The PULSE of Long Island

THE INSTITUTE OF RADIO ENGINEERS
LONG ISLAND SECTION

Volume 3 | November, 1954 | Number 3

## Microwave Chapter Will be Organized Before Nov. 9 Meeting

**Long Island Section's** first professional group chapter, a chapter of the Professional Group on Microwave Theory and Techniques, will be organized at a special meeting preceding the regular section meeting November 9 in a classroom at the Stratford Avenue School (directions will be posted at the school). The meeting, scheduled for 7:15 p.m., will conclude before the start of the regular meeting so that members can attend both. Business to be transacted includes election of officers and presentation of a proposed set of by-laws for later action. Members and prospective members of the chapter are invited to attend.

The purposes of the new chapter are to promote the interests of microwave engineers in the section, and to assist the section and the professional group where possible. The chapter will help sponsor section meetings, solicit papers for the Transactions, and encourage the professional development of members.

**Nominations of Steering Committee**

A steering committee is planning the organizational meeting. This committee is headed by Bob Wengenroth as organizer, and Dean Anderson, Stu Casper, Karle Packard, and Kiyo Tomiyasu as members. The committee has prepared a slate of officers as follows: Kiyo Tomiyasu, chairman; Robert Wengenroth, vice chairman; and Stuart Casper, secretary. Additional nominations may be made from the floor. The officers will take office at the meeting. The by-laws prepared by the committee may be adopted at the meeting or action on them may be deferred for a vote by mail. If you are interested but cannot attend, call Mr. Wengenroth, Wheeler Labs, HUnter 2-7876.

# Simplification Of Speech Is Subject of Nov. 9 Meeting

**Dr. Franklin S. Cooper** will describe and demonstrate experimental work on synthesis and simplification of speech at the third monthly meeting of the Long Island Section on Tuesday, November 9, 8 p.m. at the Stratford Avenue School, Garden City.

Dr. Cooper and his colleagues at Haskins Laboratories have been investigating how complex sounds of speech are understood by listeners. They have resorted to both analysis, using a sound spectograph, and synthesis, with a paint-to-talk playback mechanism. By these means they have isolated the simplest acoustic cues that serve to make intelligible speech. Among possible applications of their findings is the economical transmission of speech.

**Implications to Channel Capacity**

In his talk before the section, Dr. Cooper will describe the research methods and the speech synthesizers and present recordings and pictures of synthetic speech which has been simplified or distorted in a variety of ways. These techniques and the results achieved with them are particularly interesting to communication engineers because of their implications to the reduction in channel capacity needed to transmit speech from place to place or to store it for later delivery.



**Franklin S. Cooper talks on speech Nov. 9 at Stratford Ave. School**

Speech research, like other scientific investigations, depends on the instruments available to it. Often, instruments and techniques set the directions and limits of investigations. This activating role of the tools of research on studies of speech is illustrated by the part played by kymographic techniques in the development of experimental phonetics, the use of vacuum tube amplifiers in telephony, and the application of more elaborate electronic techniques in present-day efforts to develop speech typewriters and other bandwidth compression devices which depend on a knowledge of the "invariants" of speech. The aim of the

(Continued on Page 6)

**Pre-Meeting Motion Picture**

***Magnifying Time***

***By Eastman Kodak***

A series of high—speed exposures

In the Auditorium at 7:40 p.m.

Stratford Ave. School, Garden City




We have reserved this page for a year because we believe in supporting the Long Island Section of the IRE and we also believe that the Pulse is an excellent place to tell the electronics engineers of Long Island the story of A.I.L. Possibly you may be interested in our services or our products. We think you might like to hear more about us, and how we happen to be doing what we're doing. We will be very frank with you. We are going to try to sell you on buying from us—to our mutual advantage. However, customers should not be treated at arms length. We want you to know all about us. We are going to use this space to try to accomplish this.

# The Functions of The Executive Committee

**By William F. Bailey**

**The Executive Committee strives to serve you as a member of the Section. Our Section Chairman summarizes here its principal functions.**

**We are** part way through the 1954-1955 season; not far enough, perhaps, for a progress report, but certainly far enough for the Executive Committee to have come to grips with problems both of broad policy and of detailed administration. In approaching each problem, the Committee has endeavored to give the best service possible to the members of the section. In this connection, the Committee welcomes suggestions from members on ways to improve the operation of the section and to provide additional service to the members. Here are our plans.

**Section Meetings**

The Executive Committee is making considerable effort to provide monthly section meetings of the same calibre as in the past. It is significant in following the growth of the radio industry on Long Island that the speakers at our first two meetings came from local companies. Under the direction of Clark Cahill, the choice of topics will be varied to provide technical programs of wide interest for our entire membership. An added feature will consist of a motion picture film to be shown during the twenty or thirty minutes before each regular meeting. The first such film will be shown before the November meeting as announced in the box on the front page.

