definitive compilation should be accessible to statisticians and to others working in combinatorial analysis and its applications.

J. W. W.

**30[K, X].**—Paul A. Meyer, *Probability and Potentials*, Blaisdell Publishing Company, Waltham, Mass., 1966, xiii + 266 pp., 26 cm. Price \$12.50.

Potential theory is one of the more interesting branches of modern mathematics, the main reason being that it has so many useful connections with other branches of mathematics. The application of potential theory to the theory of functions of a complex variable are well known; less well known perhaps are the connections between potential theory and modern probability theory, in particular the theory of Markov processes. In recent years much research has been done in this area and Meyer's book is an attempt to give a systematic account of the probabilistic and analytical techniques that are used in these researches. Before proceeding to discuss the book in more detail I should like to mention some of the more interesting results that have so far been obtained; the reader of this review will then be able to better appreciate the structure and contents of this book.

The first result I should like to mention is due to S. Kakutani (1944). It may rightly be considered as the starting point for all subsequent researches in this area. Kakutani considered the following problem: Let $G$ be a bounded two-dimensional region in the plane with boundary $\partial G$ and let $A$ be a measurable subset of $\partial G$. Let $x$ be an interior point of $G$ and denote by $\{W(t), t \geqq 0\}$ the two-dimensional Brownian motion process starting at $x$. Denote by $\tau_x$ the first passage time of the Brownian motion process through $\partial G$ (note that $\tau_x$ is a random variable, indeed it is what probabilists call a "stopping time"). Kakutani showed that $\Pr\{W(\tau_x) \in A\} = \mu(x, A)$, where $\mu(x, A)$ denotes the harmonic measure of the set $A$ relative to the point $x$ and the region $G$. More generally, one may solve the Dirichlet problem for the region $G$ with continuous boundary values $f$ in the following "probabilistic way": $u(x) = E\{f(W(\tau_x))\}$, where $E$ denotes the expected value and $u(x)$ is the classical solution to the Dirichlet problem. This probabilistic solution to the Dirichlet problem has been exploited by Doob who, using martingale methods, obtained new results on the boundary behavior of harmonic and superharmonic functions. Hunt, in a series of papers that appeared in the *Illinois J. Math.* (1957–1958) put many of these results in the more general context of Markov processes and their "potential theories".

In all these researches there has been a mutually beneficial interplay between probability and potential theory and what Meyer's book does is to bring together, for the first time, the various techniques that are used in these studies. The book contains 11 chapters divided in the following way: The first three chapters are devoted to probability theory and some of the finer points of measure theory, e.g. Choquet's theory of capacities. The fourth chapter is entitled stochastic processes but as no examples of the concepts discussed are given, its value to an analyst is somewhat doubtful. The next three chapters are devoted to the theory of martingales and includes the author's proof of the existence of a Doob decomposition for continuous parameter martingales satisfying certain conditions. The author does not however discuss the applications of these techniques to Doob's "fine limit theorems". Chapters 9 and 10 discuss those topics in the theory of semigroups which are needed for an exposition of Hunt's approach to potential theory. The book ends with a chapter devoted to Choquet's representation theorem and some applications. Thus, as can be seen from the table of contents, one of the author's main purposes is to give an account of those methods of probability theory which could prove to be of great service to analysts. The reviewer feels that the author should have included for these analysts a section on the potential theory of the Brownian motion process, as this would have illustrated in a concrete and nontrivial way many of the abstract concepts he has defined. For the specialist in this field, on the other hand, this well written book, with its careful and complete discussion of new and important results, some of them due to the author himself, is highly recommended.

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**31[K, X].**—ARISTARKH KONSTANTINOVICH MITROPOL'SKIĬ, *Correlation Equations for Statistical Computations*, Authorized translation from the Russian by Edwin S. Spiegelthal, Consultants Bureau Enterprises, Inc., New York, 1966, viii + 103 pp., 28 cm. Price $9.50.

In this book, the author describes various methods for performing calculations associated with correlational analysis. Most of these methods have little value when the calculations are performed on an automatic computer. Matrix notation is not used, and the notation of the author is quite awkward.

One can only be more overwhelmed by the price of this book than by the fact that it was translated at all.

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**32[K, X].**—E. S. PEARSON & H. O. HARTLEY, Editors, *Biometrika Tables for Statisticians*, Vol. I, Third Edition, Cambridge University Press, New York, 1966, xvi + 264 pp., 29 cm. Price $6.50.

This new edition of a standard source of statistical tables is welcomed. The review by Milton Abramowitz (this journal, Volume 9, (1955), 205–211) remains a valid assessment. We now add details to his review to reflect the changes of the new editions.

For both the second and third editions the basic changes were made in the tables, although corresponding changes have been made in the Introduction. In these editions there is an Index of the tables. The following is a list of the changed or new tables. Tables with a number followed by a lower case letter are new in the third edition.

8 Percentage points of the $\chi^2$-distribution.
Removal of cut-off errors in the last figure tabled.

11 Test for comparisons involving two variances which must be separately estimated.
Addition of 2.5 % and 0.5 % critical levels.