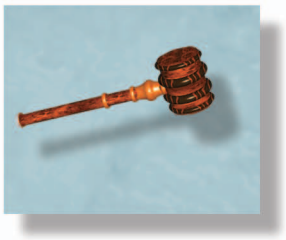

President's Column

The New MTT-S Journal Within a Journal

■ Dylan Williams

In the next and following issues of *IEEE Transactions on Microwave Theory and Techniques* (*T-MTT*) that arrive on your doorstep or in-box, you will find a new Part Two devoted to microwave systems and applications. That's right: the IEEE Microwave Theory and Techniques Society (MTT-S) is unveiling what is effectively a new *T-MTT* "journal within a journal" to treat papers on microwave systems and applications.

Microwave systems and applications papers in *T-MTT* now have their own place in the index, a dedicated editor-in-chief, a dedicated reviewer pool with systems and applications expertise, and new paper-handling and review procedures designed to shorten turnaround times. This new home for systems papers will welcome everything from conventional microwave systems to systems-on-a-chip.

The MTT-S has a long history of engaging in the research and development of microwave systems. For example, our Society published 33 technical articles in 1954, the first full year of our Society's transactions (which were then known as the *Transactions of the IRE Professional Group on Microwave Theory and Techniques*). Of those 33 articles, 12 were focused on microwave systems [1]–[12].

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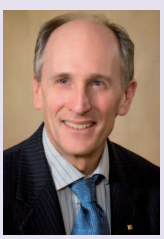
Among those, you will find titles like "Microwave Site Selection in Undeveloped Country," written by R.D. Pynn of the General Electric Company in Toronto [8]. In addition to discussing the use of aerial survey techniques, Dr. Pynn describes the need to visit potential sites on foot. He laments that, while many in his party had significant "backwoods" experience, "we found that none of these could climb trees, using spurs and ropes, to make the necessary observations in wooded country." He describes a rigorous course that General Electric arranged at a nearby forestry school and writes that, after a little practice, his men could "cut the limbs and the top from a 100-foot tree, rig a hoisting line, and raise a number of surveying instruments to the top of the pole in less than an hour." He goes on to describe waiting in the tree tops until dusk and then using swinging lanterns to establish the directions in which line-of-sight communications could be established between the various locations they were investigating. Those were the days!

You will also find an article published in the same year titled "Remote Control of Standby Engine Generator Sets over a Microwave System" by Robert Halvorson of the Westinghouse Electric Corporation [6]. This article discusses the difficulties of ensuring uninterrupted power to distributed microwave communication systems. Here, Halvorson proposes using the microwave communication system itself to periodically run and test backup generators remotely. An early experiment in the Internet of Things!

The article "Microwave Radio System for Pipeline Use" by Ed Dyke of Motorola discusses adding reflectors on the tops of towers to reduce damage



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from "target practice" to tower-mounted components [7]. This approach allowed them to hide all the microwave electronics near the base of the tower. Articles such as "Considering Klystron Design for Microwave Relay Systems" by R.W. Olthuis of the Sperry Gyroscope Company [12] and "A Double Side-Band Amplitude-Modulated Multiplex System for Use over Microwave Radio" by Nelson Tharp at Westinghouse Electric Corporation [11] delve into system-level design considerations and how they can be met by improvements in microwave hardware. The list of system issues addressed in just our first year goes on and on.

With all this systems-oriented history, you may wonder why the MTT-S is rolling out a new format in *T-MTT* this year. "Hasn't our Society always encouraged and welcomed systems papers in the past?," you might ask. In fact, our Society has consistently emphasized its systems perspective and the impact that has on hardware design. What has been changing over the past several decades is the development of more comprehensive design techniques at the transistor, circuit, and system level. These new methods allow a single engineer to design a large subsystem on a single integrated circuit and simultaneously consider system performance. This is blurring the distinction between system-level and hardware design, and our members more than ever need to understand both.

This new journal-within-a-journal format introducing a permanent "Part Two: Systems and Applications" for our flagship *T-MTT* is designed to help you and our Society lead the way together as we work to embrace the challenges of both hardware and system design. The June 2017 issue of *T-MTT* will be the first to include this Part Two journal within a journal. The topics in this June issue will be quite a contrast to the topics in our 1954 *T-MTT*. But microwave theory and techniques have come a long way since then and now include 5G wireless communication, broadband satellite communication, automotive radars and sensors, microwave biomedical systems, communications for the Internet of Things, and a host of other microwave systems-level technologies that have changed and are changing the way we live and work.

I am certainly looking forward to opening up my June issue of *T-MTT*!

Would you like to get more involved in the MTT-S? If so, send me an e-mail at dylan@ieee.org with a short description of your interests, and I will get back to you about possibilities!

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