



# The Denver DECIBEL

VOL. III, No. 1

DENVER SECTION IRE

FALL 1957



Section Officers of Tokyo and Denver Sections meet with IRE President and Vice President in Boulder August 29, 1957. Left to right: S. B. Peterson, Vice Chairman, Denver Section; I. Koga, Vice Chairman, Tokyo Section; R. S. Kirby, Chairman, Denver Section; J. T. Henderson, President IRE; Y. Niwa, Vice President IRE & Chairman, Tokyo Section; W. G. Worcester, Secretary-Treasurer, Denver Section.

## CHAIRMAN'S MESSAGE

The 1957-58 season is here and the series of regular meetings will get underway in October. We are planning a full program of interesting speakers on varied subjects of interest to every member. One of the important functions of the section is to provide a means for getting together and getting acquainted socially. To this end we will have two or three dinner meetings. These dinners have been very popular in the past, and we are always delighted to see so many ladies present.

The four student branches are getting started again with the new school year, and we expect a highly competitive student papers contest later in the year. The

prizes these young men win are certainly enticing, but the experience of preparing and giving a paper before the section is one which I doubt few of them will forget. Each of the student branches nominates the outstanding IRE senior in his branch for a national award. This award is provided by the national headquarters and consists of one year's paid up dues as Associate Member or Member plus a certificate signed by the President of IRE. The recipients will be announced at the Student night meeting sometime next spring.

The activities of professional groups is very good. Our PGAP chapter under the chairmanship of Herman Cottony, promises to be

*(Continued on page 12)*

## Annual Dr. Wm. G. Tuller Memorial Award

The IRE Professional Group on Component Parts has decided not to make an award for 1956. The Awards Committee decided that it should not make an award on the basis of the papers received due to the fact that there were only four papers submitted.

Awards of \$250.00 will be made for the best papers submitted by a senior or graduate student on the subject of component parts. The subject may relate to operational theory, materials, construction, design, testing or application of any electronic component. Papers must be submitted by December 31, 1957. Consult your IRE Faculty Advisor for additional information.

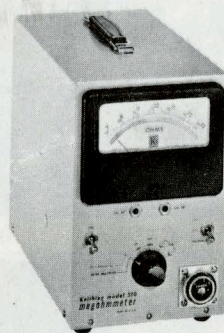
### THE DENVER DECIBEL

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Published quarterly by the  
 Denver Section of IRE

### DEADLINES FOR ISSUES

SPRING	MAR 15
SUMMER	JUNE 15
FALL	SEPT 15
WINTER	DEC 15



### SPECIFICATIONS MODEL 510 MEGOHMMETER

#### RANGE AND TEST POTENTIALS:

Test Potential	Resistance Span
5 volts	$10^7$ to $10^{13}$
50 volts	$10^8$ to $10^{14}$
500 volts	$10^9$ to $10^{15}$

Accuracy: Within 1% of scale length, uniform over entire scale.

Drift: Negligible after 15 minute warm-up.

Input Insulation and Guarding: Input insulation is teflon and all input circuitry is guarded by shielding at the test potential to prevent leakage.

Input Connector: Cannon type RSK-U4-31SL.

Selector Switch allows selection of test potentials and calibration of the instrument.

Lever Switch allows quick charge and discharge of capacitors and removes all polarizing potentials in discharge position.

Tube Complement: 3-5886, 1-12AU7, 1-6C4, 2-12AX7, 1-0G3, 1-12B4A.

Power Requirements: 100-130 volts, 60 cps, consumption about 40 watts. Special line voltages and frequencies on order.

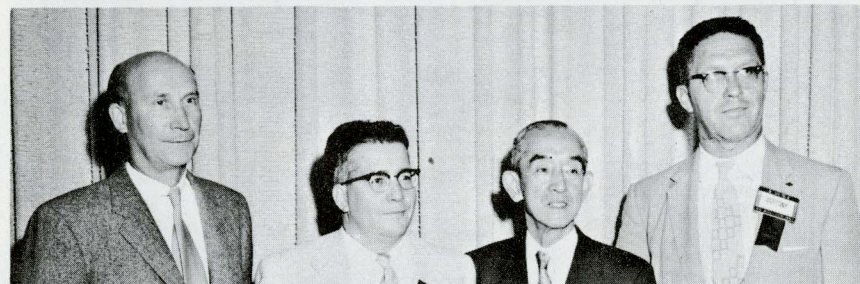
Accessories Supplied: 1 Cannon type RSK-U4-22C-½ for input connector. Accessories Available: Keithley Models 5101 and 5102 Text Fixtures; Models 51020 and 51060 cables.

