devices, and materials. All of the exhibitors interviewed found their participation useful, and several were very enthusiastic about this opportunity to interact with microwave design and development engineers. Most attendees availed themselves of this opportunity to view recent product developments in the microwave field.

Ladies' Program

A friendly group of fifteen wives participated in tours planned by the Ladies' Program Committee. Included were visits to Hager Potteries, Long Grove, and a shopping spree in Chicago.

Digest

The 1972 Steering Committee continued the precedent established in 1971 for an 8½- by 11-inch format to the *Symposium Digest*. Space available to each author was expanded from two to three pages to facilitate greater depth in the material presented and to enhance the value of the *Digest* as a reference publication.

A Word of Thanks

Countless hours by many dedicated individuals are required to put on the International Microwave Symposium. I wish to thank my cochairman, Larry Hansen, all of the Chicago Steering Committee members, the Ad Com members, and others who enthusiastically cooperated with us during many months of preparation. The Chicago Chapter and its members have benefited by this experience of hosting the Symposium. We would encourage other G-MTT Chapters who may be considering this undertaking for the first time to do so with confidence that your efforts will result in a greater Chapter vitality and the uncovering of new leadership capability.

The 1972 G-MTT National Lectureship

The Microwave Industry 1972: A Summary of the 1972 G-MTT National Lecture

DUE TO THE generally weak economic conditions during the past three years, the reduction and change in Defense spending, and the reordering of priorities in our society, the microwave industry has suffered through the most difficult period in its history. To give a proper perspective of the conditions that face the industry today, this paper presents some of the background that led to the establishment of the microwave industry. It touches on the original contributors starting with Faraday. In giving the historical background, it highlights the fact that it has been the U. S. Department of Defense that has been the principal financial agent in the stimulus of microwave technology.

Whereas the U. S. Department of Defense has been the principal agent in the economic growth of the microwave industry, the IEEE has been the principal focal point for the professional activity of the industry. The paper touches on the background of the IEEE and discusses some of the recent actions that have taken place to stimulate the IEEE into increased activity on behalf of its membership. The role of the Microwave Theory and Techniques Group in this activity is highlighted.

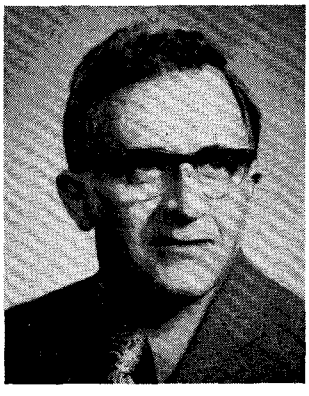
The position of the microwave industry is analyzed in the light of reduced Defense spending, increased concern with our environment, and increased involvement of engineers in our total society. In addition to the Defense budget as a continuing and prime marketplace for microwave technology, there are now several other areas with promise, including communications, microwave ovens, microwave industrial heating, the nondefense applications of radar, and some of the nondefense aspects of the Federal budget.

The general observation is made that microwave technology has matured, and the microwave industry is now in a position to take advantage of that maturity. Today we have a design capability that enables the microwave engineer to function as a circuit designer, much as his colleagues at lower frequencies. Most of the basic designs are available in the literature or on computer programs. These can readily be produced, in operating form, using either printed circuits or microwave integrated-circuit techniques. In addition, there are

available inexpensive, low-voltage, solid-state power sources that can be used to generate power at frequencies up to the millimeter and submillimeter region. These two conditions represent a significant improvement in our design capability of just five years ago. In addition, we have automated measurement techniques, brought about by new broad-band instrumentation in combination with computer technology. The net result is that the microwave engineer can not only design and build new and more complex systems in less time than was possible just a few years ago, but he can also build smaller, less expensive, and simpler systems. He now has solutions in search of problems.

The microwave industry has changed and now stands on a threshold of exciting potential. All that is required to give birth to a new era of microwave prosperity is the willingness on the part of the entrepreneur to invest in the new ideas. This too is beginning to change and it would appear that the microwave industry has come through its period of trial with added strength and promise for the future.

——THEODORE S. SAAD



Theodore S. Saad (S'41–A'45–SM'54–F'65) was born in Boston, Mass., on September 13, 1920. He received the B.S. degree in electrical engineering from M.I.T., Cambridge, in 1941.

From 1941 to 1942 he was an Engineer in Sylvania's Hygrade Division in Salem and Danvers, Mass., where he worked on fluorescent lamps. From 1942 to 1945 he was a Research Associate at the M.I.T. Radiation Laboratory, where he worked in the RF and Beacon Groups on microwave component design and microwave problems relating to the design and operation of *S*-band and *X*-band beacons. From 1945 to 1949 he was a Senior Development Engineer at the Submarine Signal Co., Boston, Mass., where, as Assistant Head of the microwave group in charge of design, his work included the complete design of various waveguide and coaxial microwave components. From 1949 to 1953 he was Vice President and Chief Engineer of Microwave Development Laboratories, Inc., where he assisted in developing many new devices such as temperature-compensated reference cavities, high-power rotary joints, directional couplers, and high-power waveguide switches. From 1953 to 1955 he was a Microwave Engineering Specialist at Sylvania Electric Products, Inc., Woburn, Mass., where he worked on problems relating to the design and test of microwave diodes. He was also head of the Microwave Diode Group and was instrumental in the development of Sylvania's broad-band diodes. In 1955 he helped establish and later became President and Chairman of the Board of Sage Laboratories, Inc., where, in addition to his responsibilities of general management of the Company, he has made contributions to the design and development of many of the Company's products lines. He has obtained 12 patents, his first in January, 1946, all on microwave devices, and at present he has 3 patents applied for. He is a Co-Founder, Editor-in-Chief, and Vice President of both Horizon House-Microwave, Inc., and Artech House. He has been active in the South Middlesex Area Chamber of Commerce, Mass., and has been Vice-President of the Board of Directors for two years. He was a Member of the National Academy of Sciences Panel 272.00 advisory to the Electromagnetics Division of the Institute for Basic Standards, National Bureau of Standards from 1967 to 1971, and was Chairman of the Panel in 1969 and 1970.

He was a member of the IEEE Microwave Theory and Techniques Group's National Administrative Committee from 1953 to 1969, and has served as TRANSACTIONS Editor, Chairman, and Vice Chairman. He also helped organize and was first Chairman of the Boston Chapter. He has served on a variety of subcommittees for the National Ad Com including Membership, Awards, *Newsletter* Editor, a committee to establish the National Lecturer, and a Committee to establish the W. W. Hansen Award. He has served on several National Symposia Committees. He was Local Arrangements Chairman for the Boston Symposium in 1959 and was Technical Program Chairman for the Boston Symposium in 1967. He was Toastmaster of the MTT Symposium Banquet, Boulder, Colo., in 1962. He is a member of the TAB Publications Committee of the IEEE and is Historian of the MTT Ad Com.