Although it is supposed to be self-contained in the sense that no prior knowledge of mathematical statistics is necessary to follow the mathematical argumentation, this text will present insurmountable obstacles for anyone who is not already well acquainted with statistical method and practice, or who is not being guided by a skillful teacher. Moreover, the mathematical argumentation is itself condensed and frequently difficult, so that there will be further difficulty for all but the most mathematically mature readers.

This book is well referenced with frequent comments about related research and extensions of topics under discussion. An especially convenient feature is the inclusion of "backward" references in the bibliography, that is, after each book or paper the text page number on which it was referenced is listed. Many excellent problems are included after every chapter. Some awkwardness results from the author's attempt to preserve consistent notation throughout the book. In particular, no notational distinction is made between a random variable and the corresponding real variable, and reading some sections, such as those on conditional random variables, becomes a guessing game for anyone who does not know the material beforehand. Also regrettable is Professor Wilks' decision not to use matrix notation for the multivariate work.

There are quite a few mistakes in the text; some places the argumentation even goes astray, so it is hoped that corrigenda will be forthcoming, and eventually a second edition.

In short, this book is a comprehensive text written uncompromisingly for the graduate student of mathematical statistics. It is exceptionally useful because of its detailed coverage of topics, but it needs to be supplemented either by a teacher who provides direction and motivation, or by previous experience in the field. The book will be widely used as a text for graduate mathematical statistics courses for students with strong backgrounds in mathematics and some undergraduate training in statistics. It will also be an invaluable reference text for mathematical statisticians.

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47[K, W].—R. L. ACKOFF, with the collaboration of S. K. GUPTA & J. S. MINAS, *Scientific Method: Optimizing Applied Research Decisions*, John Wiley & Sons, New York, 1962, xii + 464 p., 23.5 cm. Price $10.25.

This book is a study "in the large" of scientific activity and is intended to aid the scientist in the evaluation of his own research procedures by making use of Decision Theory.

The book consists of fifteen chapters and two appendices and a large number of references. The first chapter gives a delightful discussion of science and its methods. The discussion of optimal solutions to problems in the second chapter has a broad philosophical scope, using ideas from statistics, decision theory, and game theory.

The formulation of the problem discussion in the third chapter introduces much of the author's knowledge and practice of operations research, and is a valuable contribution, as are the chapters on Models, Defining and Measurement. The next four chapters are on Sampling, Estimation, Testing Hypotheses, and Experimentation

and Correlation. The next chapter is on Deriving Solutions from Models, in which the author briefly mentions analytical and numerical methods, simulation, Monte Carlo Methods, statistical techniques, and operational gaming with its limitations. In Chapter 12 the author returns to optimization in experimental form, for example, through simulation. This is followed by chapters on Testing and Controlling the Model and Solution; on Implementation and Organization of Research, in which he points out that a solution, partly because of prestige of science, already involves the scientist as having made a recommendation; and finally on The Ideals of Science and Society: An Epilogue.

The wisdom of the author as a director of research scientists from different fields of specialization tremendously enriches the last two chapters. The book in its vastness should provide source material for evaluation of research and inspiration to those desiring a clear perspective of scientific activity.

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48[K, W].—HARVEY M. WAGNER, *Statistical Management of Inventory Systems*, John Wiley & Sons, Inc., New York, 1962, xiv + 235 p., 23 cm. Price $8.95.

Inventory models have probably been the subject of more mathematical analysis in the operations research literature than any other type of application, with the possible exception of queueing models.

In a well organized and cogently written monograph, the author has extended the mathematical analysis of the inventory problem to that of instituting appropriate management controls

The book is divided into four chapters. The first and smallest chapter provides an introductory framework for the main text. Chapter 2, by far the longest, is an excellent exposition of the (s, S) model. An (s, S) inventory policy is one which prescribes two numbers, s and S, which might be termed the reorder point and the maximum stock level. Specifically, if the stock on hand and on order has fallen to a level $x \leqq s$, then an amount $S - x$ is ordered to return to the level S. The purpose of Chapter 2 is to provide the mathematical tools to analyze control mechanisms.

Chapter 3 is the heart of the contribution made by the monograph. The author analyzes various statistical indices which may serve as controls for management. He contrasts barometer controls of the form $B = \theta$ (index number-target), where $\theta > 0$, with quota controls, which implies some limit on the index number itself. The barometer control implies a system of rewards and punishments based on the value of B. Quota control, as defined by Wagner, is dichotomous in the sense that if some limit were violated, it is presumed that the policy has not been followed.

A basis for the author's choice of the barometer control is consistency; which refers to the control system's encouragement given to the observance of the standards of an operating (s, S) policy. "A consistent control scheme is one in which the probability of exceeding the index limit is greater when violations of standards are present than when they are not." Chapter 4 extends the results of the previous chapter to cases where the distribution of demand varies.

The various chapters are fully illustrated by numerical examples, many of