The book is concluded with a chapter on elementary perturbation theory. The appendixes contain miscellaneous constants and data and a summary of the special functions used in elementary reactor theory.

In summary, this book is well organized and clearly written. Many of the large number of problems presented at the end of each chapter appear to have outstanding pedagogical value. Any student who can work more than half of these problems will be well prepared indeed.

M. C. Edlund

The University of Michigan
Ann Arbor, Michigan

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About the Reviewer: Milton Edlund is well known throughout the nuclear reactor community because of his coauthorship, with Dr. Glasstone, of Elements of Nuclear Reactor Theory *a number of years ago, and because of his active career in the field at Oak Ridge National Laboratory, Babcock & Wilcox, and now at The University of Michigan. He has contributed recently to these columns.*

Matrices and Linear Transformations. By Charles Cullen. Addison Wesley Publishing Company (August 1966). 227 pp. $8.95.

For a text with a minimum number of prerequisites and adaptable to a variety of situations, this text should find considerable favor. It contains an abundance of exercises of considerable scope, some primarily numerical manipulation, and others designed to supplement the text by illustration or extension. The relationship between matrices and linear transformations is accented throughout the text, usually giving the matrix result first and an interpretation as a result concerning linear operators subsequently. The text gives good coverage to the characteristic value problem and the Jordan canonical form is developed first by using invariant subspaces and direct-sum decompositions, and alternatively by using elementary divisors. Vector spaces are defined abstractly and the isomorphism to spaces of n-tuples is established. These provide geometric interpretations of the theory. There is a chapter on matrix analysis and applications to systems of differential equations. The final chapter on numerical methods is a noteworthy addition to the text with a discussion of exact and iterative methods for the solution of $AX = K$ and the determination of characteristic values and vectors. In less than 20 pages, the chapter gives an idea of the problems involved in numerical computation and their solution. Only in this chapter does the author give references to the literature.

A persistent error occurs in three places in the text and in the index as well; in each instance the "Segre" characteristic is printed as the "Serge" characteristic. On page 6, the symbol $C^{\#}$ is used without prior definition in the text or glossary of symbols, and the figure on the same page embodies a misspelling of the word "commutative" in two places. Despite page 6, the book does not appear to be burdened with an unusual number of misprints, and its style and composition are pleasing. A page or so of annotated bibliography added to each chapter would have greatly enhanced the value of the book. In Chap. III on determinants, Sec. 3 is entitled "Laplace's expansion" but only the special cases of expansion by individual rows or columns is considered. It would seem desirable to present the purported Laplace's expansion to the intended audience at this point and perhaps the Cauchy-Binet formula. There is no mention of dual vector spaces in the text.

Appendixes consist of the Greek alphabet with English equivalents, answers to selected exercises, a glossary of mathematical symbols, and an adequate index.

In this spate-age of books on linear algebra and matrices, this reviewer believes this book a worthwhile addition to the flood of new arrivals.

John A. Carpenter

Oak Ridge National Laboratory
Oak Ridge, Tennessee 37830

November 30, 1966

About the Reviewer: Mr. Carpenter received the BA (1947) and MA (1950) degrees in mathematics from the University of North Carolina, Chapel Hill, North Carolina. He has been with the Math Division of ORNL since 1962. His principal interests are in the fields of combinational analysis, linear algebra, numerical analysis, and statistical applications.