Middleton, David. *Non-Gaussian Statistical Communication Theory.* Hoboken, New Jersey: John Wiley & Sons, Inc., 2012, 631 pp. $135.00 (Hardbound).

Since its inception in the late 1930s, Statistical Communication Theory (SCT) has grown into a major field of study, applicable to many branches of science. This authoritative and provocative text is a legacy left behind by the late Dr. David Middleton – a pioneer of SCT. He works from a vision of communication as the central operation of discovery in all the sciences. His application of Non-Gaussian Space-Time methodology to SCT clarifies many unresolved signal and noise problems, especially those prevalent in sonar and radar signal processing. These and other SCT problems are approached as cases of a larger space-time signal processing problem.

In addition to a review of the traditional theory, readers will find fascinating chapters on:

- Reception as a Statistical Decision Problem
- Space-Time Processing and Space-Time Matched Filters
- Wave-Number Frequency Analysis
- Optimum Detection with Scattering, Arrays, and Beam Forming
- Multiple Alternative Detection
- Bayes Extraction Systems
- Joint Detection and Estimation and Estimation When Signals May Not Be Present
- Canonical Channels
- Non-Gaussian Detection and Estimation
- Non-Gaussian and Inhomogeneous Wiener-Khintchine Problems

At his death in 2008, Dr. Middleton had completed 10 of 24 planned chapters. Nine of these have been exhaustively edited by Series Editor John Anderson and are presented here, together with Middleton's original plan for the entire book. Forewords by Middleton's colleague Vincent Poor and by the Editor show how this massive project was brought to completion.

DAVID MIDDLETON, PHD, graduated from Harvard University where he began his career at the institution's Radio Research Laboratory – working on radar countermeasures as well as passive and active jamming during World War II – before teaching there. A recipient of numerous prizes and awards related to his work on communication theory, Dr. Middleton was a fellow of the IEEE, the American Physical Society, the Acoustical Society of America, and the American Association for the Advancement of Science.