Microwave Equipment for College Laboratories

I should like to take advantage of this correspondence column to discuss briefly a problem which we at Clarkson College may have in common with many other private colleges.

We believe that our undergraduate curriculum should include a course in microwaves and that this course to be effective must include some laboratory work. The problem is that it is very difficult to equip a microwave laboratory on the sort of budget existing in a small college. Commercial equipment is, in general, much too expensive and is really much higher quality than is required for simple student laboratory work. We have been able to meet our needs in part by constructing our own waveguide components and in part through the generosity of several concerns which have given us used or rejected equipment or made it available to us at very low cost. We have been given a variety of microwave tubes plus some oscillators and a number of waveguide and coaxial components which make it possible for us to operate our laboratory.

In the interest of furthering study in the microwave field, would it not be possible for more companies in the field to make available for educational purposes used or rejected equipment?

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Russian Edition of "Principles and Applications of Waveguide Transmission," by George C. Southworth

(The attention of the Editor was called recently to the Editorial Preface to the Russian edition of the above book. The preface is reprinted below in the belief that the commentary will be of interest to many readers.—The Editor.)

This book was written by the well-known American specialist in the uhf field who was one of the pioneers of waveguide techniques. As the author mentions in his preface, the book does not pretend to encompass fully the subject; however, in addition to a description of the fundamentals of the theory of waveguide transmission it contains extensive material devoted to the design and operation of various waveguide components and assemblies and also of electron apparatus applied in conjunction with waveguide apparatus. A part of this material was published earlier in periodicals but is being published now for the first time in book form.

It is necessary to point out the well-known "one sidedness" of the material. The book reflects mainly the results obtained by Bell Telephone Laboratories. The extensive bibliography of the author omits many important papers of Soviet specialists and also specialists from other countries. However, no attempt has been made to introduce into the book additional material since it would cause a considerable increase in volume and it would affect the general style of the book. The reader anticipates from the Soviet scientists in the near future new manuals on uhf techniques which will give a full and objective generalization of the main achievements of the Soviet and non-Soviet engineering in this field.

The book was published in 1950 and, therefore, naturally it either does not deal at all, or deals only very superficially, with achievements obtained during recent years (new types of transmission lines, problems of application of ferrites, triodes, new types of electron equipment for amplification and generation of uhf energy, etc.). In spite of these mentioned drawbacks, the book is written in a simple and clear style and encompasses a wide range of problems and will be of great help to many engineers and physicists and also to students who are interested in uhf techniques.

Contributors

Donald R. Barthel (S'48–A'50) was born in Milledgeville, Ill., on December 2, 1923. He was graduated from the University of Illinois in 1948, receiving the degree of Bachelor of Science in electrical engineering. Since 1948, Mr. Barthel has been a member of the engineering staff of The Glenn L. Martin Company, located in Baltimore, Md. In this position, Mr. Barthel has been engaged in antenna and microwave component developments for aircraft and guided missiles.

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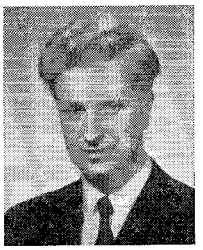

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Duncan M. Bowie was born on March 12, 1923, in Tulsa, Okla. He first entered the University of Tulsa, College of Engineering, in 1940, and received the B.S. degree in geophysical engineering there in 1948. During this interval he served eighteen months in master layout work with Douglas Aircraft Co. and two years as electrical technician with the U.S. Army Air Corps. From 1949 to 1951 he worked as seismic computer with Geophysical Service, Inc., Dallas, Texas.

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