

The **PULSE** of Long Island



Volume 2

May 1954

Number 9

ATOMIC BATTERY



Paul Rappaport of RCA Laboratories, Princeton, N. J., who will speak on the Atomic Battery.

TUESDAY, MAY 11

"For more than 40 years, science has searched for a practical way of converting radiation from the atom's nucleus to electricity. Though our research is far from completed, successful operation of RCA's Atomic Battery in our laboratories represents a major breakthrough toward that goal."

With these words General Sarnoff announced the success of an atomic battery in which the Beta particles from 50 millicuries of radioactive Strontium-90 are used to bombard a semiconductor p-n junction, releasing 200,000 electrons for each electron received—enough to operate a transistor.

Paul Rappaport will discuss the theory, experimental results, and their application to practical design.

The Atomic Battery—Paul Rappaport

DATE: TUESDAY, MAY 11 at 8:00 P.M.

LOCATION: Stewart Avenue School

Field Trip To Rocky Point and Riverhead

DATE: SATURDAY, MAY 28 at 10:00 A.M.

RESERVATION REQUIRED—SEND CARD NOW

PROFESSIONAL GROUP ON AERONAUTICAL AND NAVIGATIONAL ELECTRONICS

THURSDAY, JUNE 10 at 7:30 P.M.

General Electric Auditorium

51st Street and Lexington Avenue

A SIMPLIFIED OMNIRANGE SYSTEM FOR TERMINAL NAVIGATION (TVOR)

Mr. D. O. McCoy, Collins Radio Company

Election of officers

REGIONAL ACTIVITY PROPOSAL

Dr. John R. Ragazzini, I.R.E. Director of this Region, has proposed plans for the advancement of certain activities on a regional basis rather than on a sectional basis. The following are some of the subjects that were considered.

- a. Student Activities. Organization of a student day. Financing of student prizes and trips.
- b. Professional chapter integration. Some chapters are not numerically strong enough to warrant single section support.
- c. Lecture Series. Some subjects having less mass appeal may be self-supporting if carried out on an area or region basis.
- d. All day symposia. These are quite expensive and may be handled better on an area basis.
- e. Combined Newsletter. A single newsletter carrying all area programs may make possible mailing of all section notices via one medium.
- f. Financial equalization. At least during the initial period of section formation, the regional committee can act as a custodian of surplus funds for support of weaker sections in the region.

g. Regional Convention. The New York national convention makes this less desirable than elsewhere in the United States. However, an out-of-town convention in the summer may have desirable features.

The Executive Committee of the Long Island Section has agreed to support the Regional plan for the advancement of Professional Groups and Students Activities. These were selected as most urgent and the Regional Director will appoint a chairman for each of the subcommittees who will formulate plans for the coming year.

N. Y. SECTION NOMINATIONS

The New York Section has announced the panel of nominations for officers for the 1954-1955 year. Like the Long Island Section, this panel was proposed by a nominating committee and opportunity will be provided for nominations from the floor at the meeting before the election.

The nominating committee consisted of Mr. J. H. Mulligan and Mr. L. E. Hunt. Their nominations are as follows:
Chairman: A. B. Giordano
Vice Chairman: A. C. Beck
Secretary: H. S. Renne
Treasurer: J. S. Smith

I. R. E. FIELD TRIP

SATURDAY, MAY 22 — 10:00 A.M.—4 P.M.

RCA TRANSMITTING AND MONITORING STATIONS AT ROCKY POINT AND RIVERHEAD

The Long Island Section of the IRE has been invited to visit the historic RCA installations at Rocky Point and Riverhead.

Those who attended the previous trip remember the famous Alexanderson alternator used in the early days of radio and still in commission for occasional use during magnetic storms. Other high powered transmitters are in service for communication with all parts of the world.

The RCA monitoring station at Riverhead, serving the radio industry with precision measurements, will be visited during the other half of the trip.

