. It is suggested that a minimum concise nomination should consist of a resume, activities list, and a cover letter explaining why he has been chosen as the Chapter Engineer-of-the-Year and Section Nominee. Nominations should be addressed to the Awards Committee Chairman and are due to be received no later than January 15, 1977. The Awards Committee will be pleased to answer any questions that arise.

THE ELECTRICAL ENGINEER OF THE YEAR WILL BE SELECTED BY THE AWARDS COMMITTEE WHO WILL EVALUATE THE CANDIDATES BY THE FOLLOWING POINT SYSTEM:

1. The quality and quantity of contributions through efforts on Research, Development, Design, Managerial, Educational and other equivalent engineering areas. (70)
2. Contributions to the IEEE. (10)
3. Publications, Patents, and associated activities. (10)
4. Memberships, Accomplishments, and Responsibilities in other technical and Professional groups and activities and in various activities of benefit to the Community and Society in general. (10)

### PRESENTATION OF CANDIDATES AND AWARDS

Each nomination entity will provide a three minute introduction of their candidate. Each Chapter nominee will receive a framed certificate as Chapter Engineer-of-the-Year. The candidate selected as Central Florida Electrical Engineer of the Year will receive a plaque. No other plaques will be presented at this meeting.

Bruce E. Mathews  
Chairman, Awards Comm.  
2111 Dyan Way  
Maitland, Florida 32751

The survey questions printed below, were sent to a random group of (non-student) IEEE members in the United States. Our PAC chairman, Dick McCoy, conducted the same survey of the Orlando Section. The sample size nationally was 2500, and locally, 600. The two percentages preceding each answer are (reading left to right) National results-Orlando results.

1(a) Do you favor IEEE's attempting to regulate the quality of electrical engineers?

33%/28% NO

67%/72% YES

1(b) If yes, how?

29%/43% By promoting universal registration.

19%/26% By certification of technical societies.

24%/43% By validation of continuing education courses by the technical societies.

41%/56% By promoting higher accreditation standards for engineering curricula.

14%/ 8% By examination to become an IEEE member, at the "Member" level or above.

2(a) Do you favor IEEE's attempting to regulate the quantity of electrical engineers?

51%/62% YES

49%/38% NO

2(b) 21%/30% By working more actively through IEEE's student branches to educate high school students about the career opportunities available through the engineering profession.

32%/75% By raising the standards for accreditation of colleges teaching engineering.

13%/25% By increasing the number of years of study for an initial engineering degree through the accreditation process.

30%/40% By obtaining for publication, and/or distribution, manpower reports on supply vs. demand of engineers.

	National	Orlando
Sample Size	2500	600
Responses	924	32
Response Rate	37%	5%

**INTERESTED IN ADVERTISING?** Send me a note, requesting our rates for advertising. I'll be happy to send sample copies and/or discuss your needs. My address and phone numbers can be located on page eleven of this issue. Leo Mallette, Publications Chairman.

**ADVANCE MEETING NOTICE  
MTT-SOCIETY**

Program for Thursday January 13, 1977

**Topic:** Low noise front ends  
**Speaker:** Dr. Frank Arams  
 LNR Inc. Long Island, N. Y.

Chapter elections for 1976-77 were held at the November 9th meeting. The results were:

**Chairman:** Dean Bowyer 352-2483  
**Vice-Chairman:** Hal Buscher 352-4106  
**Secretary:** Carl Schunemann 352-2483

Any of the above will welcome comments and suggestions in regards to meeting speakers.

**ADVANCE MEETING NOTICE  
VT GROUP**

Program for Thursday January 20, 1977

**Topic:** High Capacity Mobile Radio  
**Speaker:** W. Rae Young,  
 Bell Labs, Holmdel N. J.  
**Location:** Holiday Inn, Lee Road and I-4  
**Times:** Social 6:00 P.M.  
 Dinner 7:00 P.M.  
 Program 8:00 P.M.  
**Dinner cost:** \$7.00  
**Reservations:** Bud Simciak 295-9490  
 Ben Thomas 295-9491  
 Mel Kelch 843-8484

**FTU STUDENT CHAPTER**, will hold their last meeting of the quarter on Thursday December 2, 1976 at 12 noon. Results of the November election for new officers and projects for the Engineering Fair in February will be announced.

FTU student members granduating are:

Bruce W. FitzGerald  
 Gary G. Horn  
 Carl A. Nyquist  
 Franklin D. Smith  
 Charles A. Zipperer

Congratulations, and good luck on your start of a long and prosperous career.

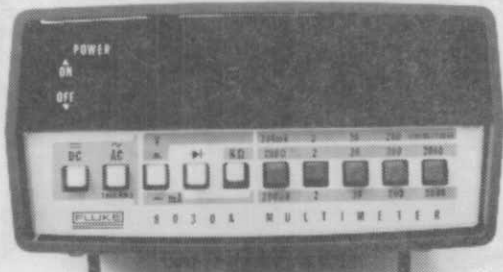




**IEEE BBQ\*\*\* CAN YOU FIND YOURSELF?**

—ADDRESS CHANGED?—

Send all changes of address (local and national) directly to: The Institute of Electrical and Electronics Engineers, Inc., Coding Department, 345 East 47th Street, New York, N.Y. 10017. This will result in faster service to you, as all IEEE computer mailing lists are processed in New York.



**FEATURES**

- 6 MEASUREMENT FUNCTIONS
- 26 MEASUREMENT RANGES
- TRUE RMS AC MEASUREMENTS
- DIODE TEST CAPABILITY
- OVERLOAD PROTECTION
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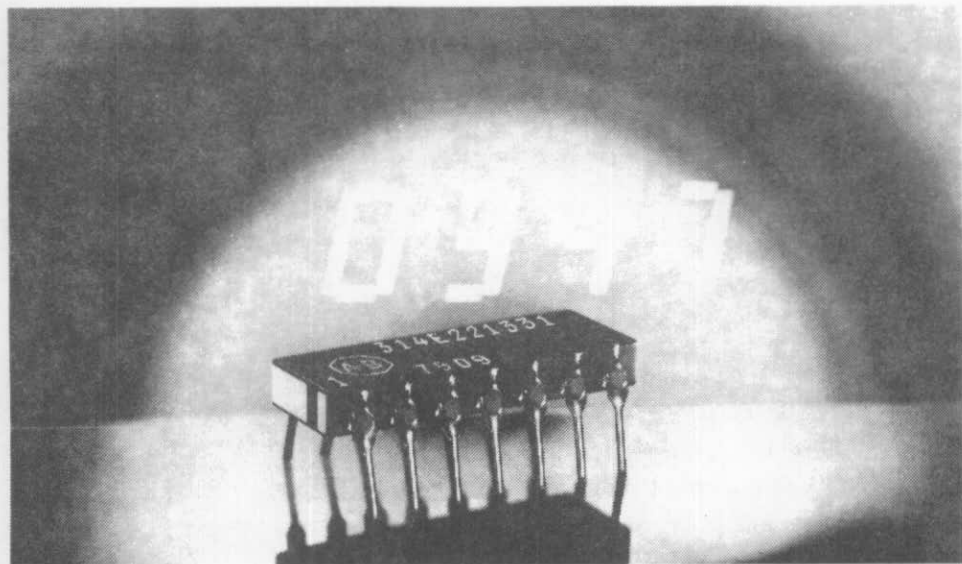
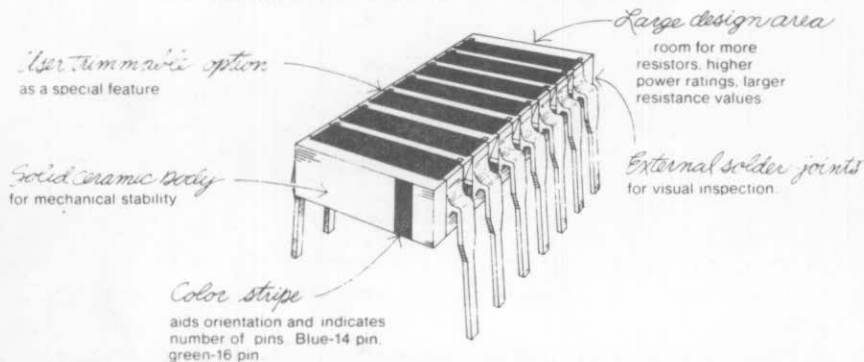
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## ORLANDO SECTION NOTES

Published monthly by the Orlando Section except during the months of July and August. Inquiries concerning advertising and/or announcements should be forwarded to Mr. Leo Mallette, Route 8 Box 781, Orlando, Florida 32807.

### 1976 - 1977 EXECUTIVE COMMITTEE

		Business	Residence
* Chairman	Dr. Ed McCarter	275-2548	647-0134
* Vice Chairman	John Boynton	423-0555	339-8077
* Secretary	Russel E. Theisen	834-1000x288	671-4139
* Treasurer	Bill Rhoden	859-2900	671-3469
* Group Chapter Rep.	William Cram	841-9015	647-4123
Jr. Past Chairman	Harold Downing	351-9962	628-0676
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MTT Chairman	Dean Bowyer	352-2483	299-7368
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\*Members of the Executive Board

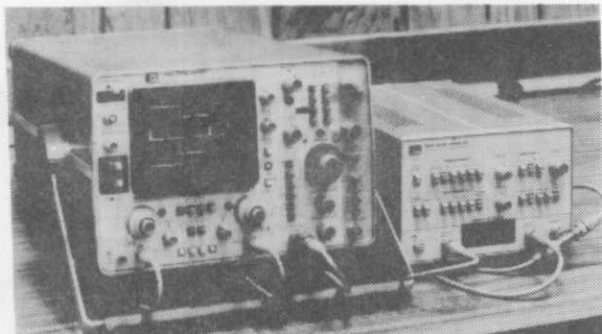
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## HEWLETT-PACKARD 1741A VARIABLE-PERSISTENCE/STORAGE OSCILLOSCOPE



NEW  
PRODUCT  
INFORMATION

### VARIABLE-PERSISTENCE/STORAGE OSCILLOSCOPE OPTIMIZED FOR DIGITAL DESIGNERS

A newly-designed variable-persistence/storage CRT, used for the first time in Hewlett-Packard's new 1741A Oscilloscope, produces exceptionally clean traces, and good trace-to-background contrast ratio. New automatic storage controls make it easier than ever before to capture low-rep-rate, single-shot waveforms. The 1741A combines the advantages of variable persistence, to integrate glitches or low-duty-cycle traces into clear displays, with the advantages of storage, for single-shot events.

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CONTACT

P.O. Box 13910  
Orlando, Florida 32809  
Phone 859-2900

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**ORLANDO  
SECTION  
NOTES**



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VOLUME XI, NUMBER 5

JANUARY, 1977

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CIRCULATION OF THIS ISSUE: 673

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**BRUCE W. FITZGERALD**

*Outstanding  
Graduating Senior  
(FTU Student Chapter)*

\*DO NOT LOOK AT THE CENTER OF THESE NOTES\*

---

**PUBLISHED BY ORLANDO SECTION  
INSTITUTE OF  
ELECTRICAL AND ELECTRONICS ENGINEERS**

# COPPERHEAD (CLGP)

Until it's fired, it's just another round.

COPPERHEAD (CLGP), the Army's cannon-launched guided projectile, is handled and fired just like any other 155 mm round by gun crews with no special training. (In the highly successful prototype test program, every round was fired by an Army test crew using standard artillery loading procedures.)

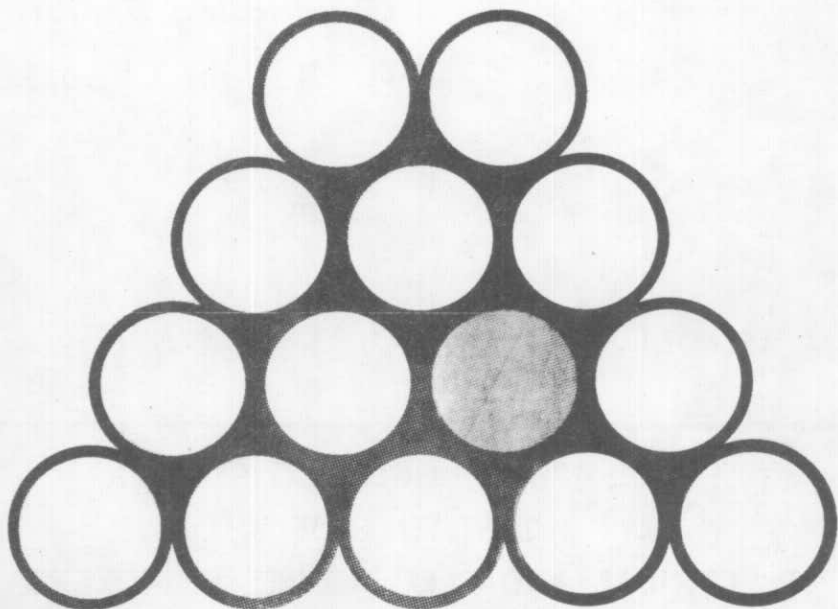
Once fired, it gives artillery something it's never had before—the capability of destroying a moving tank from miles behind the front lines with a single round.

How does it work? A forward observer, a remotely piloted vehicle, or a helicopter,

equipped with a laser designator, marks the target with an invisible light even under conditions of darkness. The round is fired from artillery positions miles away and homes in on the target with pinpoint accuracy.

Developed by the Orlando division of Martin Marietta Aerospace under the leadership of the U.S. Army Armament Command, COPPERHEAD (CLGP) should soon be ready for field use—providing a major deterrent to the threat of enemy armor dominance.

**MARTIN MARIETTA**



## Chairman's Corner



Orlando was honored to have the IEEE Regional Activities Board (RAB) and the Board of Directors early in December. Joe Dillard, our present IEEE president, Bob Saunders our president elect and many of the regional directors were present. Among the many topics discussed, you will be interested to know that they are working towards improving the IEEE insurance as related to Florida members as well as improving the pension policy. However, the progress on the latter has been rather poor to date.

