

## FOREWORD



Much has happened in the decade since the GMTT International Symposium was last in Washington. Probably the most talked about thing at that symposium was the banquet speaker, passed off by Program Chairman, Gus Shapiro, as a Soviet visiting scientist. Ted Saad and the other members of the microwave press scribbled furiously as the speaker told about the Russians generating megawatts of millimeter wave power at efficiencies greater than 50% and making many technical achievements that had eluded the western technical community for years. After the banquet, the clatter of lids flipping was deafening when it was learned that the speaker was in truth a representative of the U.S. Information Agency, spoofing us!

Both the political and technical climates have changed considerably since 1961. In Washington demonstrations such as the "Poor peoples March", rallies for peace in Vietnam and against pollution of the environment have become almost commonplace. Within the IEEE, demonstrations and discussions on the part of members are directed toward shaping the IEEE into an organization concerned about all of the interests of the engineers, in addition to providing a technical forum and publications.

In organizing the 1971 Symposium, the Washington Chapter tried to account for all of these things. A nontechnical session on "Changing Priorities and the Engineer" is being held on the first evening of the symposium. A student papers contest open to under-graduates and first year graduate students has been conducted to stimulate interest in the microwave field and to attract into this field the talented new engineers needed to keep our specialty viable.

We continue the emphasis on the new technologies of computer aided microwave design, microwave acoustics, microwave integrated circuits, and further, civil applications of microwaves such as low cost automobile radars and radars for civil aviation. Also with the advent of microwave integrated circuits and the increasing speeds required in digital computers, the use of gigabit rate logic becomes important and the role of the microwave engineer will penetrate from the front-end into the central processor part of electronic systems. While we have only one paper in this area in the 1971 symposium, I feel that this will be a harbinger of many more to come in the future years.

Another unconventional application of microwaves is the use of microwaves for power transmission from space. In addition to hydro-electric means, there are probably only two non-polluting ways of generating electrical energy - the use of thermal energy in the core of the earth, and the use of energy from the sun. Radiative transfer of this energy from space to earth using microwave techniques appears to be another area of much future impact.

Many people contributed much effort to make this symposium a success, and I want to acknowledge the help of the Steering Committee, the GMTT Baltimore Chapter, and of the Washington Section. I particularly want to recognize the Publications Committee whose names were inadvertently left out of the advance program, Frank Reggia, Hal Schrank and Ed Wolff. The GMTT Adcom has been extremely helpful, as have Chairmen and Technical Program Chairmen of past symposia, in providing guidance for our efforts.

H. Warren Cooper  
Chairman, Steering Committee