The PULSE of Long Island

THE INSTITUTE OF RADIO ENGINEERS
LONG ISLAND SECTION

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Ferromagnetism Applied To Microwave Circuit Techniques

At the regular monthly meeting, December 14, John H. Rowen, member of the technical staff at Bell Telephone Laboratories, Murry Hill, N. J., will discuss the microwave properties of ferrites and describe various circuit elements based on them. Members will have an opportunity to meet Mr. Rowen before the meeting at dinner, which will be at Howard Johnson's on Jericho Turnpike in Mineola.

In leading into his subject, Mr. Rowen will present a brief description of the nature of ferromagnetism in ferrites, including reference to familiar low-frequency properties and their origin in the crystal structure. The phenomenon of ferromagnetic resonance will be illustrated by a mechanical model which approximates the behavior of an electron in the presence of a high frequency magnetic field and which gives an uncommonly accurate representation of the microwave phenomenon. A microwave demonstration will be presented to show ferromagnetic resonance and the tensor nature of microwave permeability.

Microwave circuit elements based upon these phenomena will be described. Factors limiting the performance of these devices will be outlined by reference to the demonstrations and the theory.

Mr. Rowen received his BEE degree from Ohio State University in 1948, his MSc in 1951. While studying for his master's degree, he worked in the antenna laboratory on the development of techniques for measuring the radiation efficiency of small-aperture antennas. He joined the technical staff at Bell Telephone Laboratories in 1951 in the group working on the applied physics of solids and has since been concerned primarily with the microwave properties of ferrites.

John H. Rowen talks on ferrites at Stratford Ave. School, December 14.

MOTION PICTURE
Audio Tape
It Speaks for Itself

The manufacture and quality control of magnetic recording tape
By AUDIO DEVICES

In the Auditorium at 7:40 p.m.
Stratford Ave. School
Garden City

Pre-Meeting Dinner
At Howard Johnson's
Jericho Turnpike, Mineola
6:00 P.M.

Measurements Is Subject Of Lecture Series

The Lecture Series Committee, reports that arrangements for the lecture series Measurements for the Electronics Engineer are almost complete. The series begins Thursday, January 27, 1955, and continues on the five subsequent Thursdays. Time is 7:30 p.m.; place is Stratford Avenue School, Garden City, the same auditorium where the Section's regular meetings are held.

In selecting and organizing this topic, the Committee was guided by the fact that, for many practicing engineers in the area, measuring occupies a vital portion of their everyday activities. The experts who will present the six lectures will treat their individual subjects with two objectives in mind: to present to our younger colleagues the ramified fundamentals of electronic measurement from a practical point of view, and at the same time to acquaint the advanced engineer with at least some of the newest techniques.

The first lecture will cover the relatively old field of d-c and low-frequency measurements from the 1955 point of view. Our speaker will be J. H. Miller, Vice-President of Weston Electrical Instrument Corporation, who has been a nationally known leader in this field, and has been active in IRE committee work for years.

The field of measurements in the adjacent frequency range will be presented by W. R. Thurston, whom many IRE members know as the New

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Welcome To Long Island IRE

During the summer some 60 members have been admitted to membership or transferred to higher grades of membership in the Institute of Radio Engineers, Long Island Section.

Transfers to Senior Member are: B. C. Coffman, Massaqequa; R. L. Frank, Great Neck; Charles Jasik, also of Great Neck; C. A. Moreno, Glen Cove; J. H. Neidert, New Hyde Park; P. G. Smith, Wantagh; S. M. Bagno, Long Island City; J. R. Binns, Little Neck; J. N. Caswell, Garden City; L. J. Graber, Mineola; S. O. Newman, East Meadow; L. S. Purnell, Levittown; A. L. Rossoff, Lynbrook; A. F. Schoenfuss, North Merrick; F. W. Ziegler, Great Neck; G. B. Bruce, New Hyde Park; C. Hittner, Floral Park; F. Jacobs, Richmond Hill; R. E. Martin, Rego Park; J. F. McDonald, New Hyde Park; S. H. Baum, Forest Hills; O. E. Dow, Port Jefferson; L. R. Kahn, Freeport; L. H. King, Woodside; J. L. Peters, Hempstead; S. M. Rothenberg of St. Albans; A. W. Barber of Flushing; and Herbert Freeman of Jamaica.