We would appreciate your taking a few minutes to complete the short course survey form and return it to our Education Committee Chairman; Dr. Dave Flinchbaugh. Happy New Year.

Ed R. McCarter  
Section Chairman

ENGINEER'S WEEK will be February 21 through 25. The theme; "Engineering . . . Key to the Future", Highlights will be the FES banquet, and the Engineer's Fair at FTU on Friday and Saturday of that week.

FTU STUDENT CHAPTER will hold their first meeting of the Winter Quarter at 12:00 (EN 305) on January 13, 1977. Plans for the Engineering Fair will be received. Individuals submitting Fair projects will be asked to comment on their progress. Also plans to add to the student engineering library will be discussed.

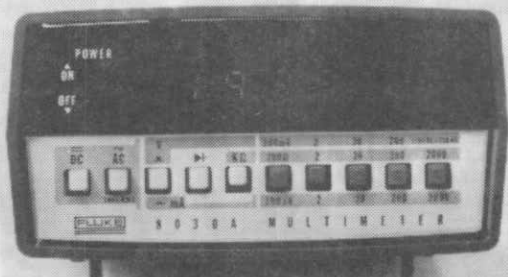
New student chapter officers are:

Chairman	Stan Francis	Secretary	Jeff Wheeler
Vice-Chairman	Win Horne	Treasurer	Fred Malfa

At our last meeting, Bruce FitzGerald (Our outgoing chairman) was recognized as the outstanding IEEE graduating senior. Congratulations Bruce, and the best of luck to you in California.

Stan Francis

The Winter Meeting of the Power Engineering Society (S-PE) will be held January 30 - February 4, 1977 at the Statler Hilton Hotel, N. Y. C. New York.



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FEATURES

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- 26 MEASUREMENT RANGES
- TRUE RMS AC MEASUREMENTS
- DIODE TEST CAPABILITY
- OVERLOAD PROTECTION
- IN-CIRCUIT RESISTANCE TEST
- FUNCTIONAL SELF-CHECK
- WIDE RANGE OF ACCESSORIES

For the first time in its history, the Section will offer short courses on a variety of subjects. These courses can be one-day overviews, two-day more detailed courses, or five-day courses. The choice of both the subject matter and the length of the course is up to you.

Experience in other sections has shown that about 20 percent of such courses fail because of a poor choice of subject. We want to avoid that problem and want to present courses that you, the practicing engineer, will find useful and interesting.

The following will help us to do just that, but only if you fill it out and return it. Do it now, it will take only a minute and will greatly help in organizing the courses that you would like to have presented. Space does not permit us to list more than four general areas. If you would like a course in another general area or a specific course, please specify this area or course on the line provided.

The first course will be presented in Fall of 1976. If it is a success, others will follow during the year. Any other questions you may have regarding these short courses can be directed to Dr. Dave Flinchbaugh.

COMPUTER/INFORMATION SCIENCES  BUSINESS MANAGEMENT

COMMUNICATIONS  POWER

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THIS DOES NOT COMMIT YOU IN ANY WAY.

COMMENTS:

MAIL TO: DR. DAVE FLINCHBAUGH  
4855 BIG OAK LANE - ORLANDO, FLORIDA 32806



**JOINT MEETING NOTICE  
VEHICULAR TECHNOLOGY GROUP  
COMMUNICATIONS SOCIETY**

Program for Thursday, January 20, 1977

**Topic:** High Capacity Mobile Radio

**Speaker:** W. Rae Young.  
Bell Labs, Holmdel N.J.

**Location:** Holiday Inn, Lee Road and I-4

**Times:** Social 6:00 P.M.  
Dinner 7:00 P.M.  
Program 8:00 P.M.

**Dinner cost:** \$7.00

**Reservations:** Bud Simciak - 295-9490; Ben Thomas - 295-9491  
Mel Kelch - 843-8484

**MEETING NOTICE  
PS & IA GROUP**

Program for Tuesday, January 11, 1977

**Topic:** Grounds

**Speaker:** Don Hornak P.E.  
R. W. Beck and Associates

**Location:** Fla. Power Office  
510 Park Ave. South, W. P.

**Time:** 7:30 P.M.

Mr. Hornak is a graduate of the U. of F. and before joining R. W. Beck, he worked for ten years with a major utilities company in the area of grounds and grounding.

IEEE and the National Society of Professional Engineers (NSPE) met December 16, in efforts to properly word an amendment to the Service Contract Act of 1965 (41-USC-351). Tentatively, the bill number is 314, the first three numbers of PI. This bill is introduced to remedy the "Wagebusting" situation found in many areas of the country. For a good (but brief) introduction to the subject, see Spectrum, November 1976, Page 62.

**\*\* FLASH\*\***

**ENGINEERING RESEARCH INITIATION GRANT**

The Engineering Foundation has announced the availability of 1977-78 Engineering Research Initiation Grants of \$10,000 in each field represented by a founder society. The Technical Activities Board (TAB) has been designated by the IEEE executive committee to evaluate and rank order proposals to be submitted by the IEEE to the Engineering Foundation. Applications must be post-marked by February 1, 1977. Contact Leo Mallette (address on page 11) for more details.

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
3	4	5	6 FTU CLASSES BEGIN	7
10	11 POWER ENGR. & I.A. SOCIETY	12 COMM. SOCIETY	13 M. T. T. STUDENT CHAPTER	14
17	18	19 COMPUTER SOCIETY	20 A.E.S. VTG	21
24	25	26	27	28
31	1	2	3	4
← POWER ENGINEERING WINTER MEETING →				
7	8	9 COMM. SOCIETY	10 M.T.T.	11
← AES WINTER CONV. →				
14	15	16 COMPUTER SOCIETY	17 A.E.S. VTG	18 I.E.E.E. ANNUAL AWARDS

JANUARY

FEBRUARY

				BANQUET	
21	22	23	24	FES BANQUET	OSA 26
← OPTICAL FIBER TX. →			← ENGR. FAIR - FTU →		
← ENGINEERS WEEK →					
28	1	2	3	4	
← COMPCON →					
		<i>Low Person</i>			
7	8	9	10	11	
POWER ENGR. & I.A. SOCIETY		COMM. SOCIETY	M.T.T.		
SYSTEM THEORY SYMP.		MARCH			
14	15	16	17	18	19
		COMPUTER SOCIETY	A.E.S.	← SIMULATION SYMP. →	
VTG CONFERENCE					
21	22	23	24	25	
28	29	30	31	1	
FTU CLASSES BEGIN		← INTL. SEMICONDUCTOR POWER CONV. CONF. →			
4	5	6	7	8	
← SOUTHEASTCON →		APRIL			

**ADVANCE MEETING NOTICE  
MTT-SOCIETY**

Program for Thursday, January 13, 1977

**Topic:** Low noise front ends  
**Speaker:** Dr. Frank Arams  
LNR Communications, Inc.  
Hauppauge, N. Y. 11787

**"STATE OF ART LOW NOISE RECEIVERS  
FOR MICROWAVE AND MILLIMETER" COMMUNICATIONS**

This paper reports recent developments in ultra low-noise amplifiers and receiver front-ends for satellite communications and related applications.

This generic low noise front-end consists of one or more stages of low noise amplification followed by a heterodyne down-converter. A variety of building blocks have evolved. The current state-of-the-art of receiver front-end performance as a function of input signal frequency from 2 to 50 GHz will be discussed. Developments in the areas of non-cryogenic parametric amplifier, field effect transistor (MESFET) image-enhanced GaAs Schottky-barrier mixers, integrated amplifier/downconverters (Paracoverters™) and Hi Rel amplifiers for spacecraft application will be described.

**SCHEDULE**

5:30 PM COCKTAILS AND DINNER (Order from menu)  
GARY'S DUCK INN  
SOUTH ORANGE BLOSSOM TRAIL

7:15 PM MEETING - HEWLETT PACKARD COMPANY  
6177 LAKE ELLENOR DRIVE

(For further information contact: Dean Bowyer, 352-2483 or Hal Buscher, 352-4106).

**REMINDER**

Nominations from each Chapter for Engineer-of-the-Year is due on January 15. Please see December issue of Notes for details.

B. E. Mathews  
Chairman, Awards Committee

**IEEE Code of Ethics.**

(Continued from last month)

**ARTICLE II**

Engineers shall, in their work:

- |  |   |
|--|---|
| <ol style="list-style-type: none"> <li>1. Treat fairly all colleagues and co-workers, regardless of race, religion, sex, age or national origin;</li> <li>2. Report, publish and disseminate freely information to others, subject to legal and proprietary restraints;</li> <li>3. Encourage colleagues and co-workers to act in accord with this Code and support them when they do so;</li> </ol> | <ol style="list-style-type: none"> <li>4. Seek, accept and offer honest criticism of work, and properly credit the contributions of others;</li> <li>5. Support and participate in the activities of their professional societies;</li> <li>6. Assist colleagues and co-workers in their professional development.</li> </ol> |
|--|---|

## MEETING NOTICE COMPUTER SOCIETY

Program for Wednesday, January 19, 1976

<b>Topic:</b>	Future Computer Architecture		
<b>Speaker:</b>	Dr. Earl Joseph Staff Scientist Sperry Univac Computer Systems		
<b>Location:</b>	Orlando Public Library Auditorium 10 North Rosiland Ave.		
<b>Time:</b>	Program: 7:00		
<b>Reservation:</b>	Mr. Walt Steele	352-4305	Mr. Edward Griffin 352-2140
	Dr. Ben Patz	275-2816	Mr. Allen Sullivan 834-1000
	Mr. Don Mendorf	299-6200	Mr. John Booker 646-4437

Dr. Joseph is recognized internationally for his contributions in the computer field.

---

### THE MAGIC FIVE PERCENT

Comment by Leo A. Mallette

There is nothing magic about this number. Only that: about five percent of the Orlando section are who make things happen. As of December 1st there were 601 members in the Orlando section. The November BBQ entertained about 75 people, or 30-40 engineers. That was about five to six percent. The December issue of the notes printed the results of our September survey. The response; 33 people - five percent. Look at page eleven (the executive committee) about 30 people-five percent. Again. This last group of people put in a great deal of effort to keep us abreast of our field. This is easily shown by this months center spread. There are meetings, tours, dinners, banquets, conferences, even a fair sponsored by students at FTU. If there is something that interests you, attend the meeting. You need not be a member of that society (or any) society. You might find someone interested in your work, a fellow engineer, the speaker, maybe even a student, wondering what it's like out in the real world. If there is nothing of interest, call a chapter representative to see if something can be arranged. There are probably other engineers with your same interest. We have several active groups who bring in local and national speakers, and are looking for your suggestions. The Orlando section tries to help you develop technically and professionally. How about a short course on something that interests you? This is YOUR chance to get what YOU want. Turn to page four, for details on how to get a short course offered in the Orlando area. This is a first for the Orlando section, and now is the time to be thinking about it. It's up to you.

## NEWS FLASH

**POSITION OPENING:** Position for managing editor will be open for the months of January, February, and March. Pay is negligible, but experience is invaluable. Contact Leo Mallette, at the address on page 11.

---

The following is taken from *New Engineer* - December 1976, page 14.

### **New copyright bill addresses photocopying**

"The nation's copyright laws were revised for the first time since 1909, under legislation signed October 20. Of most importance to technical personnel is the restriction on library copying of scholarly journals—no more than one article may be copied from each issue without payment of royalties, and not even that, unless the library is sure the copy or copies will be for private use only. The already common—but formerly illegal—practice of teachers duplicating classroom quantities of articles without permission is now allowed under the new law, but wholesale reproduction (for an entire freshman chemistry class in a major university, for instance) is forbidden without permission of the copyright holder...."

---

"WWV transmissions on 2.5, 20 and 25 MHz are scheduled to be terminated February 1, 1977 to reduce operating costs. Users of the service may make comments to the National Bureau of Standards, Time and Frequency Service Section, Boulder, Co. 80302."

From QST - December 1976, page 10.

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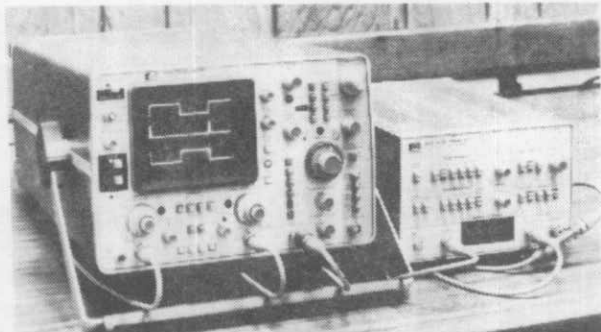
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## HEWLETT-PACKARD 1741A VARIABLE-PERSISTENCE/STORAGE OSCILLOSCOPE



NEW  
PRODUCT  
INFORMATION

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Phone 859-2900



# ORLANDO SECTION NOTES



VOLUME XI, NUMBER 6

FEBRUARY, 1977



DR. FRED STERZER  
MTT - S  
NATIONAL LECTURER  
(SEE PAGE FOUR)

## IEEE ANNUAL AWARDS BANQUET

**Date:** Friday, February 18, 1977  
**Location:** Longwood Village Inn  
150 East Lake Street - Longwood, Florida  
**Time:** 6:00 Social Hour on the veranda  
7:00 Dinner in main dining room  
8:00 Program

**Program:** "The In's and Out's of Politics"  
by Charles Reese, Editorialist for Orlando Sentinel  
An entertaining speech on local politics

**Price:** \$7.50 including tax and gratuity for outstanding Greek Combination Dinner.  
\$6.50 for students.

Advance tickets (required) are available from members of the executive committee (Page 7). Spouses and guests are encouraged to attend. The Inn is one block North of 434 on Longwood Avenue (427).