TOUR TO BE SPLIT INTO TWO GROUPS

Two groups will be formed. While one is visiting the Riverhead station, the other will be seeing Rocky Point. At noon the two groups will meet for lunch in Riverhead. After lunch the visits will be resumed with the groups exchanging places.

REGISTRATION LIMITED TO FIRST 200

Even though we are divided into two groups, it will be necessary to limit attendance to about 200. For this reason, a post card is enclosed for your advance registration. Be sure to mail it immediately if you plan to attend - The first 200 reservations will be accepted.

BULLETIN LATER WITH DETAILS

If you are fortunate enough to be among the first 200, you will receive a bulletin telling you which group you are in and where to report in the morning. A road map will be included for instructions on getting there.

Reservation will be made for those desiring to eat at the Henry Perkins Hotel in Riverhead. Check card if you will attend.

TIME TABLE

10:00 AM Start of First Visit

12:00 PM Lunch

2:00 PM Start of Second Visit

4:00 PM Visit Complete — Start Home

OUR SPEAKER ON MAY 11

PAUL RAPPAPORT

started out to be a chemist, studying at Temple University for three years. The Navy interrupted this and put him to work on electronics, radar and counter measures as an electronic technician. The Navy liked him so well that for nine months after he was mustered out, he served as instrumental physicist at the Naval Air Experimental Station in Philadelphia.

In the fall of 1946 he went back to school and by 1949 he had received his M.S. in physics at Carnegie Institute of Technology and was working on the synchro-cyclotron.

In 1949 he joined RCA Laboratories to work on secondary electron emitting surfaces. This soon led to work on the use of radioactive materials in electronics. An early investigation into a forerunner of the atomic battery was devoted to the dielectric charger. However the use of semiconductors in conjunction with radioactive materials led to the present approach with its spectacular results.

He has produced a thimble-sized battery which might run a transistor for 20 years and has barely scratched the surface in the number of applications now possible.

General Sarnoff has said this development may prove to be as significant as Edison's conversion of electricity to light.

Mr. Rappaport has published papers on a number of subjects ranging from one titled, "New Methods of Processing Silver Magnesium Secondary Electron Emitters" to one presented before the Detroit section of the American Physical Society titled, "Minority Carrier Lifetime as a Sensitive Indicator of Radiation Damage."

Paul is a Hi-Fi bug! From pre-amp to speaker enclosure—he built them and installed them. Now he tapes live FM symphonic broadcasts on a Concertone tape recorder and can play you a fine concert any time. What else? He plays chess and table tennis and even has some time left over for gardening.

Gawler-Knoop Co.

SALES ENGINEERS

Specialists in Electronics Instrumentation
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Electro-Products Laboratories, Inc.

DYNAMIC PRESSURE & DISPLACEMENT GAUGES

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Machlett Laboratories, Inc.

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Price Electric Corp.

RELAYS

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Teletronics Laboratory, Inc.

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Rollin Company

Waveline, Inc.

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Dlgyb 4-8417

178 EAGLE ROCK AVE.
Roseland, N. J.

(N. J.)
Caldwell 6-4545

JOINT MEETING
NEW YORK SECTION I.R.E.
COMMUNICATIONS GROUP AIEE

May 5 at 7:30 P.M.

HIGH FIDELITY

Engineering Societies Building

Hermon Hosmer Scott of Hermon Hosmer Scott Inc.

Announcing G-R's NEW Unit Pulser

Pulse Durations: 0.2 to 60,000 μ s
Repetition Rates: 0 to 100 kc
Rise Time: .05 μ s

Inexpensive... Small... Compact... Economical

A Laboratory-Quality pulse generator in the Unit Instrument price range. Write for complete data.