Cabinet is aluminum, 6-5/8" wide x 10-1/4" high x 12-1/2" deep. Net wt., 16-1/2 pounds.

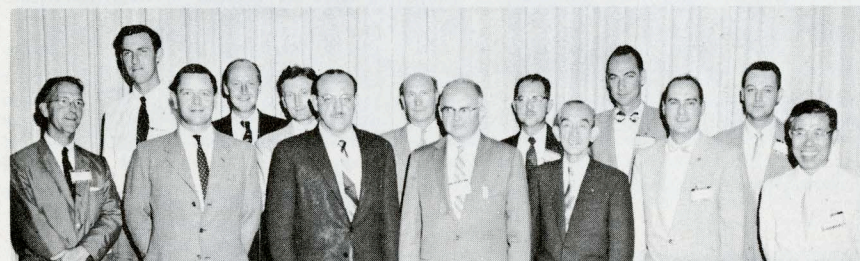
**HYTRONIC MEASUREMENTS INC.**  
 ELECTRONIC ENGINEERING REPRESENTATIVES  
 1255 SO. BANNOCK • DENVER, COLORADO • SHARON 4-2241

# PGAP NEWS

## PGAP Chapter Activities July-Sept.



Denver-Boulder Chapter Officers of PGAP meet with President and Vice President of IRE. Left to right: J. T. Henderson, President, IRE; A. P. Barsis, Secretary, Denver-Boulder Chapter PGAP; Y. Niwa, Vice President, IRE; H. V. Cottony, Chairman, Denver-Boulder Chapter PGAP.



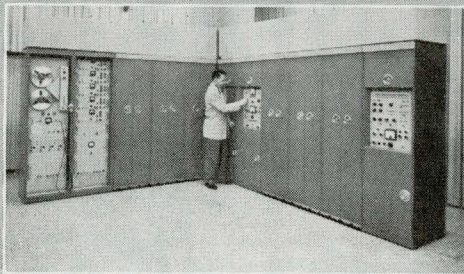
Members of PGAP Administrative Committee attending the XIIth General Assembly of URSI, who met with National IRE Officers at the National Bureau of Standards, Boulder, Colorado, August 29, 1957. Front row: A. H. Waynick, J. W. Findlay, L. C. Van Atta, R. C. Spencer, Y. Niwa, Vice President, IRE, J. L. Bohnert, I. Koga. Rear row: S. A. Bowhill, J. W. Herbstreit, J. B. Smyth, J. T. Henderson, President, IRE, D. C. Ports, R. L. Mattingly, C. Goatley.

During the two-week period—August 23 to September 5, 1957—the International Scientific Radio Union (URSI) held its triennial meeting in Boulder, Colorado. This, the XIIth General Assembly, was the first such meeting held in the United States since 1927. Many of the sessions of the seven commissions of the Union contained the material of great interest to the members of the PGAP. The occasion drew together many of the national officers of both the

IRE and the PGAP. To take advantage of this, a joint business meeting of IRE executive and PGAP administrative committees was held at the Boulder Laboratories of the National Bureau of Standards on August 29th. The officers of the Denver-Boulder section of IRE and Denver-Boulder Chapter of the PGAP participated.

The attendance was approximately twenty-five and included among others the gentlemen shown in the picture above.

# Engineering News and Notes



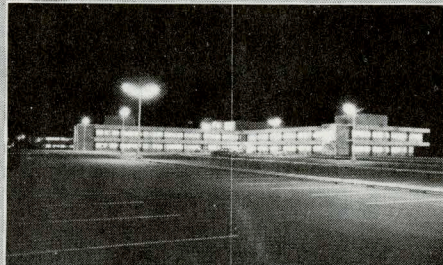
30-channel, analog-digital converter connecting 300-amplifier analog computer to 1103A digital computer



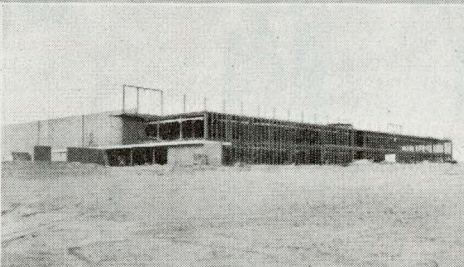
Production of communications equipment in new Los Angeles manufacturing plant