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**PUBLISHED BY ORLANDO SECTION  
INSTITUTE OF  
ELECTRICAL AND ELECTRONICS ENGINEERS**

# COPPERHEAD (CLGP)

**Makes every artilleryman a sharpshooter.**

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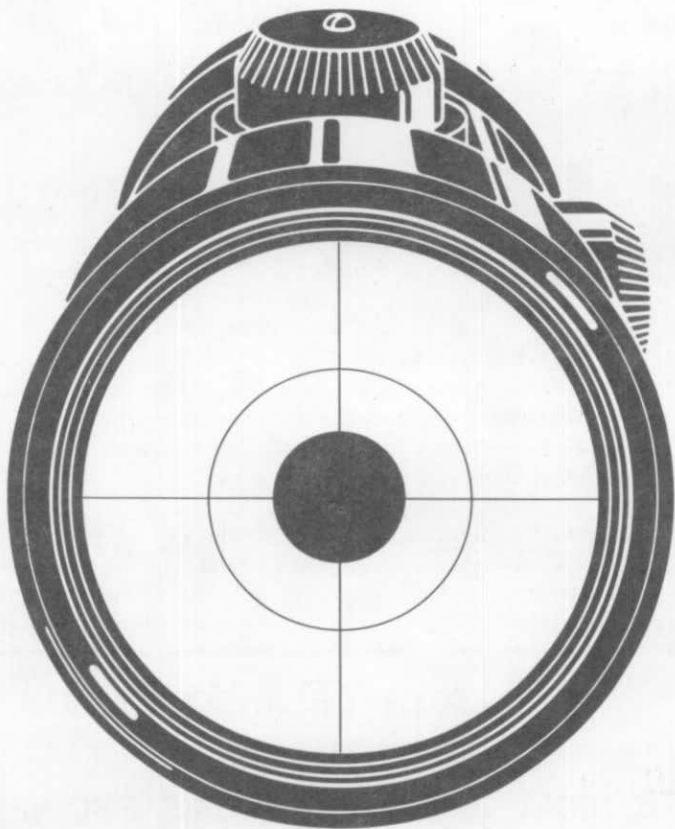
That's cost effectiveness. And no special launching equipment is needed. It's fired from a 155 mm piece just like any other round—by crews with no special training. Every single round in the highly successful prototype test program was fired by Army artillery gunners.

Once the target has been marked by a forward observer or a remotely piloted vehicle equipped with a laser designator, CLGP is fired like any

other round from a rear staging area. It homes in on the target with pinpoint accuracy, seeking it out even in marginal weather and low cloud ceiling conditions.

CLGP is now in engineering development at the Orlando division of Martin Marietta Aerospace under the direction of the U. S. Army Armament Command. It promises to increase significantly the deterrent capability of our combat forces with unusual cost effectiveness.

**MARTIN MARIETTA**



## Chairman's Corner



Dick Bergen, our program chairman and Dr. Bruce Mathews, our awards chairman, have been working very hard in planning a fine Awards Banquet for our group on Feb. 18th. See the notice on the cover of this issue for details. See any member of the executive committee for tickets to this very fine upcoming evenings entertainment, and fellowship.

Dr. Jim Wiltse, Harold Downing, and Carl Lohmann have agreed to serve as nominating committee for your 1977-1978 Orlando

Section slate of officers. I am sure they would appreciate receiving any suggestions or recommendations you might have.

Ed. R. McCarter  
Section Chairman

---

OPTICAL SOCIETY OF AMERICA meeting will be held February 26 at 10:30 AM at Brevard Community College. The speaker will be Bart Lipofsky. For details, contact Neil Mohon in Winter Park.

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## PROFESSIONALISM SEMINAR

The Southeastern Center for Electrical Engineering Education (SCEEE) is presenting an information seminar on Wednesday, February 2nd, at the FTU South Orlando Resident Center. Dr. Bruce Mathews will act as host. The public is invited at no cost.

The SCEEE Informational Seminar on Technology, Professionalism, and Collective Bargaining will consist of three sessions on February 2:

- 10:00 - Noon: Technology and Technological Change
- 2:00 - 4:00: Collective Bargaining and Technology
- 7:00 - 9:00: Collective Bargaining and Professionalism.

Participating in the Information Seminar will be:

- Professor Vernon H. Jensen, Cornell University
- Professor Robert F. Cotellessa, Clarkson College of Technology
- Dr. Woodrow W. Everett, Jr., Chairman, SCEEE.

### MEETING NOTICE MTT-S

Program for Wednesday, February 23, 1977

**Topic:** Recent advances in microwave, solid state devices.

**Speaker:** Dr. Fred Sterzer  
MTT National Lecturer

**Location:** Gary's Duck Inn

**Times:** Dinner: 5:30 PM  
Program: 7:15 PM

**Information:** Dean Bowyer 352-2483, Hal Buscher 352-4106

Dr. Sterzer will discuss recent advances in GaAs FET technology that allow replacement of medium power TWT's at frequencies up to 18 GHz as well as the replacement of BWO's by varactor-tuned transistor and transferred electron oscillators followed by medium-powered, broadband transistor amplifiers. Additionally, he will discuss the new and very interesting application of FET's and TED's to digital computing at multi-gigabit rates. Implementations and applications will be covered.

---

### MEETING NOTICE CAPE CANEVEAL SECTION

Program for Thursday, February 17, 1977

**Speaker:** Irwin Feerst  
Committee for Concerned Engineers

**Location:** Wolfies Beachside Inn  
Formerly Ramada Inn, Cocoa Beach

**Times:** Dinner: 6:30 Roast Beef - \$7.25  
Program: 8:00 P.M.

**Reservations:** For dinner only (You do not need reservations for the program). Call Dick McCoy - 352-3612.

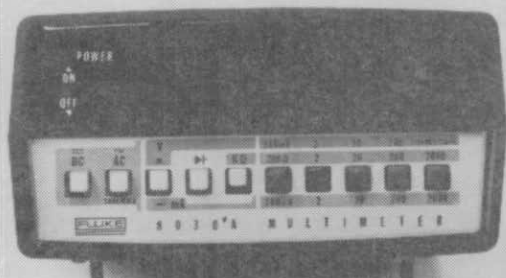
Mr. Feerst was a candidate for IEEE President. He has a reputation as an excellent speaker, and has many interesting ideas for the purpose and direction of the IEEE organization.

## MEETING NOTICE COMMUNICATIONS SOCIETY

Program for Wednesday, February 9, 1977

- Topic:** Digital Switching and Stromberg-Carlson Digital Production Facility.
- Location:** Dinner: Red Carpet Inn, 436 and I-4  
Tour: Stromberg-Carlson, Lake Mary Exit
- Times:** Social: 6:00 PM  
Dinner: 6:30 PM  
Tour: 8:00 PM
- Reservations:** Miss Garnet Maurer at 898-9093 on or before February 7, 1977.

**FTU STUDENT CHAPTER** will hold their next meeting at 12:00 in EN 305 on February 10, 1977. Any readers wishing to donate books, periodicals, or other engineering literature to the student library, please contact Stan Francis, chapter chairman.



### FEATURES

- 6 MEASUREMENT FUNCTIONS
- 26 MEASUREMENT RANGES
- TRUE RMS AC MEASUREMENTS
- DIODE TEST CAPABILITY
- OVERLOAD PROTECTION
- IN-CIRCUIT RESISTANCE TEST
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## MEETING NOTICE COMPUTER SOCIETY

Program for Thursday, February 10, 1977

- Topic:** Seven Basic Principles of Software Engineering
- Speaker:** Dr. Barry W. Boehm  
Director of software research and technology  
at TRW (Redondo Beach)
- Location:** Sweden House  
841 Lee Road - West of I-4
- Times:** Social: 5:30 PM  
Dinner: 6:30 PM - \$5.75  
Program: 7:30 PM
- Reservations:**
- |                    |          |
|--------------------|----------|
| Mr. Walt Steele    | 352-4305 |
| Dr. Ben Patz       | 275-2816 |
| Mr. Don Mendorf    | 299-6200 |
| Mr. Edward Griffin | 352-2140 |
| Mr. Allen Sullivan | 834-1000 |
| Mr. John Booker    | 646-4437 |

Dr. Boehm will discuss the principles for achieving a successful software development.

---

**IEEE COMPUTER SOCIETY (Orlando)** in cooperation with other technical societies will sponsor a seminar on Saturday, March 26, 1977.

- Topic:** Minicomputer and Microcomputer Applications  
in Industry.
- Location:** FTU Main Campus
- Contact:** B. W. Patz (275-2816, or home - 855-3685)
- 

The week of February 20 is National Engineers Week. Engineers Week Awards will be presented at a banquet at Disney World (The Contemporary) on Friday, February 25, 1977. An Eastern Airlines Vice-President will speak on Airport Architecture of the Future. Music will be by a Disney World Band. Tickets are \$12.50 (\$7.50 for students). For further information, please contact Dr. Brian Petrasko at 275-2549 or (sec) 275-2786.

---

**ENGINEERS FAIR** will be held at FTU's Engineering building. This extravaganza is open to the public, at no charge. Bring the whole family to see the industrial displays and the many student projects. 9:00 to 3:00 PM on February 25 and 26.

## ORLANDO SECTION NOTES

Published monthly by the Orlando Section except during the months of July and August. Inquiries concerning advertising and/or announcements should be forwarded to Mr. Leo Mallette, Route 8 Box 781, Orlando, Florida 32807.

### 1976 - 1977 EXECUTIVE COMMITTEE

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MTT Chairman	Dean Bowyer	352-2483	299-7368
COMSOC Chairman	A. J. Levy	352-3914	843-7619

\*Members of the Executive Board

REMINDER! The Executive Committee meets the first Tuesday of the month. This is an open meeting and all members are invited to attend. The meeting is held at the Florida Power Corporation, 510 Park Ave. So., Winter Park, at 5:30 P. M.

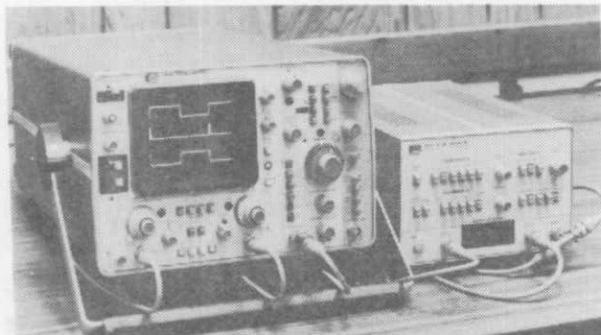
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NEW  
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A newly-designed variable-persistence/storage CRT, used for the first time in Hewlett-Packard's new 1741A Oscilloscope, produces exceptionally clean traces, and good trace-to-background contrast ratio. New automatic storage controls make it easier than ever before to capture low-rep-rate, single-shot waveforms. The 1741A combines the advantages of variable persistence, to integrate glitches or low-duty-cycle traces into clear displays, with the advantages of storage, for single-shot events.

To relate the timing of events in a pulse system accurately to one another and to the triggering event, external trigger is shown as a center-screen third trace in alternate or chopped modes, not as a substitute for one of the two channels. Bandwidth and sensitivity are sufficient for most digital purposes; 5 mv per division at 100 Mhz provides the detail needed for TTL and other fast, low-level signals; 1 mv/div to 30 Mhz, with a times-5 magnifier, makes it possible to display tape or disc head outputs directly.

The 1741A is suited not only to the laboratory and the computer room, but also to the more rugged situations common with communications and process control equipment. The oscilloscope's case is closed, without fan or vent holes.

The 1741A is priced at \$3950 and has a current delivery of 30 days.

FOR FURTHER INFORMATION  
CONTACT

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# ORLANDO SECTION NOTES



VOLUME XI, NUMBER 7

MARCH, 1977

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ELECTRICAL AND ELECTRONICS ENGINEERS**

# COPPERHEAD (CLGP)

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CLGP, the Army's cannon-launched guided projectile, makes it possible for artillery to destroy a tank from miles beyond the front line with a single round.

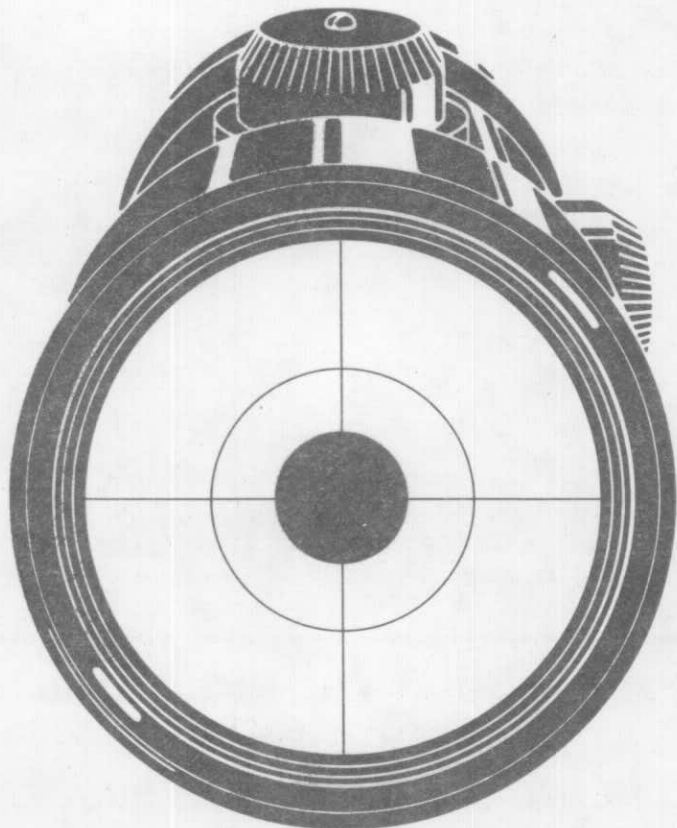
That's cost effectiveness. And no special launching equipment is needed. It's fired from a 155 mm piece just like any other round—by crews with no special training. Every single round in the highly successful prototype test program was fired by Army artillery gunners.