Type 1217-A Unit Pulser . . . \$195

shown with plug-in Type 1203-A Unit Power Supply . . . \$40



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- ◆ R-L-C DECADES
- ◆ R-C STANDARDS
- ◆ SIGNAL GENERATORS
- ◆ SOUND & VIBRATION METERS
- ◆ STROBOSCOPES
- ◆ TV & BROADCAST MONITORS
- ◆ U-N-P MEASURING EQUIPMENT
- ◆ UNIT INSTRUMENTS
- ◆ VARACAPS
- ◆ V-I VOLTMETERS
- ◆ WAVE ANALYZERS
- ◆ WAVE PETERS

P. G. MEETING

On March 24, the Professional Group Committee meeting was held at the New York City IRE Headquarters, with Mr. W. R. G. Baker presiding.

Among the subjects discussed at this meeting were the distribution of the Professional Group Transactions to the faculty advisors of the colleges accredited by the IRE, and the publication of abstracts of the Transactions papers in the Proceedings of the IRE. Both of these actions would be of great value in bringing the activities of the professional groups to the attention of the general and student membership.

It was mentioned that, although the papers presented at the National Convention would continue to be published in the Convention Record, desirable papers from other conventions will appear in the Professional Group Transactions.

Reports from the Boston, Chicago, Philadelphia and Los Alamos Sections on their professional group activity and publicity indicated that, in general, the groups are increasingly popular and well supported. An important factor in the financial success of several Sections was apparently their Section publication and its advertising. Other profitable activities mentioned were symposia, and special meetings, such as Ladies' Night.

The Student Quarterly, an IRE publication for its student membership, will be using papers from the various Professional Group Transactions, and hopes to obtain an excellent tutorial paper from each group.

Other matters discussed at this meeting were the billing system for professional group assessments; the inclusion of professional group representative on the Awards Committee; and an offer by the Wescon (IRE and West Coast Electronics Mfgs. Association Convention) to support the local professional groups in return for publication of some of their papers.

REGION 2

COMMITTEE MEETING

A Regional Committee meeting for Region 2, of the I.R.E. which includes the eastern part of New York State and the northern part of New Jersey, was held March 23, during the National I.R.E. Convention. Present were representatives of the New York, Schenectady, and Long Island Sections, and of the Northern New Jersey Subsection (which recently petitioned for full section status). The principal subject of the meeting was the activities which can most effectively be carried out on a regional basis; the following is a list of these activities:

1. To sponsor professional group chapters.
2. To sponsor student activities.
3. To implement all day symposia, if suitable topics are determined.

Subcommittees will be formed for each of these activities. The Regional Committee will appoint chairmen, and each section will appoint a representative to each of these sub-committees. The sub-committees will start functioning as soon as possible in order to plan programs for the year beginning July 1, 1954. The programs and the necessary budgets will require the approval of each Section and the Region, and will be financed by the Sections according to their membership.

Because policy action by the Regional Committee may effect matters which are normally Section responsibilities, a unanimous vote of all the representatives present is required to implement the action. Because some actions may be desirable for some of the Sections but not for others, it was decided a Section might abstain from voting, and that the action would not be binding on the abstaining Section. This will permit the Region to serve the needs of the Sections more flexibly.

Professional Group on Electronic Computers
New York and Long Island Chapter

Monday, May 24 at 8:00 P.M.

Remington Rand Auditorium

315 Fourth Avenue

16th Floor

UNIVAC

Design, Application and Demonstration

D. E. Keefer

Design Features: input-output equipment

Dr. H. F. Mitchell

Application problems



VACUUM TUBE VOLTMETER

MODEL 62



SPECIFICATIONS:

RANGE: Push button selection of five ranges—1, 3, 10, 30 and 100 volts a.c. or d.c.

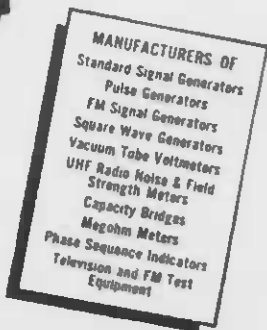
ACCURACY: 2% of full scale. Useable from 50 cycles to 150 megacycles.