Admissions to Senior Member are: C. R. Hamilton, Locust Valley; J. E. Tweeddale, Garden City; H. Feldmann Douglaston; R. F. Simons of Huntington; and Bela Ranky of Flushing.

Transfers to Member are: L. L. Adler, Bayside; K. J. Joyce, Flushing; R. M. Bendett, Forest Hills, Irving Kaufman, Massapequa Park; J. A. Caffiaux, Woodside; E. W. Matthews, Jr., Williston Park; V. H. Seliger, Forest Hills; A. P. Gledhill of Westbury; and R. F. Bloon of Bethpage.

Admissions to Member are: M. C. Bagdons, Massapequa; H. P. Barry, Jr., Ozone Park; F. A. Cooney, Valley Stream; B. J. Duncan, Port Washington; M. M. Fickett, Carle Place; W. W. Manke, Rockville Centre; S. S. Osder, Wantagh; G. F. Rester, Brightwaters, S. N. Roberto, Flushing; Sidney Rush, Bayside; E. D. Branadon, Syosset; P. D. Hansell, Jackson Heights, J. B. O'Malev, Mineola; H. K. Schoenwetter, Bellmore; L. E. Sharpe, Malverne; J. C. Duryea, Carle Place; Herbert Melnick, Kew Gardens; G. Revesz, Forest Hills; S. J. Greene, Wantagh; A. M. Moos, Jamaica; J. P. Thompson, Plainview; B. W. Tichy and R. M. Mesch both of Westbury; and J. W. Trinkaus of Great Neck.

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

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News for the January issue should reach the editor at 160 Old Country Rd., Mineola, N. Y., Dec. 10.

The PULSE is mailed to IRE members who give as their address a postoffice in Suffolk, Nassau, or Queens Counties. In addition, members who live in Queens can receive both The PULSE and The MONITOR by requesting them from Headquarters.

Choice of Subjects for Monthly Meetings

By Clark Cahill

In this guest editorial, our vice-chairman lets his hair down, so to speak, on how he choses speakers.

The Vice Chairman has, as his particular responsibility to the membership, the pleasant task of inviting outstanding engineers to tell us about their work. The choice of subjects for our regular monthly meetings is made by the Executive Committee as a whole and thus is indicative of the cross section of members' interests. From time to time, a poll is made. The results of two such polls are summarized in the two tables here.

In interpreting these results, we must be cautious. The one in 1952 was the larger; both were taken at meetings and were thus possibly biased by the evenings' subjects. Also, the polls were based on lists prepared by the Section Executive Committee, but with the invitation to write in additional subjects. Because few additional subjects were written in, we could infer that lists were reasonably representative of members' interests.

Our meeting this month is on ferrites. They were just beginning to attract attention in 1952; they are third from top in interest now.

It would be oversimplifying the story, however, to imply that inviting a speaker is as straight forward as this. Once the Committee is reasonably sure that you as members are interested in a subject, the next hurdle is to find a speaker who is both working in the forefront of the field and can be induced to present his work to us. Not every speaker comes to us fresh from a television presentation of his subject as did Dr. Cooper last month, nor do we often find one man who is both a good lecturer on mathematics, as was Mr. Stowens, and intimately acquainted with our engineering problems. Of course, we are occasionally fortunate in having a speaker such as Mr. Bachman able to provide the equipment for a very comprehensive and instructive demonstration.

To invite an engineer to talk for upwards of two hours on the highly technical work that he is doing before a diversely informed and discriminating audience is asking a great deal. But speakers invariably accept the invitation as an honor. We owe them our full appreciation and one of the many pleasures of being host to speakers before and after meetings is to thank them on behalf of the Section members.