We are fortunate this year in having available to us a new auditorium in the Stratford Avenue School, Garden City. For the convenience of speakers and members alike, we are acquiring a microphone and lecturn. These may seem details but they are the sort of details with which the Executive Committee must concern itself so that our speakers can present their papers in a manner commensurate with their quality.

As in the past, we get together for dinner before the meetings and will be glad to have you join us. After the meetings, Jim O'Connor and his committee serve snacks.

**Lecture Series**

The Lecture Series Committee under the chairmanship of Ray Hellmann has been actively preparing for a series on "Measurements for the Electronics Engineer." Lectures will cover the spectrum from dc up through microwaves. I believe that we all have a chance to benefit from the series by learning of techniques that may be unfamiliar. The lectures will run weekly from January 27 through March 3, 1955. Further details are to be published in The PLUSE for December.

**Professional Groups**

We have a Professional Group Coordinator, Ned Spencer, who works to enable members of the Long Island Section to participate more fully in local activities of professional groups. Such participation may take the form of cooperation in chapter meetings in conjunction with the New York Section and of coordination throughout Region II (Long Island, New York, Northern New Jersey, and Schenectady Sections, and Monmouth and Mid-Hudson Subsections).

Through the efforts of Bob Wengenroth, the first local professional group chapter in the Long Island Section, a chapter of the PG on Microwave Theory and Technique, is just in the process of being formed. The full story is on the front page.

**Student and Other Activities**

Although we have no accredited schools in the section, we do have student members. Our Student Activities Representative, Page Burr, represents the section in cooperative efforts concerning student activities with other sections in the region.

The Executive Committee has a representative, Ben Tyson, on a regional committee charged with investigating the possibility of a one day symposium that might be supported by and attract an audience from the entire Region II. Paul Hansel keeps minutes of the committee meetings and Carol Veronda keeps track of our funds.

In last month's editorial "Membership—A Measure of Success," Jim Craib, chairman of the Membership Committee, summarized the advantages of membership that we of the Executive Committee are so earnestly trying to provide. Among these advantages will be another party for the presentation of Fellow Awards and a field trip.

Tying us together is The PULSE under the editorship of Frank Rockett. Through it, news of section activities are communicated to all the members. We plan to maintain The PULSE at its present high standard as a section bulletin.

# Bandwidth and Editing

**Ordinarily** as editors we pass along to you information in almost the form we receive it. Copy can be edited to eliminate some of the redundancy (or verbosity), but how far this can be carried depends, we find, more on the verbal habits of readers than on the structure of language and information. We are, therefore, unusually interested in the subject of our November meeting on "editing" speech, which is such a perishable commodity.

Or, as Dr. Cooper so aptly puts it, "Speech is a fairly troublesome commodity: evanescent, easily soiled by noise, and of an awkward size whether measured in octaves or in bits per second. Transportation would be much simplified if speech could be shipped in dehydrated form, to be reconstructed at the destination. Some loss of flavor could be tolerated in most cases, but not a loss of digestibility. The essential constituents must survive the processing and must, indeed, reappear in the product in a form to which the consumer is accustomed. In short, it is the customer's digestive processes—or, for speech, the mode of operation of his perceptual processes—which must be considered in choosing a suitable method of condensation. It is to this aspect of the problem that research on the nature of speech and its perception can contribute."

**The PULSE of Long Island**
**The Institute of Radio Engineers**
**Long Island Section**

SECTION OFFICERS

William F. Bailey, Chairman
Clark F. Cahill, Vice Chairman
Carol M. Veronda, Treasurer
Paul G. Hansel, Secretary

