removed, a regression curve was calculated to show how the accuracy of the forecasts improved with time, and how it depended on the degree of technical novelty and the duration of the development program.

The third approach is the construction of a theory of optimal strategy. This is the only section with any mathematical interest. It consists of manipulations of various combinations of conditional probabilities, with emphasis on the "expected least value". All of the distributions used are purely hypothetical. A number of "rules of thumb" for strategic choice which appear quite plausible intuitively are shown (by the use of some rather artificial counter-examples) to be not generally valid.

G.R. Lindsey, Defence Research Analysis Establishment, Ottawa

Bibliography on time series and stochastic processes, edited by H.O.A. Wold, published for the International Statistical Institute by Oliver and Boyd, Edinburgh and London, 1965. 516 + xiv pages. £5. 15s.

This bibliography was compiled by a very distinguished panel of collaborators. The main virtue of the bibliography is the great care which was taken in the selection of the entries. The titles are divided into three groups: up to 1930, 1931-1950 and 1951-1959. Included with each title is certain coded information on the type of process, scientific nature of the entry, group of problems, presence of empirical applications, field of application and language. The review number in the Mathematical Reviews is also given.

A graphic introduction to stochastic processes and time series is included. This introduction briefly reviews the history and rudiments of the subject and contains graphs of computer simulations of sequences of random variables which illustrate the law of large numbers, the law of the iterated logarithm, the arc sine law, correlograms, periodograms and Markov chains.

It is unlikely that a similar bibliography will be produced at the end of this century - before then there will be mechanized information retrieval methods of obtaining complete and up-to-date bibliographies on any specialized scientific subject at any time.

D.A. Dawson, McGill University

Optimization of stochastic systems, by M. Aoki. Academic Press, New York - London, 1967. xv + 354 pages.

The book, in essence, presents the optimal control and filtering problem of stochastic control systems in discrete-time. It also extends this to the parameter adaptive systems.

The Kalman filtering theory is the main theme in this book, but various derivations and extensions of that filtering theory have been worked out and scattered through different chapters. The order of the chapters seems to be mixed up and it is not surprising that very lengthy equations in discrete time are evolved. The author discusses the optimal Bayesian control of stochastic systems in great detail in Chapter II then suddenly in Chapter III he goes on to adaptive control systems. Chapter IV goes on to partially observe Markovian systems and in Chapter V the estimation problem. This appears to be the reversal of order since the estimation problem is normally derived before going on to partially observed systems. All the important results are derived from the Bayesian approach and

https://doi.org/10.1017/S0008439500030125 Published online by Cambridge University Press

many illustrative examples are worked out. Other topics include stochastic stability, convergence questions in Bayesian optimization problems and some sub-optimal control policies.

The book will be of interest to scientists and engineers working in stochastic control systems and who are quite familiar with recursion formulas for use in computers.

N. Sancho, McGill University

Problems in probability theory, mathematical statistics and theory of random functions. Edited by A. A. Sveshnikov. Translated by Scripta Technica Inc. . W.B, Saunders Co., Philadelphia, London, Toronto, 1968. ix + 481 pages. Can. $15.70.

This is the translation of a collection of problems which was first published in Russian in 1965. The subject matter is broken up into nine chapters: random events; random variables; systems of random variables; numerical characteristics and distribution laws of functions of random variables; entropy and information limit theorems; correlation theory of random functions; Markov processes and methods of data processing. Each of the 46 sections begins with a review of basic formulas and definitions and solutions for typical examples. Answers or brief sketches of solutions to all the problems are given at the end of the book.

The problems are primarily computational in nature and vary from close to trivial to fairly difficult. The problems of the first six chapters would serve as a useful supplement to an introductory course at the level of W. Feller's "Introduction to Probability Theory and its Applications", Vol. I. The chapter on the correlation theory of random functions would be a very useful supplement to an engineering course on random functions and the chapter on methods of data processing could be used to supplement a basic course of statistics.

D.A. Dawson, McGill University

An introduction to probability theory, by P.A.P. Moran. Oxford University Press, 70 Wynford Drive, Don Mills, Ontario, 1968. 542 pages. $15.00.

So many elementary books on probability have recently been published that the reviewer opened this book with some trepidation. However, the title of the book is rather misleading as it is anything but an elementary introduction to the subject. It contains a comprehensive coverage of distributions, stochastic processes and the main theorems of probability. The treatment is mathematically quite sophisticated (for example we meet a σ-field on page 4) and there is a useful introduction to measure theory. The bibliography is extensive, concentrating on the applications of probability.

The book is certainly not suitable for anyone who wishes to be introduced to the subject of probability. For example, the idea of independence is introduced before the idea of conditional probability. However, I think that many statisticians will find it extremely useful as a reference text on probability.

C. Chatfield, McGill University