Well, that is how speakers are chosen. We look for men who are well acquainted with subjects that we believe interest you and who can make the subject interesting by the way they present it, speakers whom we feel certain in advance we can thank sincerely after their lectures.

Subjects of Interest in 1952

Transistor Development	80
Cybernetics	68
Magnetic Amplifiers	60
Development of Ferrites	42
Psychological Applications	49
NTSC Color Television	50
Low Temperature Physics	40
Audio Engineering	39
Engineering Education	35

Subjects of Interest in 1954

Computers	91
Microwave Tubes	76
Ferrites	83
Color Television	64
High Fidelity	53
Transistors	60
Medical Electronics	47
Ultrasonics	42
Automatic Assembly	30

In the last issue we promised to tell you something about ourselves, how we were formed and what we have done. This month's page will be devoted to our early history up to the formation of AIL as an incorporated organization.

THE EARLY HISTORY OF AIL

The Airborne Instruments Laboratory (AIL) had its beginning in 1941 when the vital problem of detection and destruction of enemy submarines was attacked. Since that time, it has developed into an organization with abilities and experience along many diverse lines with both development and custom manufacturing interests.

The original group of scientists that was to grow into the staff of AIL was first assembled in 1941 by the National Defense Research Committee (NDRC) as a branch of Columbia University at the Quonset Point Naval Air Station. As the effort in combating enemy submarines grew in scope and magnitude, an ever increasing number of colleagues from universities and industrial organizations joined the staff. Soon it became necessary to move the laboratory operations, first to LaGuardia Airport and then to the present location in Mineola.

The most important anti-submarine weapon developed by AIL was the airborne magnetometer, known as the MAD. This device, which is carried in an aircraft, detects the perturbations in the earth's magnetic field and produces a plot on a recorder of the variation as the airplane flies. Within 300 to 500 feet of a submarine the perturbations in the field may be detected. This development was carried on at Gulf Research and Development Laboratories, at the Bell Telephone Laboratories, and at AIL. Our part in the matter was rather heavy as the problem was assigned to AIL as its initial prime responsibility.

During the course of this development, many AIL personnel worked directly with the Services in the field in determining the best tactical methods for using the equipment. Of those who played an important part in this development may be mentioned Hector Skifter, Don Miller, Jack Fricker, Walter Tolles, Rod Simons, Lyman Ihrig, George Seitz, Herb DeWeese, and Win Fromm, who are still with the Laboratory. One of the most important uses of the MAD equipment was at the Straits of Gibraltar, where it was found to be an effective way of detecting the passage of enemy submarines. In 1944, much of the Laboratory's effort was directed to other diverse problems, including a number in the field of electronic countermeasures.

At the war's end, a group led by Hector Skifter and Don Miller took steps to continue the existence of the Laboratory and AIL Inc. was formed under the auspices of American Airlines, who acted in behalf of the Airlines Industry with the aid and blessing of the Armed Services. With the sudden closing of the NDRC-sponsored laboratories, the services welcomed the plan to bring together top engineering talent from Columbia University, AIL, MIT Radiation Laboratory and the Harvard Radio Research Laboratory to continue important programs.

Some of those who joined from the latter two organizations were George Comstock and Clark Cahill, Gene Fubini, John Dyer, Matt Lebenbaum and Warren White, all of whom are now occupying top positions in the Laboratory. A program of research for the Navy and the airlines was laid out and work was begun. Additional administrative, scientific and engineering personnel joined the Laboratory in appreciable numbers in the succeeding months.

In the fall of 1945, the new organization commenced activities with a staff of 143 people, which has grown to 725 people at the present time.

Arthur V. Loughren to receive 1955 Morris Leibmann Memorial Prize.

IRE HONORS LONG ISLAND ENGINEER

The Long Island Section is proud to announce that Arthur V. Loughren has been selected as the 1955 recipient of the Morris Liebmann Memorial Prize. The citation reads as follows: "For his leadership and technical contribution in the formulation of the signal specification for compatible color television."

