mathématique utilisé est principalement la théorie des fonctions de variables complexes. Divers auteurs notamment Cramer, Khintchine, Lévy, Dugué ont puissamment contribué au développement de ce genre de recherches. La monographie de D. Dugué "Arithmétique des lois de Probabilités" (Gauthier Villars) donne l'exposé des principaux résultats obtenus jusqu'en 1957. Le livre de Linnik expose dans les chapitres VII à X les nouveaux résultats très importants de l'auteur sur la décomposition des lois indéfiniment divisibles (résultats qui étaient dispersés dans plusieurs volumes récents de revues russes). Il conviendrait d'ajouter à la bibliographie citée par Linnik le livre de E. Lukacs "Characteristic Functions" qui est paru à peu près en même temps que l'édition russe de ce livre. (Voir ce Bulletin Vol. 6, No. 3.)

La rédaction est très claire. Divers problèmes non résolus sont proposés. Il serait intéressant de connaître des résultats de l'étude de problèmes analogues sur la décomposition d'une fonction aléatoire x(t) en somme de fonctions aléatoires indépendantes. Ces problèmes (difficiles) semblent pouvoir être abordés en étudiant la décomposition de la fonctionnelle caractéristique de x(t) en produit de fonctionnelles caractéristiques de fonctions aléatoires. Toutefois nous connaissons actuellement beaucoup trop peu de choses sur les fonctionnelles caractéristiques pour que les solutions de ce genre de problèmes soient faciles.

J. Legoupil, Professeur invité à l'Université Laval

Optimization Techniques with Applications to Aerospace Systems, edited by George Leitmann. (Volume 5 of the series: Mathematics in Science and Engineering) Academic Press, New York and London, 1962. xiii + 453 pages. $16.00.

With the advent of space technology, considerable interest has been generated in problems of system optimization and of optimal control of processes. The present book provides a survey of the various techniques that have been proposed to deal with these problems. The basic methods are presented in the first ten chapters, followed by four chapters dealing exclusively with applications. The chapter headings give a fairly good idea of the nature of the contents. The first ten chapters consist of: Theory of Maxima and Minima, by T.N. Edelbaum; Direct Methods, by F.D. Faulkner; Extremization of Linear Integrals by Green's Theorem, by A. Miele; The Calculus of Variations in Applied Aerodynamics and Flight Mechanics, by A. Miele; Variational Problems with Bounded Control Variables, by G. Leitmann; Methods of Gradients, by H.J. Kelley; Pontryagin Maximum Principle, by R.E. Kopp; On the Determination of Optimal Trajectories via Dynamic Programming, by R. Bellman; Computational Considerations for Some Deterministic and Adaptive Control Processes.

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