tenance problems, to which the present book devotes a chapter.

Queuing theory was born over half a century ago, when Erlang analyzed telephone-traffic problems. Fluctuations in service demands, as varying numbers of customers began to dial numbers, posed problems in the utilization of facilities. To handle peak loads with zero or negligible waiting time would require uneconomically large facilities. Inadequate capacity leads to intolerable delays and customer dissatisfaction. This combination of a fluctuating demand for service coupled with penalties if too much or too little servicing capacity is provided is characteristic of queuing problems.

It is only in the last decade or so that the ubiquity of problems of this sort has been recognized and that "nontelephonic" studies have been made. The stacking of airplanes over an airport and the building of frequently idle runways are the penalty brackets of fluctuating air traffic. Similar problems arise with respect to toll booths on highways, bridges, and tunnels; docking facilities in ports; scheduling of public transportation; maintenance of inventories (here the penalty brackets are lost orders and excessive inventory costs); choice of the proper number of clerks and checkout aisles in a supermarket, of telephone clerks in a telephone-order retail business, of the number of spaces in a parking lot; or determination of the size of the maintenance crew needed to keep a number of machines in operation when breakdown occurs randomly.

One suspects that there must be many similar cases which are somewhat disguised, such as that of a manufacturing establishment with a variable demand for a particular technical service. The decision here is whether to contract for the services or acquire the necessary capability to perform them. Another case might be that in which one must decide whether to establish an enterprise when competing enterprises already exist. This could be profitable if customer queues have engendered dissatisfaction but could be disastrous if adequate service is available. Here, of course, the availability of other techniques of competition complicates the problem. When adequate service pre-exists, however, this factor might only shift the impact of the disaster to a different victim or otherwise distribute the losses.

This book will appeal to specialists in operations research and to others concerned with the technicalities of queuing problems in whatever context they occur. It partly fills a gap in the textbook literature which will be even better filled when the later monographs of the series appear. The mathematical level is not difficult, though mathematical maturity is assumed. As one would expect, some knowledge of probability theory is taken for granted. Indeed, I felt on a number of occasions that if the author had made a little more allowance for the "rustiness" of the mathematics of many scientists, ease of reading would be greatly increased for nonspecialists in operations research and the book would also appeal to many of the more able undergraduates. As it stands, probably only graduate students and the ablest undergraduates will be able to get through it.

The book's 11 chapters discuss arrival and service time distributions, single and multiple exponential channels, simulation of nonexponential distributions, transients, infinite queues, queue discipline and priorities, and problems of inventory control and of maintenance of equipment. Tables and graphs of relevant functions are provided. Calculations are made showing how to evaluate the balance between service cost and customers lost and between mean wait and service cost; customer impatience is discussed. Optimization of the number of service channels, effects of priorities on delays, and a number of inventory and maintenance "strategies" are also considered.

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The Chemistry of the Steroids. W. Klyne. Methuen, London; Wiley, New York, 1957. 216 pp. Illus. $3.50.

Chemistry of the Steroids. Charles W. Shoppee. Academic Press, New York; Butterworths, London, 1958. vii + 314 pp. $9.

These two monographs with the minor difference in title are written with a widely different end in view. The small monograph by Klyne is intended primarily for the nonchemical reader, and the major emphasis is given to the steroid hormones. It attempts to lay a foundation for the subject and to indicate the major properties and reactions of the naturally occurring steroids and their relatives. To me, the treatment appeared too specialized for biologists and perhaps better suited to a chemist interested in an introduction to this field of natural products. A series of references to reviews and texts appears at the end of the book.

Shoppee's monograph "sets out to present as concisely as possible the present state of knowledge." The more important references up to the end of 1955 and a few in 1956 are cited; this listing appears to be relatively complete. The highly compressed style will discourage the casual reader, but there is a wealth of well-presented and well-organized information. The inclusion of a great deal of subject matter that must be regarded as historical at this time seemed of questionable value to me, but this surely is a minor criticism of so great a task.

Both monographs are useful additions to the chemical literature and will find their place among the reference works in this very active field of investigation.

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Historia Natural del Maíz. Separata de la Revista de la Academia Colombiana de Ciencias Exactas, Fisicas y Naturales, vol. X, No. 39. Daniel Mesa Bernal. The Academy, Bogotá, Colombia, 1957. 106 pp.

The expressed purpose of this publication is to present for readers of Spanish a panorama of the history and importance of maize in early times and a résumé of the theories about its center of origin. Two chapters outline the problem, give brief statements about the historical sources, and summarize the importance of maize as the key to pre-Columbian civilization in America.

In the discussion of the theory of Asiatic origin, the Oriental members of the Maydeae are unfortunately placed on an equal footing with those of America. The statement that, of these Old World genera, *Coix* is most closely related to maize cannot be accepted without more clarification. There seems to be something wrong with the statement about the depth at which fossil pollen of *Euchlaena* was found in Mexico.

Four areas—Mexico and Guatemala, Colombia and Venezuela, the Andean plateau, and the La Plata region—are discussed as possible centers of the origin of maize agriculture. The chapter on Colombia and Venezuela is particularly appreciated because of its full treatment of an area which has received too little attention in the past.

Both sides of each controversial point are given objectively, and there is seldom a hint as to which side the author prefers. This results in an array of ideas, some much sounder than others, which, without supporting evidence, seem to be of equal value. In fact, there is nothing to indicate that the author has made any study of the subject except from the literature. We may wish also that he had made himself a little more clear in discussing such things as degree of variation, number of varieties, and primitive characteristics.

A plate and 35 text figures break the monotony of the large, double-column, closely printed pages. A few typographical errors have been noted: misspelled names (Cutler, Weberbauer), a chapter incorrectly numbered (8 or 9), and a figure inverted (page 36).