by R. Kalaba; General Imbedding Theory, by C.M. Kashmar and E. L. Peterson.

The four chapters on applications are entitled: Impulsive Transfer between Elliptical Orbits, by D. E. Lawden; The Optimum Spacing of Corrective Thrusts in Interplanetary Navigation, by J. Breakwell; Propulsive Efficiency of Rockets, by G. Leitmann; Some Topics in Nuclear Rocket Optimization, by R. W. Bussard.

The individual chapters are well documented with references to the recent literature. For a full appreciation of some of the topics, the interested reader may have to use some supplementary sources. For example, the section on the Pontryagin maximum principle should be supplemented by the excellent book by Pontryagin and his co-workers recently translated into English: The Mathematical Theory of Optimal Processes (Wiley).

The book is an indispensable reference to the worker actively engaged in this field; it can also be strongly recommended to the "disengaged" mathematician who wishes to become familiar with an important and active area of applied mathematics.

H. Kaufman, McGill University

Introduction to the Theory of Stationary Random Functions, by A. M. Yaglom. Translated from the Russian by R. A. Silverman. Prentice-Hall, Inc., New Jersey, 1962. xiii + 235 pages. $10.60.

Originally published as a long review article in the Russian journal, Uspekhi Matematicheskikh Nauk, in 1952, the present book incorporates new material resulting from developments since that date. The translator has also improved the bibliography and added a large number of explanatory footnotes. Part 1, The General Theory of Stationary Random Functions, is an exposition of the correlation theory of these functions. This Part contains three chapters: Basic Properties of Stationary Random Functions; Examples of Stationary Random Functions, Spectral Representations; Further Development of the Correlation Theory of Random Functions (covering the following: the multidimensional case, homogeneous random field, homogeneous and isotropic random fields, and processes with stationary increments). Part 2 is a thorough treatment, using Hilbert space techniques, of the linear extrapolation and filtering of stationary random functions. Two Appendices entitled Generalized Random Processes, and Some Recent Developments (the latter by D.B. Lowdenslager), and two Bibliographies complete the book.

Although a knowledge of elementary probability theory and complex variable theory is sufficient for Part 1, familiarity with

Hilbert space concepts is required for Part 2. Before embarking on a detailed study of this excellent work, the uninitiated may wish to examine first the more elementary treatment of optimum filtering given in the book by Y. W. Lee, "Statistical Theory of Communication" (Wiley).

H. Kaufman, McGill University

Kinematik, Sammlung Göschen 584/584a, by Hans R. Müller. Walter de Gruyter, Berlin, 1963. 171 pages. DM 5.80.

This is a brief survey of some of the classical theory of the motion of a plane over a fixed plane. Topics discussed are centroids, centres of curvature, inflection circles, the Euler-Savary formula, the Bobillier construction, loci and envelopes. These are applied to linkage mechanisms, toothed gearing, and rotors in epitrochoidal stators (including the contemporary Wankel motor as an example). Analytic geometry, vector methods and complex variables are used in the development.

There is a brief introduction to the three-dimensional kinematics of rolling surfaces of which spiral beval gears are examples.

The bibliography lists 16 modern treatises.

Michael Goldberg, Washington, D.C.

Machine-Independent Computer Programming, by Maurice H. Halstead. Spartan Books, Washington, D.C., 1962. xiii + 269 pages. $6.50.

While the definitive text on compiler building has yet to be written, this book, one of the first, is a welcome step in that direction. It describes the Neliac language, a programming language with the essential property that it can be used to describe itself. The book is a careful description of a basic Neliac compiler, with each section of the compiler explained statement by statement. The second half contains complete listings of Neliac C for the Remington Rand Univac M-460 Countess, the Neliac 704, the Neliac 1640 and the interesting decompiler D-Neliac C for the Countess. Compiler builders cannot ignore this volume.

J.E.L. Peck, University of Alberta, Calgary