INDICATION: Linear for d.c. and calibrated to indicate r.m.s. values of a sine-wave or 71% of the peak value of a complex wave on a.c.

POWER SUPPLY: 115 volts, 40-60 cycles—no batteries.

DIMENSIONS: 4¾" wide, 6" high, and 8½" deep.

WEIGHT: Approximately six pounds. *Immediate Delivery*



MEASUREMENTS



CORPORATION

BOONTON

NEW JERSEY

Professional Group on Electron Devices

Annual Meeting of the New York Chapter

THURSDAY, MAY 13 AT 7:30 P.M.

General Electric Auditorium

Lexington Avenue and 51st Street

Election of Officers

Nominations: Chairman: Simeon Weston

Vice Chairman: A. W. Wing Jr.

Secretary: P. M. Lally

Technical Papers

Characteristics and Applications of
A Power Transistor. M. A. Clark—B. T. L.
Point Contact Silicon Transistors. H. Jacobs,
F. A. Brand, and W. Matthei—S.C.E.L.

M E M B E R S H I P N E W S

It is sometimes difficult to prepare an accurate list of the changes in our membership. We hope this is a sign of the progress in our section and not of the warmth of our well-wishes and congratulations. In particular we should welcome the newcomers to Long Island. We hope they will make themselves at home and find us a congenial lot with whom to associate.

Elected to Senior Member Grade

H. Kronenberg, H. Blackstone, G. Jacobs, H. M. O'Bryan, F. H. Williams, C. A. Frische, D. E. Kenyon.

Elected to Member Grade

J. C. Rolfs, B. L. Cahn, G. W. Fellendorf, R. A. Brenner, D. P. Clark, H. G. Appel, Sr., R. D. Bogner, C. Cerino, R. Davidson, J. E. Hinds, Jr., J. R. Jahoda, A. V. Koppel, J. I. Leskinen, V. T. McDonough, N. A. Spencer, F. D. Anstett, H. M. Berman, A. F. Craig, P. Nosal, R. M. Tyndall.

Elected to Associate Grade

R. G. Woerner, E. McCartney, W. G. Smith, P. T. Martin, J. S. Spargo, L. W. Procop, R. P. Mac Kenzie, D. E. Jackson, T. J. Mahoney, Jr., H. Mann, L. H. Hof-fer, B. L. Bryant, Jr.

Elected to Student Grade

R. B. Tevonian

Welcome to Long Island

R. T. Myers, D. P. Kurtz, F. P. Savalli, P. Marcus, K. Strahlberg, J. A. Blake,
G. S. Loecher, F. G. Roberts, H. E. Jugend, W. J. Lynch, M. M. Buchbinder,

MEETINGS OF INTEREST TO RADIO ENGINEERS

- May 4—AIEE Basic Science Division. Electronics and Nucleonics in Medicine—J. S. Laughlin. Engineering Societies Building
- May 5—I.R.E. New York Section. High Fidelity—H. H. Scott. Engineering Societies Building
- May 5—AIEE Lecture Series on Digital Computers. Engineering Applications. Ebasco Services Inc. Auditorium
- May 11—I.R.E. Long Island Section. Atomic Battery—Paul Rappaport, RCA
- May 10-12—National Conference on Airborne Electronics, Dayton, Ohio
- May 12—AIEE Lecture Series on Digital Computers. Inspection trip
- May 13—Professional Group on Electron Devices. General Electric Auditorium. Power Transistor—M. A. Clark, BTL. Silicon Transistors—H. Jacobs, F. Brand, W. Matthei, SCEL
- May 13—AIEE New Jersey Division. Hotel Robert Treat, Newark, N. J. 6:00 P.M. Social hour; 7:00 P.M. Dinner—\$3.00. Dialing for Distance—M. E. McCabe, N. J. Bell Tel.
- May 22—I.R.E. Long Island Section. Field trip to Riverhead and Rocky Point, 10:00 A.M. to 4:00 P.M. Reservation required
- May 24—Professional Group on Electronic Computers. Remington Rand 16th Floor Auditorium. UNIVAC—D. E. Keefer and H. F. Mitchell
- June 10—Professional Group on Aeronautical and Navigation Electronics. General Electric Auditorium. Simplified TVOR—D. O. McCoy, Collins



BURLINGAME ASSOCIATES

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Waveguide Test Equipment

NON-LINEAR SYSTEMS, INC.

