George A. Philbrick Researches, Inc., founded in 1946, specialized originally as a manufacturer of systems and functional building blocks for analog computing. In 1952, the differential-input operational amplifier, a key analog component, was for the first time liberated from its functional setting and offered for sale individually. Following publication (1956) of the gray, 28-page Applications Manual for Philbrick Octal Plug-In Computing Amplifiers, created by MIT Professor Henry M. Paynter, amplifier sales mushroomed, rapidly outgrowing computer products.

By 1965, vacuum-tube devices like the K2-W were supplanted by potted modules employing discrete transistors; and the industry was introducing the first really performance-competitive ICs. But op amps lacked the support of suitable texts to educate, inform, and stimulate design engineers. In response, Philbrick devised this Applications Manual, using Ted Gams’s unique modular approach to apportioning text and graphics to individual topics. Contributors included Dr. Peter Hansen, Bruce Seddon, Robert Malter, and Bob Pease; and the whole was edited by the undersigned. It was eagerly adopted and is fondly remembered by designers of an earlier generation.

Following the book’s publication in 1966, Philbrick was acquired by Teledyne, Inc., and merged with a recently acquired competitor, Nexus Research Laboratory, Inc. In the early 1990s, it was merged with other Teledyne businesses and lost its identity. What remained of it became the property successively of TelCom Semiconductor and Microsemi Corporation.

Two generations of design engineers have appeared since the book’s publication; the first generation to receive it is on the way to retirement or beyond. Good op amp books are now available. Yet many of the ideas expressed here remain fresh to this day. In fact, today’s analog silicon may make feasible ideas that could once only be suggested but imperfectly embodied. The book has much that will be “news” to the newer generation. Approaching the millennium, Analog Devices, recognizing the book’s possibilities, has acquired the rights to re-publish it. We have left it virtually unchanged, except for a few evident opportunities to make it more relevant to the current generation. We’re delighted to have closed the loop—an eminently analog function!

Dan Sheingold, Dec. 1997
WHAT

APPLICATIONS MANUAL-
COMPUTING AMPLIFIERS

This publication is the newest in what may reasonably be called a publishing continuum—a progression that began in 1951 with the appearance of our charming but (by today's standards) old-fashioned 36-page Catalog and Manual, revisions and mutations of which have appeared, along with The Lightning Empiricist, periodically throughout the intervening years. Your response to each of these opera has been warmly enthusiastic. Like Don Marquis’s Mehitabel, we are always surprised and somewhat bewildered by the magnitude of the yield—for example, the "Applications Manual for PHILBRICK Octal Plug-in Computing Amplifiers", which this manual supersedes, first appeared in 1956, and to date we have printed and distributed about a quarter of a million copies, through ten editions. We must confess to a fond hope for a similar endorsement of this latest effort.

This manual was prepared by the Engineering Staff of Philbrick Researches.