Once the target has been marked by a forward observer or a remotely piloted vehicle equipped with a laser designator, CLGP is fired like any

other round from a rear staging area. It homes in on the target with pinpoint accuracy, seeking it out even in marginal weather and low cloud ceiling conditions.

CLGP is now in engineering development at the Orlando division of Martin Marietta Aerospace under the direction of the U. S. Army Armament Command. It promises to increase significantly the deterrent capability of our combat forces with unusual cost effectiveness.

MARTIN MARIETTA



## Chairman's Corner



Our nominations committee, Dr. Jim Wiltse, Harold Downing, and Carl Lohmann have had a very tough job selecting a slate of candidates from all of the very good people they had to consider. After much hard work and many considerations they have narrowed the candidates down to the following:

Chairman . . . . . Bill Rhoden  
 Vice-Chairman . . . . . Russ Theisen  
 Secretary . . . . . Dr. Ernest Erickson  
 Treasurer . . . . . Richard McCoy

Congratulations to these four fine candidates, and a vote of thanks for the fine effort of the nominating committee.

These NOTES will go to press a week before our awards banquet, but I wish to express our thanks for the fine job being done by our Awards Chairman, Dr. Mathews, and the program committee; Dick Bergen and Hal Buscher.

Ed. R. McCarter  
Section Chairman

The FTU Student Chapter would like to congratulate the following electrical engineering seniors, and wish them the best of luck in the future.

Alan Addington	Larry Elbroch
Brent Saunders	Jeff Rosentrauch
Jeff Wheeler	Stan Francis
Joe Mansour	Bon Shaw
Danny Jackson	

The next meeting will be on Thursday, March 3rd (EN 305)

### UP-COMING CONFERENCES

Southeastern Symposium on System Theory  
 March 7-8, 1977. Charlotte N.C.

VEHICULAR TECHNOLOGY (See Page 9)  
 March 16-18, 1977. Orlando, Fl.  
 Simulation Symposium  
 March 17-19, 1977. Tampa, Fl.

Semiconductor Power Converter Int'l Conf.  
 March 28-31, 1977. Orlando, Fl.

SOUTHEASTCON  
 April 4-6, 1977. Williamsburg, Va.

FTU-SOUTH ORLANDO RESIDENT CENTER (SORC) 7300 Lake Ellenor Drive  
 Director: Dr. Richard C. Harden, P.E. (Orlando Central Park)  
 Telephone: (305) 855-0881 Orlando, Florida 32809

SPRING 1977 SCHEDULE

PFX	NO.	QTR. HRS	COURSE TITLE	ALL PM CLASSES SORC TIME / DAY
<u>COLLEGE OF BUSINESS ADMINISTRATION</u>				
BADM	371	3	Legal Environment of Business	6 - 8:50 Tues
<u>COLLEGE OF EDUCATION</u>				
EDEX	611	3	*Homemaking - Social Skills for Mentally Retarded	5 - 7:50 Wed
EDEX	641	4	*Behavior Disorders in School	5 - 8:50 Mon
EDEX	643	4	*Educ. Prog. for Child Behavior Disorders	5 - 8:50 Thurs
EDLS	452	4	*Instructional Media Production	6 - 9:50 Thurs
EDTA	480	3	Overview of Education	6 - 8:50 Tues
EDVE	401	4	*Philosophy-Principles of Technical Education	6 - 9:50 Wed
EDVE	463	4	*Development of Occupational Education Programs	6 - 9:50 Tues
EDVE	604	4	*Cooperative Programs in Vocational Education	6 - 9:50 Mon
*Continuing Education Courses				
<u>COLLEGE OF HUMANITIES AND FINE ARTS</u>				
ENG	101	4	*Composition I	7 - 9:50 Mon
ENG	301	3	Professional Report Writing I	6 - 8:50 Thurs
*Continuing Education Course				
<u>COLLEGE OF SOCIAL SCIENCES</u>				
SOC	345	4	Juvenile Delinquency	6 - 9:50 Mon
SOC	491	4	Child Welfare	6 - 9:50 Wed

**SPECIAL ANNOUNCEMENT:** A televised BIOLOGY SERIES.(BIOL 101) will be presented during the Spring quarter on broadcast television and several cable TV systems. It is available to any student who may wish to register. Students desiring to view reruns of the presentation made for TV may make arrangements to do so at the South Orlando Resident Center. Registration will be done by mail. Further information may be obtained by contacting the Center Director.

Most above courses apply toward a Bachelor degree in GENERAL STUDIES concentrating in Business, Education, Humanities and Social Sciences which can be earned at SORC.  
 Three-year program available upon request.

<u>COLLEGE OF ENGINEERING</u>				ALL PM CLASSES	
T	CEES	455	3	Structural Steel Design	5 - 6:50 TR
T	CEES	614	3	Water and Wastewater Systems Design	5 - 5:50 M; 5 - 6:50W
T	CEES	615	3	Atmospheric Pollution Control	6 - 7:50M; 7 - 7:50W
T	EECS	535	3	Electrical Power Generation and Distribution	5 - 6:50M; 5 - 5:50W
T	EECS	621	3	Digital Computer Systems	7 - 7:50T; 7 - 8:50R
T	EECS	664	3	Operational Amplifiers	5 - 5:50T; 5 - 6:50R
T	EMCS	574	3	Analytical Methods in Engineering	5 - 6:50T; 5 - 5:50R
T	IEMS	532	4	Management Information Systems I	6 - 7:50MW
T	IEMS	610	3	Project Engineering	5 - 5:50M; 4 - 5:50W
T	IEMS	627	4	Non-Linear Programming	5 - 6:50TR
T	IEMS	629	4	Production and Inventory Control	8 - 9:50MW
T	MEAS	591	4	Solar Systems	7 - 8:50TR
T	MEAS	638	3	Environmental Thermodynamics	6 - 7:50M; 7 - 7:50W
T	MEAS	644	3	Computer-Aided Design	5 - 5:50M; 5 - 6:50W
T	MEAS	689	4	Solar Energy Systems	7 - 8:50TR

T = Lecture on TV Tape  
 TV COURSE TIMES CAN BE ADJUSTED IN INDIVIDUAL CASES FOR WORK OR SCHEDULE CONFLICTS.

**GENERAL REGISTRATION INFORMATION**

- Registration at SORC 12 noon to 5 PM daily, later by appointment
  - After contacting your advisor you may register at SORC only if your total FTU course load is SORC courses; otherwise, you must register at Main Campus for both SORC and Main Campus courses.
  - If you must register for SORC and Mail Campus courses, do so during regular campus registration. Should you wait until ADD-DROP you take the chance of a course being filled, or cancellation due to lack of enrollment.
  - Previously admitted students may register at SORC by TELEPHONE TO SORC subject to the above cited rules (excluding Continuing Education). Students registering for Continuing Education courses must register in person but no later than the first night of class.
- Feb. 21 **CURRENTLY ENROLLED STUDENT REGISTRATION AT SORC.**  
 thru Registration after March 10 can be done at Main Campus on Mar. 14, 15, 16 or between  
 Mar. 10 6-7 PM March 24, 1977.  
 Fee Statements must be picked up at the Center beginning Mar. 17, 1977.
- Mar. 7 **LAST DAY TO SUBMIT READMISSION APPLICATION**  
 Feb. 21 **NEW STUDENT and READMITTED STUDENT REGISTRATION.**  
 thru Registration after Mar. 21 can be done at Main Campus Mar. 24, 1977.  
 Mar. 21 Fee Statements can be picked up at SORC beginning Mar. 25, 1977.
- Mar. 28 **CLASSES BEGIN**  
 Mar. 29 **LAST DAY FOR ADD, DROP, WITHDRAW AT SORC with full refund. After this date, ADD/DROP and late registration must be accomplished on the Main Campus at the following times:**
- |                         |                      |                          |
|-------------------------|----------------------|--------------------------|
| Mar 30: 8:45 - 11:30 AM | Mar. 31: 2:45 - 6 PM | April 1: 12:45 - 4:00 PM |
| 12:45 - 4:00 PM         |                      | 5:30 - 6:30 PM           |
- All late registering students will be assessed a \$25 late fee and will register on a "Space-Available" basis.
- Apr. 1 **FEES DUE IN CASHIER'S OFFICE. Midnight postmark accepted.**

TEXTBOOKS ON SALE 1st WEEK OF CLASS  
 CHECK OR MONEY ORDER ONLY

PICK UP THE 3-YEAR SORC SCHEDULE  
 (EXCLUDING ENGINEERING COURSES)

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**JOINT MEETING NOTICE  
 MICROWAVE THEORY AND TECHNIQUES SOCIETY  
 AEROSPACE AND ELECTRONIC SYSTEMS**

Program for Thursday, March 24, 1977

- Topic:** Aspects of Synthetic Aperture Radar
- Speaker:** Dr. William M. Brown
- Times:**
- |          |   |
|----------|---|
| Dinner:  | 5:30 Gary's Duck Inn                                |
| Program: | 7:15 Hewlett-Packard Co.<br>6177 Lake Ellenor Drive |

After briefly describing his organization — the Environmental Research Institute of Michigan, formerly the Willow Run Laboratories - Dr. Brown will describe some of the basic theory of synthetic aperture radar. First, the imaging of rotating target will be analyzed. The effects of motion through resolution cells will be described along with the use of linear FM pulses. Such a waveform provides bandwidth reduction and greatly simplifies the data processing when compensation for motion through resolution cells is required. The case of the sidelooking synthetic aperture radar is described as an obvious extension of the range-Doppler imagery of rotating target fields. Sample experimental results will also be shown.

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### MINICOMPUTER AND MICROCOMPUTER APPLICATIONS IN INDUSTRY SEMINAR

To be held at FTU on Saturday, March 26, 1977.

**Sponsored by:** IEEE COMPUTER Society, AIIE, DPMA IEEE FTU  
student chapter and AIIE student group.

**Cost:**

Pre-registration	
Member	\$12.00
Non-student	\$15.00
At-Door	
Members	\$15.00
Non-students	\$20.00

The seminar is an all day affair starting at 8-9 AM for registration, followed by simultaneous sessions featuring a total of 16 speakers, till approximately 4:15 PM. A number of minicomputer and microcomputer exhibits will also be shown in the exhibit area. The price of attendance includes lunch and a morning and afternoon coffee break. If you are not mailed a brochure outlining the seminar and you would like either more information or to pre-register, contact: Ben Patz at 275-2816 (off), 275-2786 (sec), 855-3685 (home).

## MEETING NOTICE

### POWER SOCIETY AND INDUSTRIAL APPLICATIONS GROUP

Program for Tuesday, March 8, 1977

**Topic:** Computer Assisted Trouble Analysis

**Speaker:** Mr. Ronald Neade P.E.  
Supervisor; Planning and Operations, FPC

**Location:** 1150 N. Orange Ave.  
Fla. Power Division Office

**Time:** Program: 8:00 PM

This meeting will include a demonstration, a tour of the operations center, as well as coffee and donuts.

For the first time in its history, the Section will offer short courses on a variety of subjects. These courses can be one-day overviews, two-day more detailed courses, or five-day courses. The choice of both the subject matter and the length of the course is up to you.

Experience in other sections has shown that about 20 percent of such courses fail because of a poor choice of subject. We want to avoid that problem and want to present courses that you, the practicing engineer, will find useful and interesting.

The following will help us to do just that, but only if you fill it out and return it. Do it now, it will take only a minute and will greatly help in organizing the courses that you would like to have presented. Space does not permit us to list more than four general areas. If you would like a course in another general area or a specific course, please specify this area or course on the line provided.

The first course will be presented in Fall of 1977. If it is a success, others will follow during the year. Any other questions you may have regarding these short courses can be directed to Dr. Dave Flinchbaugh.

COMPUTER/INFORMATION SCIENCES  BUSINESS MANAGEMENT

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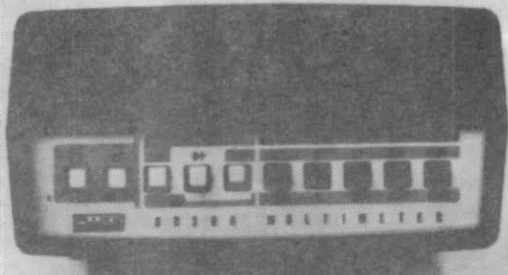
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**FEATURES**

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- 26 MEASUREMENT RANGES
- TRUE RMS AC MEASUREMENTS
- DIODE TEST CAPABILITY
- OVERLOAD PROTECTION
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- WIDE RANGE OF ACCESSORIES



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**ELECTRO-OPTICS GROUP FORMING**

We are organizing a technical group in optics/electronics among members of the IEEE from the Canaveral and Orlando sections. This will be a joint effort with the support of the Optical Society of America (OSA) and the Laser Institute of America (LIA), in order to integrate and further the common strengths and interests of these professional and educational organizations. The purpose of this group will be to present talks on various aspects of these fields by both local and guest speakers at a series of meetings throughout the year.

If you are interested in attending these meetings, please send a note to:

Dr. David Flichbaugh, P.E.  
Laser Optical Corp.  
4855 Big Oaks Lane  
Orlando, Florida 32806

We need a count of potential members at this time to apply for funding from the parent organizations. If you have suggestions for topics or speakers, or if you would like to present a topic, please indicate in your note to Dr. Flichbaugh. All respondents will be notified of the first meeting, tentatively planned for late March, with a talk on fiber optics.