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PERKIN ENGINEERING COMPANY

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Servoscope—Servoboard

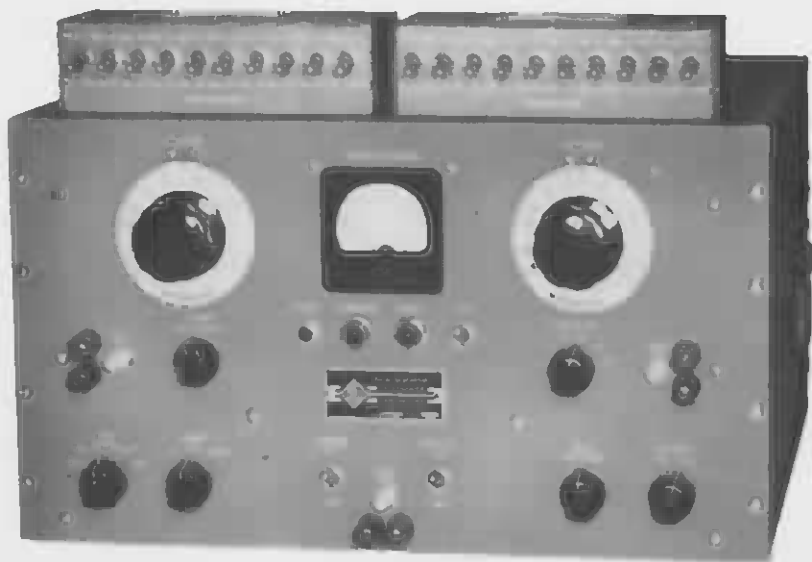
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TRANSISTOR PRODUCTS, INC.

Transistors—Diodes—Test Set

FAST-PULSE GENERATOR



MODEL PG-200A

SPECIFICATIONS

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STABLE

- DURATION AND POSITION .05 TO 1000 μ s
- RISE AND DECAY TIMES CONSTANT .03 μ s
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- 100 VOLTS, 50 OHMS DRIVING IMPEDANCE
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- TRIGGER OR SINE WAVE SYNCHRONIZATION
- NEGLIGIBLE INTERACTION OF CONTROLS



TELETRONICS LABORATORY INC.

WESTBURY, L. I., N. Y.

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The success of our April meeting was in large measure due to the generosity and cooperation of the Westinghouse Electric Corporation. The transportation of six color television receivers from Metuchen, New Jersey, to our meeting place in Garden City represents a sizeable job. Actually one of them was delivered several weeks early so that a trial run could be made to be sure that the antenna which Hazeltine engineers installed on the roof of the school was functioning properly. The rest of the receivers were delivered on the afternoon of the meeting and required the recruiting of George Sticpel and Albert Arbcey of Hazeltine and Leon Pasqua of Airborne Instruments Laboratory to help unpack, install and connect up to the distribution amplifier which Westinghouse provided.

We are indebted to the School Board of Garden City for their cooperation in making all of the arrangements for the installation of the TV antenna and all of the extensive wiring for the demonstration.

In addition to all of these, mention should be made of the cooperation by NBC in helping us plan our meeting so that a live color television broadcast

Wheeler Laboratories, Inc.

Radio and Electronics

Consulting — Research — Development
R-F Circuits — Lines — Antennas
Microwave Components — Test Equipment
Harold A. Wheeler and Engineering Staff
Great Neck, N. Y. HUunter 2-7874

would be available for our demonstration. The program was not put on for our benefit. However, if we had been forced to wait for the public announcement of the date, it would not have been possible to plan the program.