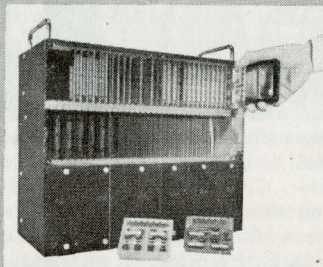
Data Reduction Center designed and built by Ramo-Wooldridge



One of three new research and development buildings completed this year



First unit of Denver manufacturing plant now nearing completion



Input-output unit of the Ramo-Wooldridge RW-30 airborne digital computer

## Pictorial PROGRESS REPORT

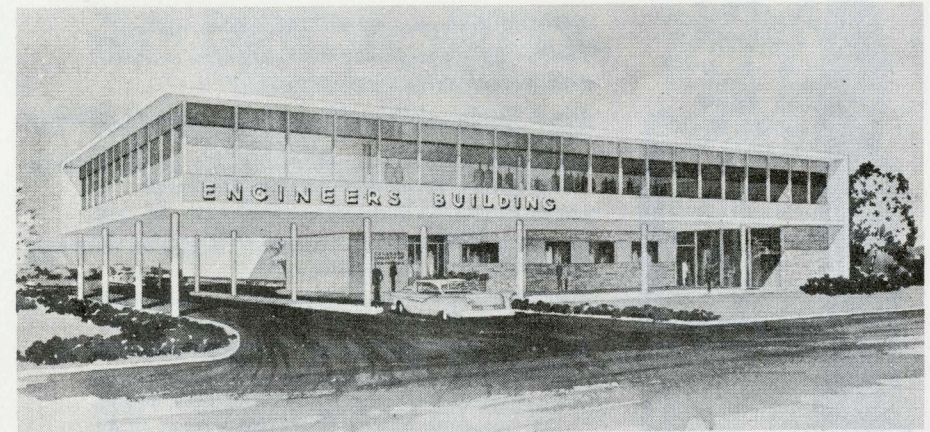
The photographs above illustrate some of the recent developments at Ramo-Wooldridge, both in facilities and in products.

Work is in progress on a wide variety of projects, and positions are available for scientists and engineers in the following fields of current activity:

- Communications and Navigation Systems
- Digital Computers and Control Systems
- Airborne Electronic and Control Systems
- Electronic Instrumentation and Test Equipment
- Guided Missile Research and Development
- Automation and Data Processing
- Basic Electronic and Aeronautical Research

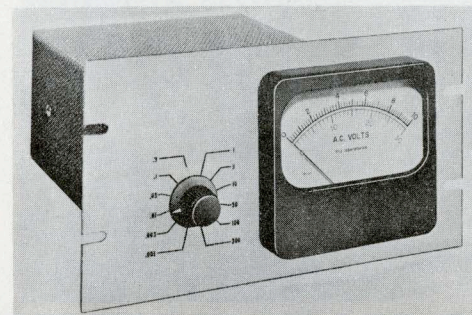
### The Ramo-Wooldridge Corporation

5730 ARBOR VITAE ST. • LOS ANGELES 45, CALIF.



Above is a drawing of a two-story quarter million dollar Engineers Building to be constructed at 1380 S. Santa Fe Dr. by the Engineers Building Co. Land has already been purchased by the Colorado Society of Engineers, according to President John Kreiling, state highway dept. engineer, but the building organization will be owned by engineering, architectural, and scientific societies. Ben Landes of Landes, Zachary & Peterson Co., engineers, is handling details of the project.

## trio



The Model 109-1 is a multi-range, low-level AC VTVM designed especially for panel-mounting in test equipment.

### SPECIFICATIONS

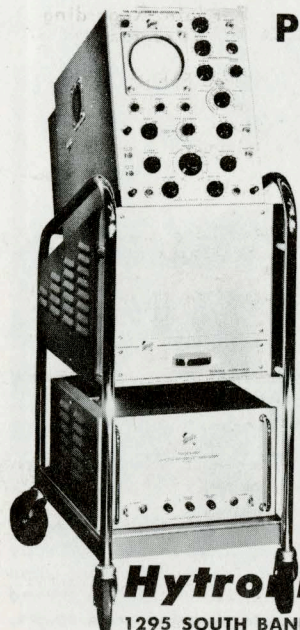
<b>Ranges:</b>	.001, .003, .01, .03, .1, .3, 1, 3, 10, 30, 100, 300VAC full scale.
<b>Accuracy:</b>	2% of full scale on all ranges.
<b>Input Impedance:</b>	10 megohms.
<b>Frequency Range:</b>	20 to 80,000 cps.
<b>Power Required:</b>	115V, 50 to 500 cps.
<b>Weight:</b>	6 pounds, 6 ounces.
<b>Tube Complement:</b>	3-5751, 1-6x4, 1-OA2.
<b>Connections:</b>	4 Solder Terminals.
<b>Color:</b>	Black Bakelite meter on light gray panel (per MIL-E-15090).