**TWENTY-SEVENTH ANNUAL  
VEHICULAR TECHNOLOGY CONFERENCE**  
March 16-18, 1977

**ORLANDO HYATT HOUSE**  
Interstate 4 and U.S. 192 East  
Orlando, Florida

**1977 VEHICULAR TECHNOLOGY CONFERENCE TIMETABLE**

Time	Wednesday 16 March	Thursday 17 March	Friday 18 March
7:30 AM	Authors' Breakfast	Authors' Breakfast Chapter Chairmen's Breakfast	Authors' Breakfast
9:00 AM	Session IA Law Enforcement Communications  Session IB Citizens Band Radio and Automobile Electronics	Session III Transportation Systems Tutorial Course Data Communications in a Mobile Environment	Session V Communications System Design
Noon	Luncheon	Luncheon	Luncheon
2:00 PM to 5:15 PM	Session II Mobile Telephone Communications	Session IV Equipment Design	Session VI Marine and Air/ground Communications
6:30 PM		IEEE/Radio Club of America Reception	
7:30 PM		Radio Club of America Semi-Annual Banquet	

## "I LOVE AN ENGINEER"

Comment by Leo A. Mallette

While attending a Florida Engineering Society (FES) conference last year, I saw several members of the "Ladies Auxiliary" wearing a button proclaiming "I Love an Engineer". Seeing this, I immediately wanted one for myself. My inquiry was greeted with puzzled looks and questions asking me if it was for my wife. Seems that the public (even the wives of engineers) associate engineering with a masculine profession. After explaining that I was dating a (female) engineering student, I was told there were no buttons left. Dismayed, I realized that many people are unaware of the increasing numbers of female engineers.

The preliminary indications are in our universities. Last year, over ten percent of freshmen in engineering were female. Here in Orlando, Florida Technological University (FTU) had 11.4 percent. Admittedly, engineering has a high attrition rate, but FTU has stabilized at over five percent since 1974. How do these figures translate as far as EE's are concerned? Nationally, 15.7 percent of women engineering graduates are electrical, while FTU students lag behind the national average at 7-10 percent.

**WHY?** Why go into engineering? The same reasons as most males; technological challenge, a wide open job market, a genuine concern for the environment, and money. The average starting salary for a recent, female, BS graduate was \$1144 per month, as compared to \$1109 for their male counterpart in 1975.

**PROBLEMS** What are some of the problems that are unique to the female engineering student? An independent study of about half of the female engineering students at FTU indicates: 1 - Lack of background education, and inadequate counseling. 2 - Much higher standard required to prove you are a capable engineer. 3 - Harder to form study groups, and have peers accept you. 4 - Professors "pick" on girls because of visibility. 5 - Some men resent girls that are smarter or more technical than they are.

Apparently, some high schools need to start career planning at an earlier time. Possible guidance counselors are not fully acquainted with what an engineering curriculum entails.

**DISCRIMINATION?** There is almost none reported in the schools. The girls that are working and CO-OPing, indicated that there is the accepted ribbing and comments. In general, the discrimination is positive, in that people are more responsive to a female engineering student.

The engineering curricula provides insight, a challenging career, financial rewards, and a chance to make decisions that effect the environment around us. A great deal of time and effort are required, and the mental stress is as great as any other profession, but, the self-respect and self-confidence that is gained compensates more than adequately. Meanwhile, I am still looking for one of those buttons!

## ORLANDO SECTION NOTES

Published monthly by the Orlando Section except during the months of July and August. Inquiries concerning advertising and/or announcements should be forwarded to Mr. Leo Mallette, Route 8 Box 781, Orlando, Florida 32807.

### 1976 - 1977 EXECUTIVE COMMITTEE

		Business	Residence
*Chairman	Dr. Ed McCarter	275-2548	647-0134
*Vice Chairman	John Boynton	423-0555	339-8077
*Secretary	Russel E. Theisen	352-3886	671-4139
*Treasurer	Bill Rhoden	859-2900	671-3469
*Group Chapter Rep.	William Cram	841-9015	647-4123
Jr. Past Chairman	Harold Downing	351-9962	628-0676
Sr. Past Chairman	Dr. Jim Wiltse	352-4255	876-2561
Program,			
Arrangements	Dick Bergen	898-9013	862-0347
Membership	Melvin Kelch	843-8484	859-1533
Education Committee	Dr. Dave Flinchbaugh	831-2788x325	859-4855
Conference			
Committee	George McClure	352-3782	647-5092
Publicity	Dr. Fred O. Simons Jr.	275-2786	299-3857
Student Activities	Dr. Richard C. Harden	855-0881	855-5775
Publications	Leo Mallette	275-2786	568-4586
Barbeque	Homer Wilson	646-8230	855-0934
Awards	Dr. Bruce Mathews	275-2786	645-0549
Student Chapter	Stan Francis	275-2786	671-5517
IEEE - FES Liason	Jim Ashwell	352-3842	647-1968
Engineer's Week	Dr. Brian Petrasko	275-2549	678-1177
Member-At-Large	Homer Wilson	646-8230	855-0934
Member-At-Large	Gene Dashiell	859-2900	859-2497
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Region III			
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AES Chairman	Richard McCoy	352-3612	628-4181
CS Chairman	Walt Steele	352-4305	859-2496
VTG Chairman	Herbert Zwarra	339-1894	339-1894
PS & IA Chairman	Dr. Herbert Towle	275-2610	671-0265
MTT Chairman	Dean Bowyer	352-2483	299-7368
COMSOC Chairman	A. J. Levy	352-3914	843-7619

\*Members of the Executive Board

REMINDER! The Executive Committee meets the first Tuesday of the month. This is an open meeting and all members are invited to attend. The meeting is held at the Florida Power Corporation, 510 Park Ave. So., Winter Park, at 5:30 P. M.

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## HEWLETT-PACKARD 1741A VARIABLE-PERSISTENCE/STORAGE OSCILLOSCOPE



NEW  
PRODUCT  
INFORMATION

### VARIABLE-PERSISTENCE/STORAGE OSCILLOSCOPE OPTIMIZED FOR DIGITAL DESIGNERS

A newly-designed variable-persistence/storage CRT, used for the first time in Hewlett-Packard's new 1741A Oscilloscope, produces exceptionally clean traces, and good trace-to-background contrast ratio. New automatic storage controls make it easier than ever before to capture low-rep-rate, single-shot waveforms. The 1741A combines the advantages of variable persistence, to integrate glitches or low-duty-cycle traces into clear displays, with the advantages of storage, for single-shot events.

To relate the timing of events in a pulse system accurately to one another and to the triggering event, external trigger is shown as a center-screen third trace in alternate or chopped modes, not as a substitute for one of the two channels. Bandwidth and sensitivity are sufficient for most digital purposes; 5 mv per division at 100 Mhz provides the detail needed for TTL and other fast, low-level signals; 1 mv/div to 30 Mhz, with a times-5 magnifier, makes it possible to display tape or disc head outputs directly.

The 1741A is suited not only to the laboratory and the computer room, but also to the more rugged situations common with communications and process control equipment. The oscilloscope's case is closed, without fan or vent holes.

The 1741A is priced at \$3950 and has a current delivery of 30 days.

FOR FURTHER INFORMATION  
CONTACT

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ORLANDO  
SECTION  
NOTES



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VOLUME XI, NUMBER 8

APRIL, 1977

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**George F.  
McClure**



**CENTRAL FLORIDA  
ELECTRICAL ENGINEER  
OF THE YEAR**

**• NEW CENTERFOLD THIS MONTH •**

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PUBLISHED BY ORLANDO SECTION  
INSTITUTE OF  
ELECTRICAL AND ELECTRONICS ENGINEERS

# COPPERHEAD (CLGP)

## A single round, not a barrage.

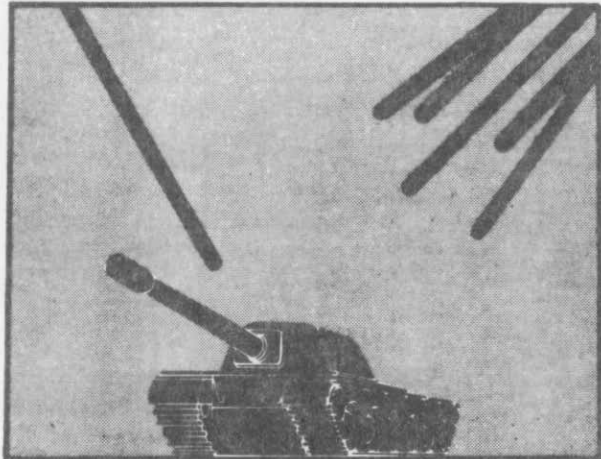
The Army's cannon-launched guided projectile, COPPERHEAD (CLGP), can destroy a moving tank with a single round from miles behind the front lines, a task that often requires hundreds of rounds of conventional shells.

Its cost effectiveness does not stop there. It requires no special handling or launching equipment, no specially trained crews. It is fired from an ordinary 155 mm howitzer by regular artillerymen. (An Army test crew used standard artillery loading and firing procedures on every round in the highly successful prototype test program).

COPPERHEAD (CLGP) employs a forward observer, remotely-piloted vehicle or helicopter to designate the target with a laser beam. The "smart" projectile, fired just like a conventional

shell, seeks out the target with uncanny accuracy, even under conditions of darkness or in marginal weather and low cloud ceiling conditions.

The successful COPPERHEAD (CLGP) is being developed by the Orlando division of Martin Marietta Aerospace under the direction of the U.S. Army Armament Command. With technical and operational feasibility positively demonstrated, it is a remarkably cost-effective deterrent weapon.

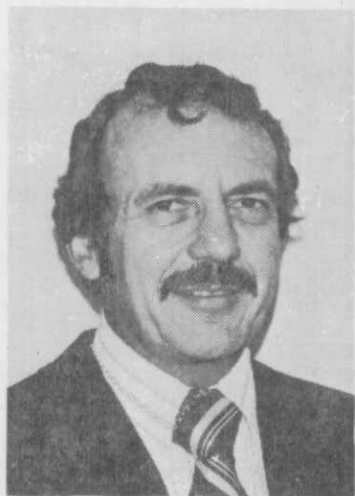


## Chairman's Corner

The following people have agreed to serve as the Election Committee for our upcoming Orlando Section elections. They are Dr. B. E. Petrasko, Chairman, Dr. H. C. Towle, and Mr. W. C. Cram as the other committee members. The nominations for section officers close on April first.

We had a very good turn out for the awards banquet.

Congratulations to all of the award winners and a double congratulations to our Engineer of the Year, George F. McClure. Mr. Charles Reese, our speaker for that evening, gave a very inspiring speech. Look for Charlie's column appearing in the Orlando Sentinel Star. For more details on the winners, turn to page nine.



Ed R. McCarter  
Section Chairman

## Code of Ethics

*(Continued from January issue)*

### ARTICLE III

Engineers shall in their relations with employers and clients:

1. Act as faithful agents or trustees for their employers or clients in professional and business matters, provided such actions conform with other parts of this Code:

2. Keep information on the business affairs or technical processes of an employer or client in confidence while employed, and later, until such information is properly released, provided such actions conform with other parts of this Code:

3. Inform their employers, clients, professional societies or public

agencies or private agencies of which they are members or to which they may make presentations, of any circumstance that could lead to a conflict of interest:

4. Neither give nor accept, directly or indirectly, any gift, payment or service of more than nominal value to or from those having business relationships with their employers or clients:

5. Assist and advise their employers or clients in anticipating the possible consequences, direct or indirect, immediate or remote, of the projects, work or plans of which they have knowledge.

## TENTATIVE MEETING NOTICE

### MICROWAVE THEORY AND TECHNIQUES SOCIETY

Program for Thursday April 14, 1977

- Topic:** Surface Acoustic Waves(SAW)
- Speaker:** Dr. C. S. Hartman  
Texas Instruments, Dallas
- Location:** Hewlett-Packard Building  
6177 Lake Ellanor Dr.  
Orlando Central Park
- Times:** Dinner: 5:30 Gary's Duck Inn  
Program: 7:15
- Reservations:** Dean Bowyer 352-2483  
Hal Buscher 3542-4106

### FTU STUDENT CHAPTER

At the March meeting of the FTU student chapter, Miss Susan Mundy R. N., a certified respiration therapist at Orange Memorial Hospital, spoke to the group on the hazards of electrical shock and the proper first aid procedures.

We will have our first meeting of the Spring Quarter on April 7, 1977 in EN 305. This meeting will be concerned with nominations of new officers, attendance at SOUTHEASTCON, and plans for a field trip in the Orlando area. At the April 21 meeting, some phase of professional developemnt will be addressed by a qualified speaker.

Stan W. Francis  
Chairman

### OUTSTANDING GRADUATING SENIOR

Each quarter, the FTU studnt chapter reviews the EE graduating class to identify an outstanding senior. The requirements for this outstanding service award is based solely on service to IEEE, and specifically to the student chapter. Past winners have been: John Kuhns (W 76), Art Hollows (SP 76), Bruce Fitzgerald (F 76), and this quarter (W 77), I am happy to announce that this award will be presented to Mr. Stan Francis. Stan is our present chairman, and has provided an efficient organization to our student chapter. Stan is also active as Vice-Commander of the FTU AFROTC group. Congratulations Stan.

Leo A. Mallette  
Publications



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## MEETING NOTICE COMMUNICATIONS SOCIETY

Program for Wednesday April 13, 1977

- Topic:** INTERCONNECT, A Viable Industry, or a Flash in the Pan?
- Speaker:** Mr. John Kuhn  
Assistant V. P. Non-Telephone Operations  
Winter Park Telephone
- Location:** Holiday Inn South  
4049 South Orange Blossom Trail
- Times:** Social: 6:30  
Dinner: 7:00  
Program: 8:00
- Reservations:** Rhea Royer 830-3314 by April 11th.

Mon.      Tues.      Wed.      Thurs.      Fri.      Sat.

