

cellent material in the author's two volumes, *Funktionentheorie*, Erster Teil; Zweiter Teil. These are Numbers 668 and 703 in the Sammlung Göschen.

A student entering upon the study of a new subject needs many exercises to test his understanding. There are none in this book, but the author's two volumes, *Aufgabensammlung zur Funktionentheorie* (Nos. 877, 878) will provide ample material.

G. E. RAYNOR

*Sur la Théorie Mathématique des Jeux de Hasard et de Réflexion.* By René de Possel. (Actualités Scientifiques et Industrielles, No. 436; Conférences du Centre Universitaire Méditerranéen de Nice, publiés sous la direction de M. Paul Vallery, I.) Paris, Hermann, 1936. 41 pp.

Chapter I describes how the three factors, reflection, hasard, and wile, enter the "game of society," by use of several games.

The next chapter explains games of batons. Piles of batons or sticks are before the players who can remove, when their turn comes, a number of sticks less than or equal to a given number; the player who takes the last stick loses. More complicated cases of this game are analyzed by means of expressing the numbers involved in the system of notation with 2 as base.

The third chapter states a theorem concerning games of combinations in which one player wins or there is a draw.

Chapter IV contains the usual definitions of probability, mathematical expectation, and equitable games. Mathematical expectation is applied in detail to the roulette wheel.

In the last chapter the author defines the "game of society" and outlines how to study the influence of reflection, the influence of hasard, and the influence of wile, which enter into games. Maxima and minima of the mathematical expectations of the player have an important role in this part. Applications of these maxima and minima are made for several games.

W. D. BATEN

*Biologie Mathématique.* By V. A. Kostitzin. Paris, Librairie Armand Colin, 1937. 223 pp.

In an appreciative preface, Vito Volterra points out that while numerous books have been published in recent years on the applications of mathematics to biology, it remained for M. Kostitzin to produce a synthetic and didactic work drawing together the researches on this subject. As is stated by the author, this book is fundamentally different from the manuals of mathematics with similar titles that have been prepared for students of biology. While he recognizes the utility of such books for reference purposes, the author is not enthusiastic about selecting certain chapters of one science for the benefit of workers in another. He says that each science has its peculiar language and logic and that it is only by preserving these that the applications of science can have their full force. Carrying this thought further, the author says that if a biologist needs chemistry he had better study that science and not read a few chapters especially adapted for biologists. Similarly, to be able to apply the methods of mathematics it is necessary to study what constitutes the science of mathematics—its ideas—and not some of the processes of calculation.