**AVAILABLE:** Special ranges or scaleplates, special frequency response, special panel thickness or color, or any other special features and modifications desired.

## Hytronic Measurements Inc.

1295 S. Bannock Denver 23, Colo. PE 3-3701

## TYPE 517A FOR HIGH-SPEED PULSE OBSERVATION



**Transient Response** — 7-millimicroseconds risetime.  
**Vertical Amplifier Sensitivity** — 0.05 v/cm maximum.  
**High Writing Rate** — 1100 cm/ $\mu$ sec.  
**Sweep Range** — 0.01  $\mu$ sec/cm to 20  $\mu$ sec/cm in 11 calibrated steps.  
**Regulated Accelerating Potential** — 24 kv on T54P11H Tektronix metallized precision cathode-ray tube.  
**Full 4-cm by 8-cm Deflection.**  
**Low Displacement Error** — Less than 1% of 8 cm horizontal, less than 2% of 2 cm vertical.  
**Dependable Stability** — All dc supplies electronically regulated. Indicator-unit heater voltages regulated.  
**Highly Mobile** — Indicator unit and power supply mounted on Scope-Mobile.

Price: Tektronix Type 517A Oscilloscope, \$3500  
 f.o.b. Portland (Beaverton), Oregon.

**Hytronic Measurements Inc.**

1295 SOUTH BANNOCK ST. • DENVER 23, COLORADO • PEarl 3-3701

### ENGINEERING NEWS AND NOTES - continued



President J. T. Henderson and Vice President Y. Niwa meet at URSI General Assembly in Boulder, August 29, 1957.

### ATTENTION MEMBERS OF SALT LAKE CITY SECTION

This issue is being mailed to the Salt Lake City Section on a complimentary basis. The editor in-

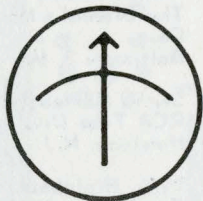
vites the comments of this group on continuing this service.

ed.

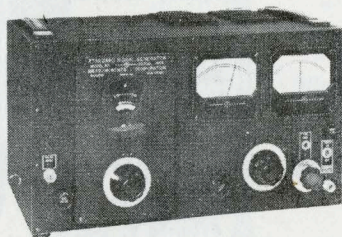
## IRE & JOINT NATIONAL MEETINGS

1957 Date	Meeting	Place	For Info. Regarding Program
Oct. 28-29-30	East Coast Aero. & Nav. Elec. Conf.	Lord Baltimore Hotel & 7th Reg. Armory	Harald Schutz The Glenn L. Martin Co. Baltimore 3, Md.
Oct. 31 Nov. 1	1957 Electron Devices Mtg.	Shoreham Hotel Wash., D. C.	Dr. W. M. Webster RCA Tube Div. Harrison, N.J.
Oct. 31 Nov. 1	4th Annual Mtg. PGNS	Henry Hudson Hotel N.Y., N.Y.	W. A. Higinbotham Brookhaven Natl Lab. Upton, L.I., N.Y.
Nov. 6-7-8	3rd Annual Symp. on Aeronautical Communications	Hotel Utica, Utica, N.Y.	R. A. Zachary Gen. Elec. Co. French Rd. Utica, N.Y.
Nov. 11-13	3rd Instru. Conf. & Exhibit	Biltmore Hotel Atlanta, Ga.	R. L. Whittle Federal Telecom. Labs. 1389 Peachtree St. Atlanta 9, Ga.
Nov. 11-12-13	Radio Fall Mtg.	King Edward Hotel Toronto, Canada	V. Graham RETMA 11 West 42nd St. N.Y. 26, N.Y.
Nov. 13-14	Mid-America Electronic Convention	Municipal Auditorium Kansas City, Mo.	S. R. Tyler Bendix Aviation Corp. 95th & Troost Kansas City, Mo.
Nov. 15-16	New England Radio Engineering Mtg.	Mechanics Bldg. Boston, Mass.	Leo Rosen Anderson-Nichols Co. 150 Causeway St. Boston 14, Mass.
Nov. 18-20	Conf. on Magnetism & Magnetic Material	Hotel Sheraton Park Wash., D.C.	G. T. Rado Code 6450 U.S. Naval Res. Lab. Wash. 25, D.C.
Dec. 4-5	PGVC Annual Meeting	Statler Hotel Wash., D.C.	Grant Woodside Motorola Inc. 2309 Calvert St. NW Wash. 8, D.C.
Dec. 8-11	Eastern Joint Computer Conf.	Park Sheraton Hotel, Wash., D.C.	Dr. H. H. Goode Dept. of E. E. Univ. of Mich. Ann Arbor, Mich.
<b>1958</b>			
Jan. 6-8	4th Nat'l Symp. on Rel. & Qual. Control	Statler Hotel Wash., D.C.	C. M. Ryerson RCA-Bldg. 10-6 Camden 2, N.J.

