

# Keep Abreast of the Microwave Art

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Microwaves are playing an ever-increasing role in the communications field. Over 30,000 route miles are already being used in the United States by communication companies, industrial and transportation concerns and the military agencies. Bell System microwave facilities alone provide more than 6,500,000 miles of telephone circuits and 48,000 miles of television channels. Thousands of miles of additional microwave facilities are either under construction or in the planning state. In addition to voice and television transmission, microwave systems are being used for services such as teletype, telemetering and remote control. The military agencies are installing an increasing amount of microwave equipment for national defense. With such expansion in the uses of microwave, those of us who are responsible for the design and installation of these systems must keep abreast of the art, in order that new systems may contain the latest advances, resulting in improved quality, greater dependability and lower cost.

There are many ways of keeping abreast of the art, the chief of which is to absorb all the available publications dealing with the subject as soon as they appear. One example of such a publication is the annual Special Microwave Issue of *Radio-Electronic Engineering* which contains so many pertinent papers. Another example of publications which deal entirely with microwaves is the *TRANSACTIONS OF THE IRE, Professional Group on Microwave Theory and Techniques*. During the year 1954 these Transactions contained a total of 228 pages devoted to highly specialized microwave papers, and in 1955 the number of pages will be at least double that amount. The publication of the Transactions, under the direction of T. S. Saad, has advanced to the point where regular printed issues appear quarterly and additional special issues come out whenever they are warranted.

Another medium for keeping abreast of the art is that which involves attendance at conventions, symposia, and other technical meetings. For example, there is the annual IRE National Convention held in March. In 1954, one whole day was devoted to microwaves and ten fine papers were presented. Seven of these papers were subsequently published in the *IRE CONVENTION RECORD*, which was distributed to members of the Professional Group. At the 1955 Convention, two whole days were devoted to microwave technical sessions and again the *IRE CONVENTION RECORD* will publish and distribute most of these papers as in 1954.

Last October there was a three-day symposium on Microwave Strip Circuits sponsored by the Air Force Cambridge Research Center, Air Research Development Command, and the Research Laboratory of Physical Electronics of Tufts College in Medford, Mass. The latest developments in these unusual transmission lines were presented there and subsequently these papers were published in a special issue of the *TRANSACTIONS OF THE IRE-PG-MTT*.

In November the Polytechnic Institute of Brooklyn included a three-day Symposium on Modern Advances in Microwave Techniques as a part of their celebration of their

Centennial Year. The twenty-two papers are to be published in book form, which will be conveniently available to members of the IRE Professional Group on Microwave Theory and Techniques.

In addition to these large symposia there are local meetings sponsored by Chapters of the Group under the guidance of the local IRE Sections. Specialized meetings and inspection tours have proven to be very popular with the microwave people located in the eight IRE Sections where Chapters now thrive.

These are but a few examples of the way in which this Professional Group keeps its members abreast of the art. In general, the Group's objects are scientific, literary and educational in character. It strives for the advancement of the theory and practice of radio engineering and of the allied arts and sciences, and the maintenance of a high professional standing among its members. Any member of the Institute of Radio Engineers may join the Group if he has an active interest in the field of microwave theory and techniques and/or is associated with educational, manufacturing or research work in this field. The field of interest of the Group includes Microwave Theory, Microwave Circuitry and Techniques, Microwave Measurements and the Generation and Amplification of Microwaves. It also includes scientific, technical, industrial or other activities that contribute to this field, or utilize the techniques or products of this field. The generation and amplification of microwaves is a part of the field of interest with the provision that it does not conflict with the interests of the IRE Professional Group on Electron Devices in matters relating to research, design, manufacture, and testing of electron tubes and semiconductor devices. It is recognized that a desirable overlap exists between the two Groups in relation to the use of such devices.

The Group does not charge dues, but receives its financial support partly from IRE Headquarters, partly from registration charges at its group meetings, symposia, conferences, conventions, etc., partly from assessments on its members for publication purposes; it also receives support from modest advertising by commercial concerns in its Transactions.

The Group was organized by B. Warriner in the spring of 1952 and has grown rapidly from a membership of 61 in March, 1952, to a total of 1908 members as of December 31, 1954, an increase of almost 25 db in a little less than three years!

The chief objective of the Group lies not in the number of its members, however, but rather in the amount of up-to-date information which it can disseminate to Microwave men by means of sponsored meetings and published papers. It is the hope thereby that our art will advance even more rapidly in the future than it has in the past. And that by thus advancing our art, our capacity for communication will become ever greater and we will be able better to contact and to understand the innermost thoughts of our fellowmen near and far.

When mankind understands the thinking of fellowmen, peace and prosperity prevail.