4		Crime Countermeasure Conf.	FTU Chapter		
SOUTHEASTCON					
11		Comm Society	MTT Society	Tax Day	
18		Computer Society Electro 77	FTU Chapter		
25					
2			Textile Conf.		OSA
9	Power Society	Comm Society	MTT Society		
16					

April

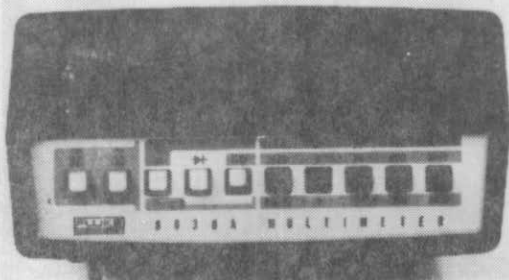
May

		Society	VTG	
	— Components Conf. —			
23			Leo's Birthday	Annual Banquet
	— Multi Value Logic —			
30			— Laser Engr. Conference —	
6		Comm Society	MTT & AES	
13		Computer Society		
	— Nat'l Computer Conference —			
20				
	— Int'l Microwave Symp. —			
	— Design Automation Conf. —			

June

## • IEEE Activities Calendar •

Check the NOTES and/or page 12 of SPECTRUM for more details on the above meetings.



**INTRODUCING THE NEW  
8030A**



Fluke introduces a completely new hand held 3½ digit multimeter to complement the world famous 8000A. Call or write for more information or demonstration.

**FEATURES**

- 6 MEASUREMENT FUNCTIONS
- 26 MEASUREMENT RANGES
- TRUE RMS AC MEASUREMENTS
- DIODE TEST CAPABILITY
- OVERLOAD PROTECTION
- IN-CIRCUIT RESISTANCE TEST
- FUNCTIONAL SELF-CHECK
- WIDE RANGE OF ACCESSORIES



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TELEPHONE 305 / 896-4881

**MEETING NOTICE  
COMPUTER SOCIETY**

Program for April 20, 1977

- Topic:** An Overview of Automatic Speech. Recognition and Understanding.
- Speaker:** Dr. George M. White
- Location:** Orlando Public Library  
10 North Rosalind Ave.
- Time:** Program: 7:00 p.m.
- Reservations:** Mr. Walt Steele 352-4305  
Dr. Ben Patz 275-2816  
Mr. Don Mendorf 299-6200  
Mr. Edward Griffin 352-2140  
Mr. Allen Sullivan 834-1000  
Mr. John Booker 646-4437

Dr. White has been pursuing automatic speech recognition research for the past five years. His professional interests are in artificial intelligence, pattern recognition, and perceptual psychology.

## Central Florida IEEE Engineers Honored

The Orlando Section Annual Awards Banquet in February celebrated National Engineers Week by honoring several of its members for outstanding contributions to the profession and to IEEE. The highlight of the evening was the presentation of the IEEE Central Florida Engineer of the Year Award to Mr. George F. McClure. Mr. McClure, employed by Martin Marietta, was nominated by the Vehicular Technology Group for his outstanding professional achievements, and his IEEE activities. Mr. McClure was also honored at the annual FES Engineers Week Banquet.

Other Group and Society awards for engineer of the year were:

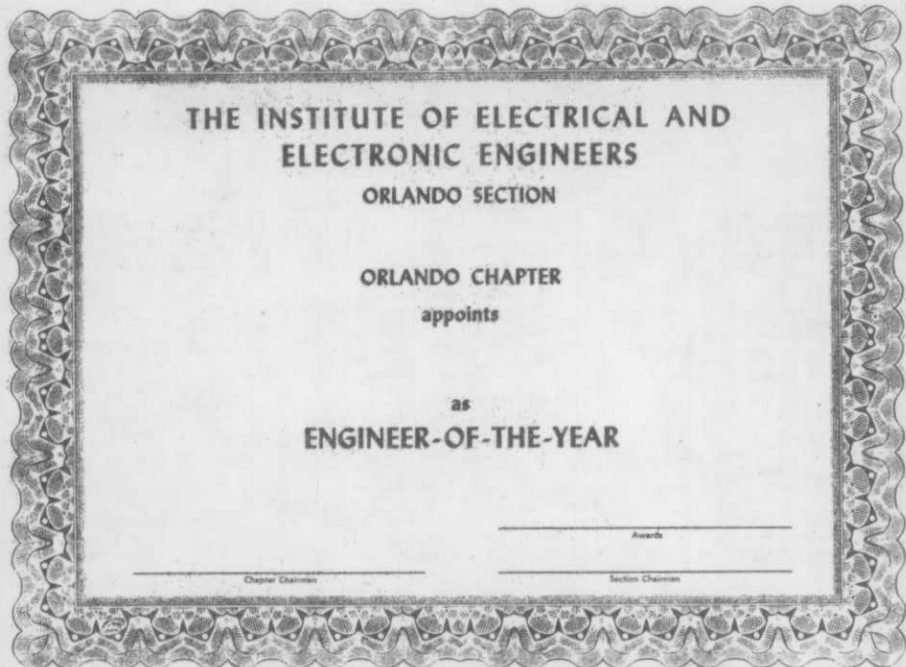
- Mr. William C. Cram: PE and IA Group
- Mr. Russel E. Theisen: Computer Society
- Mr. Carl R. Barrett: MTT Society
- Dr. Benjamin W. Patz: FTU Student Chapter

FTU - Outstanding Student Awards.

Two FTU Electrical Engineering students were honored for their academic achievements and exceptional personal qualities.

- Mr. Stephen O Saltsman: Outstanding Graduate Senior
- Mr. Danny P. Jackson: Outstanding Senior

Dr. B. E. Mathews  
Awards Chairman



SAMPLE OF AWARD PRESENTED TO THE ABOVE

# LEECO BRINGS YOU ANOTHER GREAT INSTRUMENT

If you think the 245 is great - wait till you get the 248,  
4½ digits of TRUE RMS in your hands for only **\$345**

The same great instrument with these new features

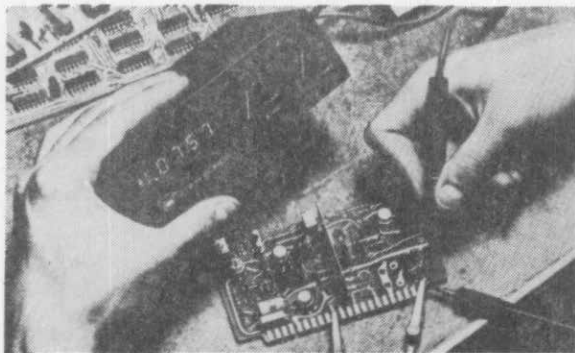
#### HOW DOES IT DIFFER FROM THE MODEL 245?

- One year specifications instead of six months
- LED readout instead of plasma
- 100mV range added to DC and AC volts
- 100mA range added to DC and AC current
- 4-1/2 digits on all current ranges instead of 3-1/2

- Blinking decimal point to indicate when to recharge battery instead of measuring battery voltage
- AND, TRUE RMS measurement of AC voltage and current!! Instead of average-responding

*NEW!*

*True RMS*



*NEW!*

*True RMS*

## MODEL 248 SPECIFICATION

#### DC VOLTS

- 5 Ranges, ±100.00 Millivolts F.S. to ±1000.0 Volts F.S.
- Resolution 10 Microvolts
- Accuracy for One Year ±0.05% Input ±1 L.S.D.

#### AC VOLTS

- 5 Ranges, 100.00 Millivolts F.S. to 500.0 Volts F.S.
- Resolution 10 Microvolts
- Frequency Response 30Hz - 20kHz
- TRUE RMS Responding
- Crest Factor, 5 at F.S., 2½ at 100% Overrange
- Accuracy, One Year, 0.4% to 1%, Depending on Frequency

#### DC CURRENT

- 5 Ranges ±100.00 Microamps to ±1000.0 Milliamps F.S.

- Resolution 10 Nanoamps
- One Year Accuracy, .1% to .2% Input ±1 L.S.D.

#### AC CURRENT

- 5 Ranges 100.00 Microamps to 1000.0 Milliamps
- Resolution 10 Nanoamps
- Frequency Response 30Hz - 20kHz
- TRUE RMS Responding
- Crest Factor, 5 at Full Scale, 2½ at 100% Overrange
- Accuracy, One Year, .75% - 1.5%, Depending on Frequency

#### RESISTANCE

- 5 Ranges, 1kΩ to 10MΩ Full Scale (Note: No 100 OHM Range Because This is Two-Wire only.)
- Resolution 100 Milliohms
- Accuracy, ±.07% to .25%

#### GENERAL

- Display, 33 inch LED
- Overrange 100%, Except Highest Voltage Ranges
- Low Battery Indicator, **BLINKING DECIMAL POINT** (5 - 10 Minutes In-Spec Operation Remaining)
- Overload Protection DCV, 1000V; ACV, 500V; OHMS, 250V; I, Fuse, 250V, 2A.

#### ACCESSORIES (Included in \$345 Price)

- Battery Module
- Input Probes
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- Carrying Case
- And Our Usual Excellent Documentation

See LEECO Price List for Additional Accessories

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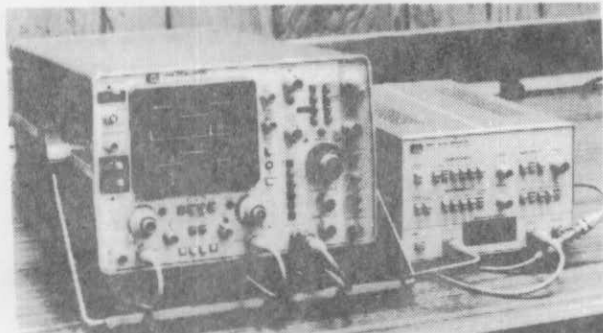
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# ORLANDO SECTION NOTES



VOLUME XI, NUMBER 8

MAY, 1977



**DR.  
LAWRENCE  
WHICKER**

**JOINT MTT • AES MEETING**

**(SEE PAGE SIX)**

**INSTALLATION BANQUET**

**27 MAY 1977**

**WALT DISNEY WORLD**

**(SEE PAGE NINE)**

**PUBLISHED BY ORLANDO SECTION  
INSTITUTE OF  
ELECTRICAL AND ELECTRONICS ENGINEERS**

# COPPERHEAD (CLGP)

## A single round, not a barrage.

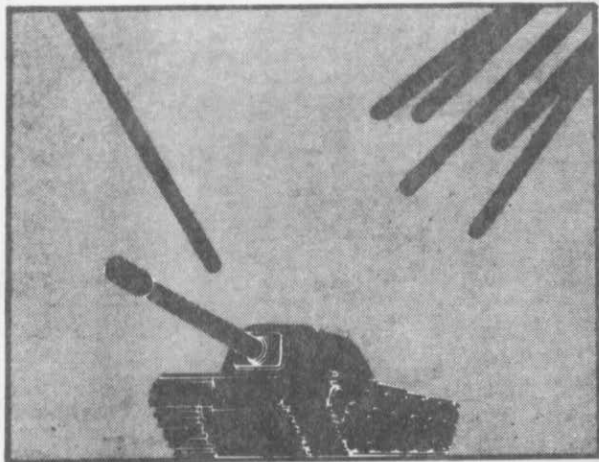
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## CHAIRMAN'S CORNER

Our election Committee reports that no additional nominations had been received by the April 1 deadline, so the candidates selected by our nominating committee will be our officers for 1977-78.

Congratulations to:

Bill Rhoden; Chairman  
 Russ Theisen; Vice-Chairman  
 Dr. Ernest Erickson; Secretary  
 Richard McCoy; Treasurer



Very nice arrangements are being prepared for our upcoming installation banquet by Dick Bergen. Let's all make plans to attend this fine event. Get your tickets early from any member of the executive committee.

A big vote of thanks to our editor, Leo Mallette for his work this past year. We would like to receive names of people who would like to assist and learn the editors job for the upcoming year.

*Ed R. McCarter  
 Section Chairman*

## NEW LOGO FOR IEEE

The Director of Field Services, Robert K. Asdal, has sent a memorandum indicating that the Institute of Electrical and Electronics Engineers has adopted a new logo. Bob urges that we use the new logo on our newsletters, correspondence, meeting an-



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nouncements, etc. Letterhead stationary can be obtained from headquarters at \$12.00 per thousand. If you need a sample of camera ready logos, drop me a note, I have them in three sizes. These are examples of the medium size.

Leo Mallette

## MEETING NOTICE

### COMMUNICATIONS SOCIETY

Program for Wednesday May 11, 1977

- Topic:** New concepts in Automotive Mobile Control Heads
- Speaker:** Mr. William Kahn  
Program Manager, Improved Mobile Telephone Systems, Martin Marietta
- Location:** Hilton House of Beef  
3200 W. Colonial Dr.
- Times:** Social: 6:30 PM  
Dinner: 7:00 PM  
Program: 8:00 PM
- Dinner cost:** \$7.00
- Reservations:** Ms. Rhea Royer, 830-3314 by May 9, 1977

The program will include a demonstration of the new mobile telephone control head.

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## COMPUTER SOCIETY

The Computer Society has nominated the following people for the 1977-1978 term;

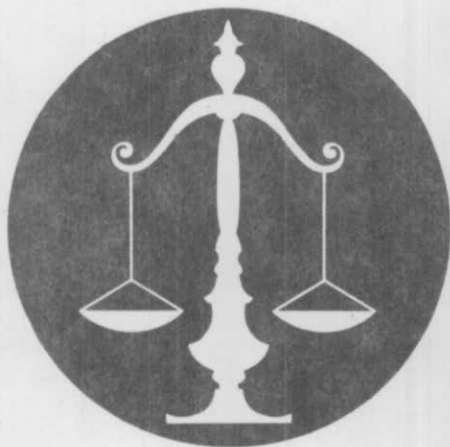
CHAIRMAN	Dr. B.W. Patz
VICE-CHAIRMAN-PROGRAM	Mr. Don Mendorf
VICE-CHAIRMAN-MEMBERSHIP	Dr. Len Healey
SECRETARY-	Mr. Ed Griffin

Elections will be held at the May Meeting to be held Thursday, May 19, 1977 at the Dutch Pantry (640 Lee Road).