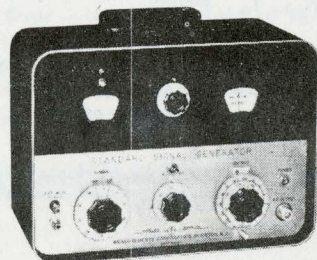
# Laboratory Standards



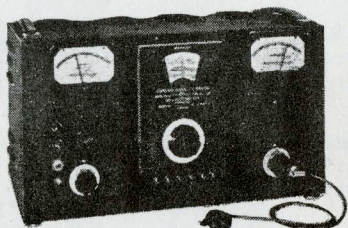
**Standards Are Only as  
Reliable as the Reputation  
of Their Maker**



**STANDARD SIGNAL GENERATOR**  
(Model 80) 2 to 400 Mc in 6 bands.  
(Model 80-R) 5 to 475 Mc in 6 bands.

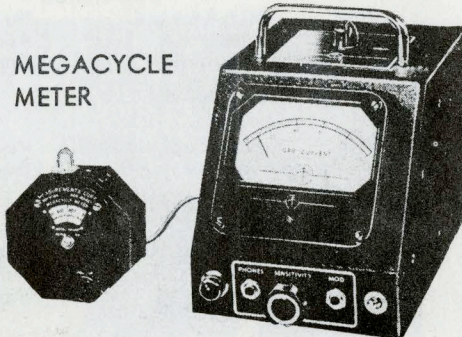


**FM STANDARD SIGNAL GENERATOR  
MODEL 210 SERIES**  
Frequency Range — 25 to 480 Mc



**MODEL 65-B  
STANDARD SIGNAL GENERATOR**  
Frequency Range: 75Kc — 30Mc

**MEGACYCLE  
METER**



Available in the following frequency  
ranges:

Model 59-LF	0.1 to 4.5 Mc
Model 59	2.2 to 420 Mc
Model 59-UHF	420 to 940 Mc

Write for our Catalog

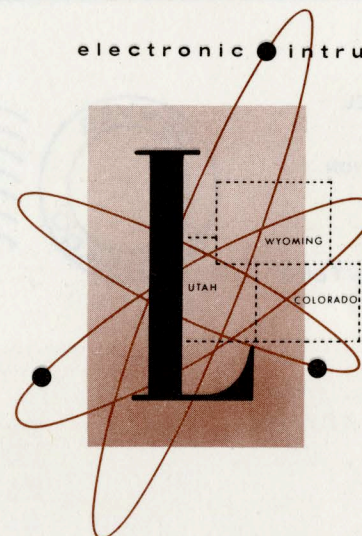
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## REPRESENTING

Hewlett-Packard Co.  
Varian Associates  
F. L. Moseley Co.  
Beta Electric Corp.  
Sorensen & Co., Inc.  
Dynac, Inc.  
John Fluke Mfg., Co.  
Sensitive Research Instrument Co.  
Kin-Tel

electronic instrumentation



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### Chairman's Message (cont.)

very active this year, and there has been a petition completed for the formation of a PGMTT chapter. All in all I think we can look forward to a very interesting and productive year.

Robert S. Kirby

A nickel goes a long way these days—you can carry one for several weeks before you find anything it will buy.

You often wonder how some people can use such big words to say such small things.

### IRE TECHNICAL PAPERS

The IRE has issued a call for papers for the technical program of the 1958 IRE National Convention, which will be held next March 24-27, at the Waldorf-Astoria and the New York Coliseum. Prospective authors are requested to submit all of the following information by the deadline date of November 1, 1957: (1) 100-word abstract in triplicate, title of paper, name and address, (2) 500-word summary in triplicate, title of paper, name and address, (3) Indicate the technical field in which paper falls.

### MEETING NOTICE

**Monday, October 28**—Boulder NBS Building:

Dr. Glen Wade of Stanford Electronics Laboratory will present a paper on Traveling-wave Tubes.

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