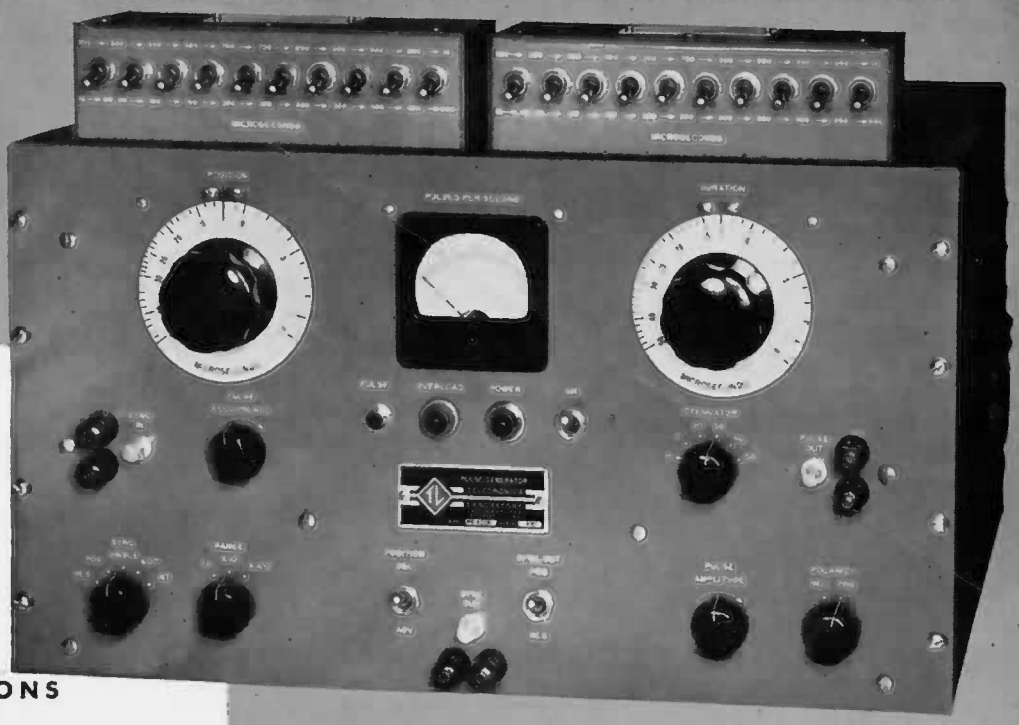
EDITORIAL STAFF

Frank H. Rockett, Editor
James F. Craib, Murray Heyert, Raymond J. Keogh, Erich H. Kraemer, Joseph McDonald, John A. Planteroth, Walter R. Ruddy, Robert D. Wengenroth, Associate Editors

News for the December issue should reach the editor at 160 Old Country Rd., Mineola, N. Y., Dec. 1.

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**PG-200A**
**Pulse Generator**
**PGA-210**
**Range Extenders**



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- Continuously variable over a range of -10 db
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- Rise and decay times 0.03 μs or less (10% to 90% amplitude)
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- Duration calibrated 0.1 to 50 μs, accuracy below 5000 pps within 5% or 0.1 μs whichever is greater, accuracy above 5000 pps subject to additional 0.3 μs error, min. pulse width less than 0.05 μs (50% amplitude)

**PULSE POSITION**

- Delay after external sync signal fixed at approx. 10 μs or adjustable from approx. 20 to 70 μs
- Advance or delay with respect to sync out trigger calibrated 0.1 to 50 μs, accuracy below 5000 pps within 5% or 0.1 μs whichever is greater, accuracy above 5000 pps subject to additional 0.3 μs error

## *features*

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**SYNCHRONIZATION**

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## MEETINGS IN AND AROUND LONG ISLAND

**Advances in Microwave Techniques**
See The September PULSE for Preliminary Program
November 8, 9, and 10
Morning and Afternoon Sessions
Engineering Societies Building
33 West 39th Street, New York City

**Joint Study Group, AIEE - IRE**
Feedback Control Systems Components: Selection and Use
G. R. Arthur, Sperry Gyroscope Co.
November 15, 7 p.m.
Measurements of Performance
T. A. Westover, Servo Corp. of Amer.
November 22, 7 p.m.
Noninear Control Systems
W. H. Surber, Princeton University
November 29, 7 p.m.
All meetings to be held at
Engineering Societies Building
33 West 39th Street, New York City

**Monmouth County Subsection, IRE**
Recent Transistor Progress
Harry Owens
Signal Corps
Engineering Laboratories
Fire House, Little Silver, New Jersey
November 17, 8 p.m.

**New York Chapter of the IRE**
**PG on Electron Devices**
Junction Transistors
At Very High Frequencies
Dr. James M. Early
Bell Telephone Laboratories
November 18, 7:30 p.m.
General Electric Auditorium
Lexington Ave. at 50th St.
New York City

## Equipment Show

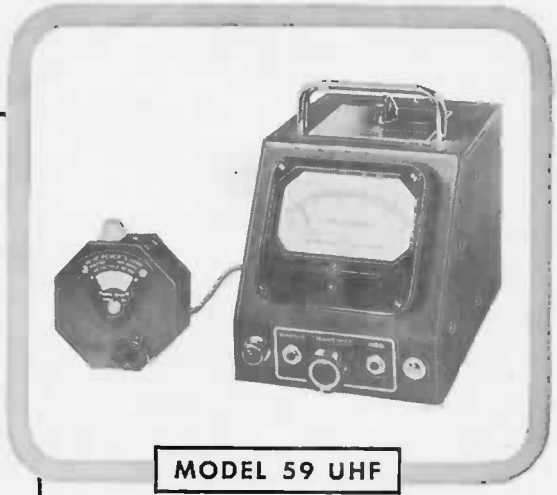
**A show** of electronic equipment is being sponsored at the Garden City Hotel, Thursday, November 11 from 1 to 9 p.m. by Burlingame Associates. Equipment to be displayed includes a six-channel oscillograph, and oscillographs with plug-in sweep oscillators for a wide range of sweep rates. Also shown will be dignital recorder counters and voltmeters. Magnetically regulated d-c power supplies and electronically super regulated (.003%) power supplies will be on exhibit.