Mr. Loughren is responsible for the basic analysis and philosophy upon which much of the development of color television proceeded. He conceived the guilding principle that the terminal device of the television system is the eye of the viewer, not the picture tube or an oscilloscope. Thus he stressed the fact that effective utilization of spectrum space could only be accomplished if the characteristics of the eye, rather than existing equipment limitations, were the criteria upon which the signal specification was based. His continual insistance since early 1949 upon the application of this ideal resulted in the successful encoding of the color signal within the framework of the existing six megacycle television channel.

A graduate of Columbia University, Mr. Loughren was a member of the engineering staffs of RCA and General Electric before becoming associated with Hazeltine Corporation in 1936. Currently he is administrative and technical director of the licensee activities at Hazeltine in the capacity of Vice President in charge of Research.

Professional Group On Production Techniques

Officers of an administrative committee were elected as an initial step in the formation of a Professional Group on Production Techniques (PGPT). They are: Ralph R. Batcher, chairman; James R. Allen, vice-chairman; R. A. Gerhold, secretary-treasurer; L. M. Ewing, papers procurement committee; and W. H. Hannahs, membership and publicity. Those interested are invited to write to IRE headquarters asking to be placed on the list of members. Further announcements will be sent to all on this list, including formation of a New York chapter.

The scope of the PGPT includes the promotion of technical progress in the design and manufacture of electronic equipment both manually and automatically. Toward this objective the group plans to collect and distribute information on new advances in methods, processes, materials, and components. Specifically this includes means to simplify operation, to improve reliability, serviceability, and appearance, and to reduce cost of electronic equipment, such as miniaturization, encapsulation, circuit packaging, and new assembly techniques.

LECTURE SERIES (From Page 1)

York engineering representative of the General Radio Company. He will emphasize steady-state techniques.

The third lecture will be a double-feature devoted to oscillography and techniques involving pulses. The presentation will be divided between Wm. G. Fockler of DuMont Laboratories and an expert on writing oscillographs in the General Electric organization, whose name will be announced in The PULSE for January.

The next lecture, on Microwave Measurements, will probably strike close to the interest of those engaged in military work. Professor A. B. Giordano of Polytechnic Institute of Brooklyn, who is the present chairman of the New York Section, will deliver this lecture.

The fifth evening will treat the more specialized field of measurements on transmitters and receivers, including problems posed by color TV. Nils J. Oman of RCA and C. E. Page of Hazeltine have been engaged as speakers.

The last lecture will be devoted to new horizons awaiting us in the millimeter field. A. G. Fox, a well-known member of BTL's Holmdel Laboratory, has agreed to be our speaker.

Watch for announcements of further details of this series in The PULSE and on the bulletin boards of your company. Tickets will be $4.00 for members, $6.00 for non-members, and can be obtained through J. H. Neidert, 9 Surrey Road, New Hyde Park, N. Y.

All Magnetic Computer

The PGEC, combined New York and Long Island chapters, will hear Isaac L. Auerbach talk on a design of an All Magnetic Computer on Thursday, December 16 at 8 p.m. in the General Electric Auditorium, 570 Lexington Ave. Mr. Auerbach is manager of the Special Products Division, Burroughs Research Center, Paoli, Penna.

Design Principles Of Transistor Circuits

A symposium is scheduled for January 8, 1955 from 9:45 a.m. to 4:45 p.m. on the design principles of transistor circuits. This all-day Saturday meeting will feature seven leading speakers on the subject with Dr. John G. Linvill of the Bell Telephone Laboratories as moderator and will include a round-table discussion. It is to be held at the Engineering Societies Building, 33 West 39th Street, New York City.

Microwave Chapter Co-Sponsors Meeting

The December meeting on microwave ferrite applications is sponsored jointly by the Long Island Section and the newly formed local chapter of the Professional Group on Microwave Theory and Techniques.

At the organization meeting, attended by 27 members, the following officers were elected: Kiyo Tomiyasu, chairman; Robert Wengenroth, vice chairman; and Stuart Casper, secretary.