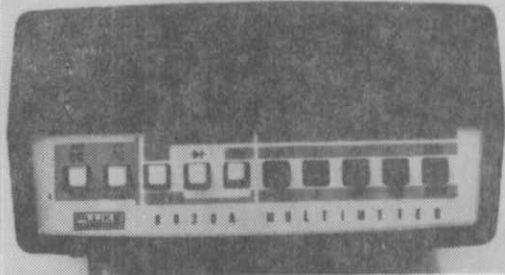
SOCIAL: 6:00  
DINNER: 6:30  
MEETING: 7:30  
ORDER FROM MENU

## COURT REJECTS IMMUNITY

A federal court has rejected the attempt of five Maryland engineers involved in improper payments to a public official to prevent use of their grand jury testimony in proceedings before the state engineering registration board. The court held that the immunity given to the engineers as a basis for their earlier testimony which led to the conviction of the public official did not extend to the board proceedings considering disciplinary action. The immunity granted the engineers only protected them from the use of their testimony in criminal prosecutions, the court said, and did not extend to protect them "against every possible detriment which might happen to them from their testimony."



*The above news and picture were taken from the march 1977 issue of PE.*



### FEATURES

- 6 MEASUREMENT FUNCTIONS
- 26 MEASUREMENT RANGES
- TRUE RMS AC MEASUREMENTS
- DIODE TEST CAPABILITY
- OVERLOAD PROTECTION
- IN-CIRCUIT RESISTANCE TEST
- FUNCTIONAL SELF-CHECK
- WIDE RANGE OF ACCESSORIES

### INTRODUCING THE NEW 8030A

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## JOINT MEETING NOTICE

### MICROWAVE THEORY-TECHNIQUES AEROSPACE-ELECTRONIC SYSTEMS

Program for Thursday May 12, 1977

- Topic:** Active and Passive Component Technology for Phased Arrays
- Speaker:** Dr. Lawrence Whicker  
Head, Microwave Techniques Branch  
Electronic Technology Division  
Naval Research Labs, Washington, D.C.
- Location:** Gary's Duck Inn  
3974 S.O.B.T.
- Times:** Dinner: 5:30 PM  
Program: 7:15 PM
- Note:** The program will be held at the HEWLETT PACKARD building at 6177 Lake Ellenor Dr.
- Information:** Dean Bowyer (352-2483)  
Hal Buscher (352-4106)

For the last several years, phased array antennas have promised to improve the performance capabilities of radar, ECM and communications systems. Much technology effort has been directed to the realization of the component elements of the phased array. On the active element side, effort has centered on complete transmit/receive modules using primarily silicon bipolar transistors and MIC fabrication techniques. On the passive side, considerable effort has gone into the development of diode and ferrite phasers.

This presentation will discuss the present status in these areas and will review in somewhat greater detail ferrite phaser technology.

Dr. Whicker received the BSEE and MSEE degrees from the University of Tennessee, and the PH. D-EE from Purdue University in 1957, 1958, and 1964 respectively, where he was a member of numerous honorary societies.

Dr. Whicker is president of the MTT-S Administrative Committee for 1977.



CONTINUING EDUCATION

Ph. (305) 275-2123

March 29, 1977

Dear Potential Participant;

If you will take a few moments to read our brochure, I'm sure you will agree that short courses with individual hand-held computers provided for use by each participant is a promising new approach to the pressing problem of continuing education. Since the long-term survival of technology based activities is continuing education, you are urged to join us in making this effort as successful as possible. The services and features enumerated in the brochure are indeed attractive, but imagine how valuable the software provided with each course could be -- especially if we have a good participation in all courses. Software alone would be worth the price of the course! For example, besides all the software that would be developed by the small teams, programs to determine stability and even relative stability, calculate frequency characteristics, calculate transient solutions, et. al. programs for up to 20th order H(s) or H(z) transfer function models will be supplied as part of the course.

Now, for even better NEWS! Each participant will be offered the option of buying the hand-held computer loaned to him for his use during the course at a much reduced price somewhere in the following price ranges:

- |                               |                                 |
|-------------------------------|---------------------------------|
| 1. HP-67 .....\$99. - \$139.  | (Course No. 4 only)             |
| 2. SR-52 .....\$79. - \$109.  | 4. HP-25 .....\$19.95 - \$39.95 |
| 3. 52 Printer..\$39. - \$ 69. | 5. SR-56 .....\$ 9.95 - \$29.95 |

Adequate participation will insure the lower price --- so tell your friends, mail them a copy so you can be together during the course. A maximum enrollment of 50 per class will be adhered to to insure quality so be sure to get your application in before classes are full.

In closing, we pledge to provide short courses with all the services and features described in the brochure and in this letter at extremely attractive prices by holding our costs down with the intent of passing the savings on to you, the participant.

Sincerely,

Dr. Ronald A. Newell  
Assistant Dean for  
Continuing Education

ps

P.S. - Those who own their own  
Calculators may call for  
a special quote. See  
application.

# REGISTRATION FORM for a SHORT COURSE WITH INDIVIDUAL HAND-HELD COMPUTERS

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TITLE/POSITION: \_\_\_\_\_

COMPANY: \_\_\_\_\_

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W/Zip \_\_\_\_\_

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MAILING: \_\_\_\_\_  
Address \_\_\_\_\_  
W/Zip \_\_\_\_\_

FEE: For Course # \_\_\_\_\_ \$ \_\_\_\_\_

A 25% deposit is required of all attendees. Those making full payment 60 (30) days prior to the first day of course may deduct 5% (2%) from the total course tuition. Refunds will be granted for requests received 30 days prior to the first day of course.

Make check payable to:

FLORIDA TECHNOLOGICAL UNIVERSITY

Mail to: FLORIDA TECHNOLOGICAL UNIVERSITY

Division of Continuing Education, P. O. Box 25000,

Orlando, Florida 32816.

The right to modify syllabi/instructors or cancel any course/registration (with refund) is reserved. A REGISTRATION is transferable. Every effort must be made to get payments in 60 days early to insure a hand-held computer will be available for your use on the first day.

Courses will be conducted at FTU's South Orlando Resident Center, 7300 Lake Ellenor Drive, Orlando, between 8:30 a.m. and 4:30 p.m. each day. Motel accommodations are the student's responsibility and may be made at:

GOLD KEY INN  
7100 S. Orange Blossom Tr.,  
Orlando, FL 32809  
(305) 855-0050

SPECIAL RATES  
\$20 (24) - 1 (2) Persons  
\$4 ea. add. person  
Under 12, Free

To insure space, make reservations early. RATES good 3 days before and after each course.

## THE INSTRUCTORS

Fred O. Simons, Jr., Ph.D., P.E.

Dr. Simons began his teaching career with the University of Florida at Gainesville in June 1965 when he was assigned to the GENESYS (Graduate Engineering Education System) Center at Orlando, Florida. His duties were to teach a wide variety of lower and upper level graduate courses in classical (linear and nonlinear) and modern control theory, analog/hybrid computation, hybrid computation, filter design, electromagnetic field theory, discrete and sampled-data systems, et. al., over the statewide GENESYS television educational network. This assignment was an excellent opportunity to obtain a broadened high-level educational background. After becoming an Associate Professor in the EE Dept. of UF in 1969 and after serving the 1971-2 year at the UF Graduate Center at Eglin AFB in a Research-Teaching position, Dr. Simons joined Florida Technological University in Orlando, Florida where he has regular graduate and undergraduate teaching duties during the 9 month academic year. In the summers, Dr. Simons has consulted with local industries or on his own, he has organized and taught both seminars and short courses — such as the ones in this brochure.

Dr. Simons has conducted short courses with the NTEC (Naval Training Equipment Center) in Orlando, GSD (General Systems Division) of IBM at Boca Raton, UF Grad Center at Eglin AFB, and Martin-Marietta Aerospace in Orlando. He has presented numerous one-day institutes/seminars with similar clients. He has served as a consultant to NTEC, Martin, IBM, Symetrics (Cocoa Beach, Florida), Austin Electronics (Rochelle Park, N. J.), et. al. He is a member of several honorary and professional societies and has authored some 50 technical papers in many professional and scientific journals. Also, Dr. Simons and the assisting instructor, Dr. Richard C. Harden own a company that publishes and markets on a worldwide basis software (developed by the owners) for hand-held scientific calculators.

Richard C. Harden, Ph.D., P.E.

Dr. Harden's responsibilities have included China Lake Missile Test Range Director, Chief Engineer of the Cape Canaveral Missile Test Facility, Deputy Chief of Opto-Mechanical Branch at Patrick AFB, and several other similar positions. For the last 16 years, he has been a graduate professor with the University of Missouri at Rolla and with the Florida State University System. Dr. Harden holds ME and EE degrees and has authored some 50 publications. His professional activities have earned him many honors such as IEEE Orlando Section Engineer of Year, Outstanding Teacher of the Year, etc.

## Course #1

### DISCRETE TIME SYSTEMS

June 13-17, 1977

**Hand-Held Computer Featured:** During this course each participant will be loaned for his personal use (with instruction books, mag-cards, etc.) an HP-67.

**Objective:** A growing interest in discrete-time systems is being motivated by 3 factors: (1) the use of digital computers for modeling and studying phenomena, (2) many important dynamic processes are discrete by nature, and (3) many component and/or subsystem designs are best done digitally. Thus, the object of this course is to provide thorough and effective training in discrete-time systems by providing each participant with a hand-held computer with which he will design programs and use supplied programs to solve and/or perform analysis on difference equations, i.e., the models for discrete-time systems.

**Text:** The text for this course will be DISCRETE-TIME SYSTEMS by James A. Cadzow, Prentice Hall, 1973. The required background is calculus with some knowledge of differential equations desirable.

**Course Coverage:** The course coverage will include the following topics which will be supported by the text and handout notes:

- DISCRETE TIME SIGNALS AND SYSTEMS
- SIMPLE APPLICATIONS: Economics, Biomedicine, Chemical Systems, Computer Control, Digital Signal Processing, etc.
- DIFFERENCE EQUATIONS: Particular and Homogeneous Solutions (Modes), Multiple In/Out (Matrix) Models
- CONVOLUTION: Pulse and Step Response, Driven Responses
- Z-TRANSFORM: Solutions to Difference Equations, Transfer-function Responses and Frequency Characteristics
- ADVANCED APPLICATIONS

**Fee:** The fee for this course is \$489 which covers the cost of providing all the supplies/services described on the title panel of this brochure.

**Course #2: SAME AS COURSE #1 except June 20-24, 1977 date and the SR-52 with Printer will be featured.**

## Course #3

### DIGITAL SIGNAL PROCESSING

June 27-July 1, 1977

**Hand-Held Computer Featured:** During this course each participant will be loaned for his personal use (with instruction books, mag-cards, etc.) an HP-67.

**Objective:** Because the use of the digital techniques for various processing applications has expanded so much in recent years, more practicing engineers are being forced into a promising productive area in which they lack the required expertise to perform. Generally, short course efforts fail to develop this expertise because meaningful, practice problems are tedious and unwieldy. Thus, the objective here is to teach the most effective short course possible in digital signal processing by providing each participant with a hand-held computer for solving many meaningful problems easily and gaining invaluable insight by designing his own problem solving algorithms/programs (this insight applies directly to large-scale digital computer program design).

**Text:** The text for this course will be DIGITAL SIGNAL PROCESSING by William D. Stanley, Reston Publishing Co., 1975. The level of coverage should be ideal with the only background required being differential equations with some knowledge of Laplace Transforms desirable.

**Course Coverage:** The course coverage will include the following topics which will be supported by the text and handout notes:

- INTRODUCTION AND GENERAL CONCEPTS
- REVIEW: Continuous Systems Models, Laplace Transforms, Transfer-functions, Stability, Frequency Characteristics
- SAMPLED-DATA: Fourier Transforms, Holding Circuits
- DISCRETE SYSTEM ANALYSIS: Discrete Signals, Difference Equations, Discrete Convolution, Z-transforms H(z) Transfer-functions, Signal-flow Graph Realizations
- ANALOG FILTERS: Low, High, and Band-pass Butterworth, Chebyshev, et. al. (to serve as digital filter prototypes)
- IIR DIGITAL FILTERS: Impulse/Step Invariant, Bilinear, etc.
- FIR DIGITAL FILTERS: Fourier Series Method, Window Functions
- DFT/FFT: Fast Fourier Transform Algorithms (with applications)

**Fee:** The fee for this course is \$489, which covers the cost of providing all the supplies/services described on the title panel of this brochure.



**Course #4**  
**ENGINEERING ECONOMY**  
July 5-8, 1977

**Hand-Held Computer Featured:** Since stored program mag-card type machines are not allowed for use in the EIT/PE Exams, each participant will be loaned for his personal use an HP-25 or SR-56.

**Objectives:** Many engineers who either lack the training or need refresher training in engineering economy are (due to their job advancement) being forced into costly/unwise economic mistakes for their employer. The prime objective here is to explain the principles and techniques needed for making wise long-range economic decisions concerning the acquisition and retirement of capital goods by industry and government. To insure efficient and thorough coverage, each participant will solve virtually 100's of problems with the programmable calculator provided for his use; e.g., "go or no-go" decision for twenty year uneven cash-flow plans with a specified rate-of-return in 2 minutes, interest unknown in 10-15 seconds from a loan or savings annuity program (requiring 2 minutes to load), etc. A secondary objective is to provide the participant (in a fun and painless manner) with the engineering economics training to pass the EIT/PE Exams.

