other factor of production. But the assumption that every outcome bears a one-to-one correspondence to what is intended not only denies the relevance of market conditions but precludes the possibility of unanticipated consequences in the affairs of men (and women) generally. The conclusions of this book, then, are not the conclusions of social science, but reflect a sense of *Realpolitik* that pervades the official view of all things Soviet, and the "manpower field" generally.

WALTER PHILLIPS
Department of Sociology and
Institute of Labor and Industrial Relations, University of Illinois, Urbana

Theoretical Statistics

The Statistical Analysis of Series of Events (Methuen, London; Wiley, New York, 1966. 293 pp., illus. $7.75) is an excellent book. The authors, D. R. Cox and P. A. W. Lewis, provide an account of important techniques for the analysis of series of point events occurring haphazardly in space or time. The book is unique in providing many real-life examples together with copious data which are analyzed by different techniques in several sections of the book. The subject matter treated is somewhat limited in that essentially only stationary series of point events occurring along a one-dimensional axis are considered. However, this has allowed the authors to study in depth questions peculiar to this class of stochastic processes.

The book presents a great deal of penetrating discussion concerning the analysis of selected examples. It would be useful for the reader to have a knowledge of probability theory at the level of Feller's *Introduction to Probability Theory and Its Applications* (1957). However, much information may be absorbed with less technical background.

Chapter 2 presents an excellent summary of the statistical properties of the Poisson process. New techniques for analyzing trends in data are given in chapter 3, and failure data of air-conditioning equipment presented in a 1963 article by F. Proschan are analyzed. Unfortunately, no comparison is made with Proschan's own analysis, even though there seems to be some disagreement. Chapter 4 is devoted to stationary point processes, with special attention to stationary renewal processes. Here the reader must be careful to note the difference between the usual renewal process and a stationary renewal process. A more formal definition of a stationary renewal process would have been helpful. Results of Kuzretsov and Stratonovich, J. A. McFadden, and others are also summarized. In chapter 5 the authors use covariances or correlation, as well as the usual spectral analysis, for time series and make an interesting analysis of computer failure data.

The authors return to the analysis of stationary renewal processes in chapter 6. A clear and useful discussion of distribution-free tests of goodness-of-fit is given. Tests for Poisson processes which appear to be most useful against stationary alternatives are presented, as well as tests for renewal processes. The subject of renewal processes for distributions with monotone hazard rate is also discussed. It is incorrectly asserted that a monotone nondecreasing hazard corresponds to a convex log survivor function. (It should be concave instead of convex.) Also the t is omitted from the expression $M(t) = t/E(X)$, at the top of page 142. In general, however, errors in the book are few and of a minor nature.

Generalizations of renewal processes are given in chapter 7. One of the more interesting models is that of a branching renewal process and its application to computer failure data. A two-state semi-Markov process is used to fit traffic data. In chapter 8, on the superposition of renewal processes, the authors' investigation of the properties of the component processes in an observed process of superpositions is especially novel and interesting. Reference to the recent work of the Russians Grigelionis and Ososkov should be added to the references cited.

Techniques for comparing two Poisson processes are discussed in chapter 9. Extensive sets of data are given in appendix 1. The exercises in appendix 3 complement topics presented in the various sections. A computer program for some of the methods used is available from one of the authors.

In conclusion, this book can be highly recommended to statisticians and those in the field of operations research as a very readable and stimulating discussion of techniques of analyzing series of events. It will most likely be widely used and referenced.

R. E. BARLOW
Department of Industrial Engineering and Operations Research, University of California, Berkeley

Archeological Dating

Chronologies in Old World Archaeology (University of Chicago Press, Chicago, 1965. 569 pp., illus. $7.50) represents an attempt by 14 American archeologists, under the direction of R. W. Ehrich, to produce absolute and relative chronological systems for much of the Old World. The organization and presentation of the papers reflect a conscious bias in favor of the Ancient East, that tract of land occupying quite varied environmental regions from the Nile eastward to Iran. East central, northern, and western Europe and parts of the Aegean world on most reckonings clearly played a less eminent role in the development of culture and civilization in post-Pleistocene times. The same could not be said, however, of the great eastern provinces of the Old World, the Indian subcontinent, and particularly China, areas which, with recent advances in archeological expertise, including substantial quantities of radiocarbon dates, may well become a focus of new attention from the Western world.

Radiocarbon of course is the reason for a change in the title of this book, from a second edition of *Relative Chronologies in Old World Archaeology* to the more precise but in some ways less satisfactory *Chronologies*, dependent in areas where well-stratified sites are rare upon the establishment of magical absolute ages for sites and cultures through the radiocarbon dating method. Space precludes a detailed examination of specific areas where certain adjustments in the chronological tables beloved of most archeologists might be suggested, but two main points are, I think, worth making here.

It is a well-known fact that the half-life of carbon-14 was early estimated by Libby as 5570 ± 30 years, with certain laboratories employing values of 5568 ± 30 or 5760 ± 40. New calculations of this half-life have produced a value of 5730 ± 40 years, and most of the contributors to *Chronologies* have adopted the new value. Yet the Fifth Radiocarbon Dating Conference in 1962 decided to postpone the changeover from the old to the new until further studies were made, at which time all dates could be republished. This decision was reaffirmed at a conference in Washington in 1965, and has been adhered to in most syntheses that have appeared recently, including that for an area not treated