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SERVO CORP. OF AMERICA
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Reflection Coefficient Meter, Directional Coupler, Carrier Voltmeters

**SPEECH** (From Page 1)

work to be described at the November meeting is, however, more specific: a description of instruments in use at Haskins Laboratories and an account of the kinds of research that they make possible.

**Research Team**

The research has included the study of speech sounds by manipulating spectrographic patterns and reconverting them to sound for judgment by ear. The research team at Haskins Laboratories is drawn necessarily from several disciplines. Much of the work to be reported at the meeting was done by Alvin M. Liberman, psychologist, Pierre C. Delattre, linguist, and John M. Borst, radio engineer. Dr. Cooper, also of this team and Associate Research Director of the laboratory, received a BS degree in physics from the University of Illinois in 1931 and a PhD from MIT in 1936. He joined Haskins Laboratories after three years in the General Electric Research Laboratory. In 1941 he joined the staff of the Liaison Office of OSRD and served as its head from 1943 to 1946, for which he received the Presidential Certificate of Merit. After the war he worked with the United Nations Secretariat as Scientific Consultant during the 1946-47 debates on the control of atomic energy. He is a member of Tau Beta Pi, Sigma Xi, IRE, and the Acoustical Society of America.

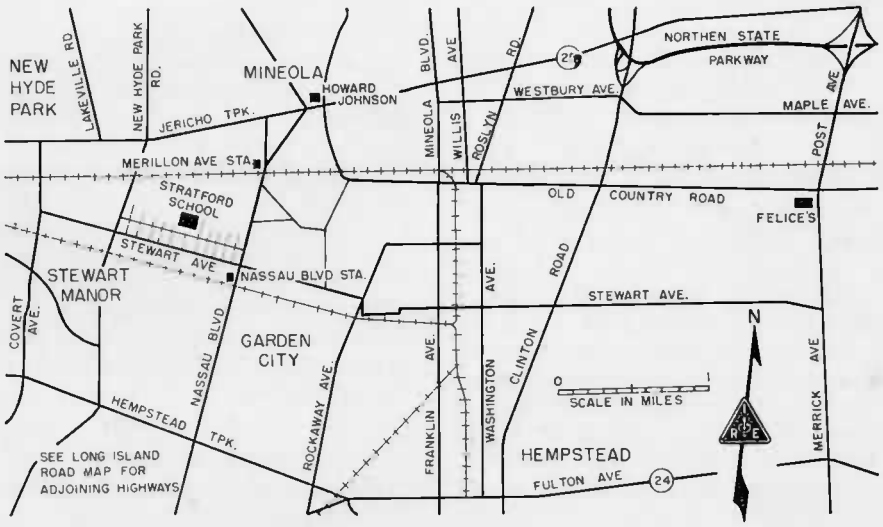
## Professional Chapter on Management Hears Martin



**Colonel John R. Martin, USAF, is Director of Procurement for Air Research and Development Command**

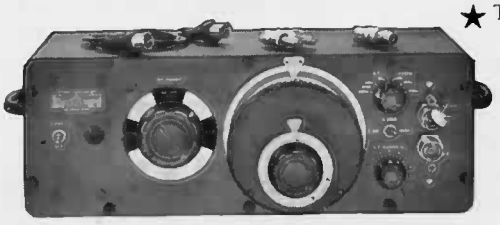
**Col. John R. Martin,** USAF, provided a lively and informative session for the IRE PGEM New York Chapter at its September meeting. Many of those in the audience have dealings with the Air Research and Development Command for which Col. Martin is Director of Procurement and welcomed the opportunity to hear his comments on the short-comings of regulations governing procurement of research and development by the Air Force. He urged IRE members to take action as producers to correct the inadequacies of the present procedures.

Col. Martin pointed out the ARDC procurement practices are first influenced by the necessity of getting the work done. Good trading practices are a must in the Colonel's staff. In every case, the buyer's job is to obtain the most for each dollar of Government money expended. Part of this job is to assure that vendors continue in business.





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