Last but certainly not least we must thank Mr. Lempert for his excellent talk on color television.

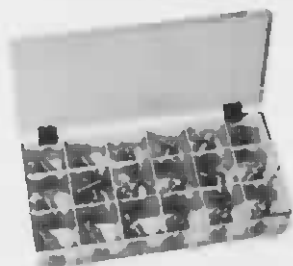
The nominating committee has presented a panel for next year's executive committee. There were no nominations from the floor so the nominations are tantamount to election. On May 11 we will execute the formal procedure by which the new officers are elected.

Our officers next year are as follows:

Chairman: William F. Bailey
Vice Chairman: Clark Cahill
Secretary: Paul Hansel
Treasurer: Carol Veronda

The Committee that handled the Fellow Awards Presentation Meeting has discovered, much to its embarrassment, that, through a typographical omission, a grave faux pas was committed in connection with the recognition of companies that had agreed to participate in the expense of the cocktail party. The Reeves Instrument Company had, prior to the meeting, agreed to contribute toward the cost along with the other companies previously listed. However, because of the above-mentioned omission their name was not included in the program or the list published in the last issue of The Pulse. Accordingly, we have not asked Reeves Instrument for their contribution and the Committee profusely apologizes for not allowing them to participate after having received their commitment.

COAXIAL CONNECTOR KITS



Designed to save engineers' time and labor on experimental and prototype work, these Coaxial Connector Kits consist of a heavy plastic compartmented case with 18 connectors and a functional wiring diagram.

KIT NO. 1 contains type "BNC" Connectors for use on small Coaxial cables. \$24.95 Net.

KIT NO. 2 contains type "UHF" connectors for use with nonconstant impedance applications. \$19.50 Net.

KIT No. 3 contains type "N" connectors designed for use on microwave applications. \$34.95 Net.

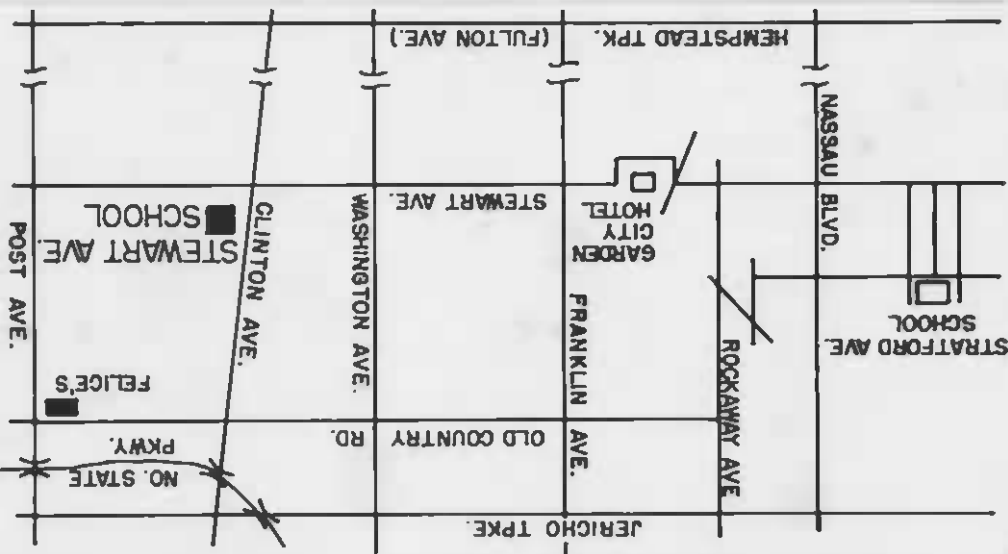
Ask about KIT NO. 4—Adapters for use with the above kits.

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120-B	3-5
120-C	5-9
120-D	9-18
120-E	18-36
120-F	36-64
120-G	64-105
120-H	105-200
120-I	200-500
120-J	500-1000
120-K	1000-2000



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