

Unitary dilations of Hilbert space operators and related topics by B. Sz.-Nagy, CBMS No. 19. Amer. Math. Soc., Providence, R. I., 1974.

In 1972 V. I. Lomonosov discovered a technique which settled the longstanding problem of whether or not two commutative compact operators have a common invariant subspace. He actually proved more: If A is a compact operator, then A shares a common invariant subspace with every operator that commutes with it. In fact as he asserted, a slight modification of his proof shows that the conclusion holds if A merely commutes with a compact operator. His technique, which utilizes the Schauder fixed point theorem, was immediately seized upon by many people and used to produce even stronger invariant subspace theorems. The paper *A survey of the Lomonosov technique in the theory of invariant subspaces*, by C. Pearcy and Allen L. Shields takes us through Lomonosov's contribution to some of its consequences and also discusses the current interesting state of the invariant subspace problem. A goodly portion of this material has also appeared in the monograph *Invariant subspaces* of H. Radjavi and P. Rosenthal, Springer-Verlag, Berlin, 1973.

There is much of interest in this book. The writing is generally brisk and meets a high standard for mathematical exposition. These essays can contribute a great deal to showing students some of the areas of operator theory that have been and are still the subject of considerable research.

ERIC A. NORDGREN

BULLETIN OF THE
AMERICAN MATHEMATICAL SOCIETY
Volume 82, Number 3, May 1976

Model theory, by C. C. Chang and H. J. Keisler, Studies in Logic and the Foundations of Mathematics, Vol. 73, North-Holland, Amsterdam, 1973, xii+550 pp., \$26.50.

1. **General remarks.**¹ This, in many ways remarkable, book is the first attempt at a systematic exposition of a young discipline, model theory, written by two of the main contributors to the subject. Naturally, the reviewer felt tempted to seize the opportunity to give a general discussion of the subject itself but unfortunately most of his general remarks had to be eliminated to bring the review down to a size acceptable to the Editors. To appreciate another difficulty of writing this review, consider one of the most striking features of the book, and in fact of model theory itself, namely the immense variety of topics, methods and orientation. One could hardly find two subjects further apart than, e.g. Artin's conjecture on p -adic number fields on the one hand, and the theory of measurable cardinals on the other, both given full expositions in the book. And these are just two examples of the large number of similarly disparate (at least, apparently disparate) matters in

¹ The reviewer would like to express his thanks to Stephen Garland, Victor Harnik, Jan Mycielski, Gonzalo Reyes, H. Jerome Keisler and Allan Swett for their helpful criticism of the original version of this review.