**Text:** The instructors consider the best text for this course to be the very readable **PRINCIPLES OF ENGINEERING ECONOMY** by E. Grant et. al., The Ronald Press Co., 1976.

**Course Coverage:** will primarily come from chapters 1-11 of the text and supplementary notes. Software for solving problems will be provided. Some of the topics will be:

- **BASIC CONCEPTS:** Criteria, Alternatives, and Consequences
- **TIME - INTEREST RELATIONS:** Compound Interest, Annuities, Uneven Cash-flow Problems, etc.
- **BONDS:** Generalized Equations and Applications
- **INVESTMENT APPROACHES:** Present Worth, Rate-of-Return, and Benefit-Cost Ratio.
- **DEPRECIATION AND TAX IN ENGINEERING ECONOMY**

**Fee:** Because the course is only 4 days long and the hand-held computer is less expensive, the fee is only \$269.

**Course #5: SAME AS COURSE #3 except July 11-15, 1977 date and the SR-52 with Printer will be featured.**

**Course #6**  
**CLASSICAL/MODERN CONTROL SYSTEMS**  
July 18-22, 1977

**Hand-Held Computer Featured:** During this course each participant will be loaned for his personal use (with instruction books, mag-cards, etc.) an HP-67.

**Objective:** The sophistication of modern hardware and technology is forcing more control engineers into design tasks involving conventional/modern concepts. This course is intended to solve this pressing problem of providing a clear, understandable, and motivated account of the subject which spans both conventional and modern control theory. To meet this objective, each participant will use the hand-held computer provided for solving many meaningful problems easily and gaining valuable insight by designing his own problem solving algorithms/programs. This insight enhances the participant's experience for using or designing standard digital computer programs and, more importantly, the new-found hand-held computer capability will help him to know when not to resort to large computers for simple solutions (such time savings to a company should more than justify the cost of the course).

**Text:** The text for this course will be **LINEAR CONTROL SYSTEM ANALYSIS AND DESIGN: Conventional and Modern**, by J. J. D'Azzo and C. H. Houptis, McGraw Hill Book Co., 1975.

**Course coverage:** The course coverage will include the following topics which will be supported by the texts and handout notes:

- **INTRODUCTION:** Definitions and Mathematical Background
- **CONTROL SYSTEMS MODELS:** Differential and Difference Equations
- **SOLUTIONS TO DIFFERENTIAL EQUATION MODELS**
- **LAPLACE TRANSFORMS AND FREQUENCY CHARACTERISTICS**
- **TRANSFER FUNCTION STABILITY AND DESIGN:** Routh's Criterion, Relative Stability, Bode-Nyquist-Nichols Techniques, and Root Locus Synthesis/Compensation
- **MATRIX ALGEBRA:** Linear Vector Spaces, Transformations, Eigenvalues, and Eigenvectors, etc.
- **STATE VARIABLE MODELS OF DYNAMIC SYSTEMS:** Discrete and Continuous Time Models
- **SOLUTION TO STATE VARIABLE MODELS**
- **INTRODUCTION TO OPTIMAL CONTROL THEORY**

**Fees:** The fee for this course is \$489, which covers the cost of providing all the supplies/services described on the title panel of this brochure.

**Course #7: SAME AS COURSE #6 except July 25-29, 1977 date and the SR-52 with Printer will be featured.**

FLORIDA TECHNOLOGICAL UNIVERSITY  
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**SHORT COURSES WITH  
INDIVIDUAL\* HAND-HELD  
COMPUTERS**

**SR-52 or HP-67\***  
with  
Printer.

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• Engineers • Educators  
• Students

**ON THE SUBJECTS OF:**

- DISCRETE TIME SYSTEMS
- DIGITAL SIGNAL PROCESSING
- ENGINEERING ECONOMY
- CLASSICAL/MODERN CONTROL SYSTEMS

**★ FEATURING HAND-HELD COMPUTERS PROVIDED FOR EACH INDIVIDUAL FOR USE DURING THE COURSE AND:**

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- **OVERNIGHT COMPUTER** checkout with a reasonable deposit
- **FREE SOFTWARE** copies of all software developed in all courses mailed to each participant — where applicable
- **PRIZES** for the best judged programs
- **TEXT AND COPIOUS NOTES** free with a 100 sheet free copy service on premises
- **TRANSCRIPT** of course work

★ EXCEPT HP-25 or SR-56 with ENGINEERING ECON

FLORIDA TECHNOLOGICAL UNIVERSITY  
DIVISION OF CONTINUING EDUCATION  
P.O. BOX 25000  
ORLANDO, FLORIDA 32816

**SHORT COURSES FOR**  
• Managers  
• Engineers  
• Sales Reps.  
• Students  
**IN THE AREAS OF**  
• DISCRETE TIME SYSTEMS  
• DIGITAL SIGNAL PROCESSING  
• ENGINEERING ECONOMY  
• CLASSICAL/MODERN CONTROL SYSTEMS  
• WITH INDIVIDUAL HAND-HELD COMPUTERS

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# MEETING NOTICE

## POWER ENGINEERING SOCIETY

### INDUSTRIAL APPLICATIONS GROUP

Program for Thursday May 10, 1977

- Topic:** Trade-Offs in Motor Starting and Protective Methods
- Speaker:** Mr. Paul Lawrence  
Field Engineer, General Electric
- Location:** Florida Power Office  
510 Park Ave. South
- Time:** 8:00 PM

Mr. Lawrence is an expert in motor and control applications with several decades of experience. He has taught courses in the Professional Engineer review course for a number of years in Orlando and Cocoa Beach.

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## H. R. 3153

### NUCLEAR POWERPLANT MORATORIUM

A bill has been introduced to the House of Representatives to place a five year moratorium on licensing of nuclear power plants. H. R. 3153 begins as follows:

A BILL To terminate the granting of construction licenses of nuclear fission powerplants in the United States pending action by the Congress following a comprehensive five year study of the nuclear fuel cycle, with particular reference to its safety and environmental hazards, to be conducted by the Office of Technology Assessment, and for the other purposes.

By Mr. Fish, Mr. Pattison of New York, Mr. Mitchell of Maryland, Mr. Roybal, Mr. Nix, Ms. Scheur, Mr. Stark, Ms. Chisolm, Mr. Nolan, Mr. Bonker, Mr. Long of Maryland, Mr. Weiss, Mr. Rangel, and Mr. Ryan.

February 7, 1977. Referred jointly to the Committees on Interior and Insular Affairs, Interstate and Foreign Commerce and International Relations.

Your thoughts on this subject would be welcomed by our Senators and Representatives.

## MEETING NOTICE

### OPTICAL SOCIETY OF AMERICA

Program for Saturday May 7, 1977

**Topic:** LASER Revolution in Spectroscopy

**Speaker:** Dr. Boris Stoicheff  
Dept. Head, University of Toronto

**Location:** Bush Science Center, Room 108  
Rollins College

**Times:** 2:30 PM

Dr. Stoicheff is an invited speaker to this annual meeting of the OSA. This meeting begins at 10:00 AM, and will feature 10-12 papers on optics, LASERs, photography, and lens design. There is no charge to attend. All members of IEEE are more than welcome to attend.

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## INSTALLATION BANQUET

This year's annual installation banquet will be the social event of the year. Newly elected officers will be installed, and the old officers will be ousted. The evening will begin at the Empress Lily, Disney World's newest Riverboat Restaurant, just opening this month. The Empress Lily is located at the Lake Buena Vista shopping center. Afterwards, we will take "Flote Boats" to the Vista Club for Cornish game hen, and a program with a distinguished speaker (whose name was not available at publication time). The price includes tax and tip.

- 6:00 Cocktail reception, cash bar
- 7:00 Flote boat to Buena Vista Club
- 7:30 Dinner
- 8:30 Program
- 9:30 Return to Buena Vista Village by Flote Boat

Price: \$9.00 per person

Tickets can be purchased from members of the executive committee.

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## FTU STUDENT CHAPTER

The student chapter recently assisted the Computer Society in their Minicomputer/MicroProcessor Symposium, held at FTU. The event provided an excellent opportunity for students to see what present trends were in the computer industry. More seminars of this type should certainly express the aspirations of a professional engineering school. Hopefully, the chapter will be called upon for future events.

A regular meeting is planned for 5 May (11:00 AM in EN 305) to accept nominations for new student officers. A tentative meeting is planned for 19 May in anticipation of a field trip to Harris Semiconductor.

Plans for a party on Friday the 13th of May will also be discussed.

*Stan W. Francis*  
Student Chairman

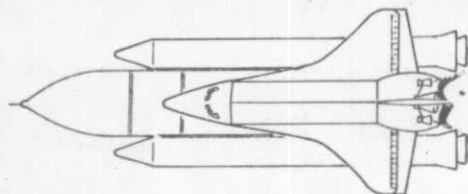
## VTG CONFERENCE: SUCCESS

The VTG conference held in March at the Orlando Hyatt House was deemed a success with record attendance. About 375 registered for the conference with over 90 of these, also attending a tutorial course, presented during the conference. Forty technical papers were presented. A 266 page conference record was supplied to all registered attendees and may be ordered by others from IEEE. (77CH1176-7VT, \$15.00). The conference was jointly sponsored by the Orlando Section and the IEEE Vehicular Technology Group. The IEEE membership booth at the conference signed up 14 new members to IEEE, and 19 new members for VTG. Luncheon speakers were Val Williams, President of the National Association of Business and Educational Broadcasters, and Charles Higginbotham, Chief, Safety and Special Services Branch, Federal Communications Commission. A banquet by the Radio Club of America was preceded by a reception jointly sponsored with IEEE. The banquet featured a film showing the tall ships gathering in New York harbor on July 4, 1976. Pictures of tall ships and a CB radio were awarded as door prizes. Attendance at these events exceeded 100 each. Next year's conference will be held in Denver in March 1978. George McClure, Conference Chairman.

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## SYMPOSIUM

### ENGINEERING & PRODUCTIVITY GAINS FROM SPACE TECHNOLOGY



May 11 & 12, 1977  
Morris Auditorium  
Marshall Space Flight Center (MSFC)  
Huntsville, Alabama 35812

The objective of the Symposium is to familiarize industry with engineering and productivity gains that have been derived from space technology. Speakers will be from NASA, industry and universities. The Symposium has been designed to present a representative scope of developments that will be of interest to industry, agriculture, mining, land and energy management. Time permitting, questions will be allowed following each speaker. Please mail registration by May 4, 1977. There is no fee for attendance.

J. Palmer  
Teledyne Brown Building  
Milton Cummings Research Park  
Huntsville, Alabama 35807  
(205) 532-1232

**NASA**  
National Aeronautics and  
Space Administration

## ORLANDO SECTION NOTES

Published monthly by the Orlando Section except during the months of July and August. Inquiries concerning advertising and/or announcements should be forwarded to Mr. Leo Mallette, Route 8 Box 781, Orlando, Florida 32807.

### 1976 - 1977 EXECUTIVE COMMITTEE

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Barbeque	Homer Wilson	646-8230	855-0934
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Engineer's Week	Dr. Brian Petrasko	275-2549	678-1177
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MTT Chairman	Dean Bowyer	352-2483	299-7368
COMSOC Chairman	A. J. Levy	352-3914	843-7619

\*Members of the Executive Board

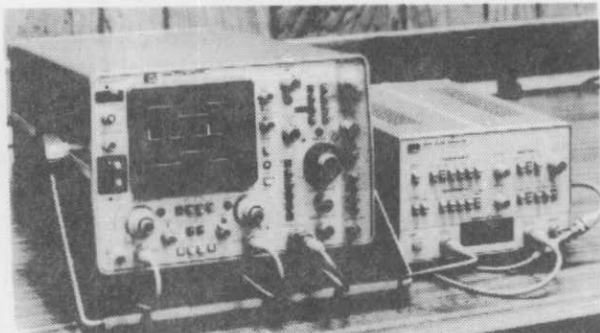
REMINDER! The Executive Committee meets the first Tuesday of the month. This is an open meeting and all members are invited to attend. The meeting is held at the Florida Power Corporation, 510 Park Ave. So., Winter Park, at 5:30 P. M.

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## HEWLETT-PACKARD 1741A VARIABLE-PERSISTENCE/STORAGE OSCILLOSCOPE



NEW  
PRODUCT  
INFORMATION

### VARIABLE-PERSISTENCE/STORAGE OSCILLOSCOPE OPTIMIZED FOR DIGITAL DESIGNERS

A newly-designed variable-persistence/storage CRT, used for the first time in Hewlett-Packard's new 1741A Oscilloscope, produces exceptionally clean traces, and good trace-to-background contrast ratio. New automatic storage controls make it easier than ever before to capture low-rep-rate, single-shot waveforms. The 1741A combines the advantages of variable persistence, to integrate glitches or low-duty-cycle traces into clear displays, with the advantages of storage, for single-shot events.

To relate the timing of events in a pulse system accurately to one another and to the triggering event, external trigger is shown as a center-screen third trace in alternate or chopped modes, not as a substitute for one of the two channels. Bandwidth and sensitivity are sufficient for most digital purposes; 5 mv per division at 100 Mhz provides the detail needed for TTL and other fast, low-level signals; 1 mv/div to 30 Mhz, with a times-5 magnifier, makes it possible to display tape or disc head outputs directly.

The 1741A is suited not only to the laboratory and the computer room, but also to the more rugged situations common with communications and process control equipment. The oscilloscope's case is closed, without fan or vent holes.

The 1741A is priced at \$3950 and has a current delivery of 30 days.

FOR FURTHER INFORMATION  
CONTACT

HEWLETT-PACKARD  SALES AND SERVICE

P.O. Box 13910  
Orlando, Florida 32809  
Phone 859-2900