The probability, U_t, that m independent players score a total of exactly t is the coefficient of x^t in $(\Sigma S_n x^n)^m$.

The table on p. 6–91 gives U_t to 4D for $m = 1(1)4, r = 1(1)4, t = 0(1)mr$. For $p_1 = .01(.01).06(.02).22, .25, p_2 = 0(.05).2(.1).9$; for $p_1 = .3(.05).95, p_2 = 0(.01).02(.02).12, .15(.05).9$. U_t was computed to 9D or better on the NAREC, and each value was rounded to 4D individually; i.e., the U_t were not forced to sum to 1. Quadratic interpolation in p_1 or p_2 is stated to yield a maximum error of .0016.

The typography (photo-offset reproduction of Flexowriter script) is adequate but undistinguished; all decimal points are omitted from the body of the table.

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57[W, X].—S. VAJDA, *An Introduction to Linear Programming and the Theory of Games*, John Wiley & Sons, Inc., New York, 1960, 76 p., 22 cm. Price $2.25.

This book introduces the basic mathematical ideas of linear programming and game theory (mostly matrix games) in a form suitable for anyone who has had a little analytic geometry (and is not frightened by subscripts and double subscripts). Part I, on linear programming, begins with two examples, the second of which is a transportation problem, and then describes the simplex method of solving the transportation problem. Then comes the graphical representation of the general linear programming problem, followed by the general simplex method and a discussion of such complications as finding a first feasible solution, multiple solutions, and degeneracy. The chapter closes with the duality theorem.

Part II, on games, begins with two examples of matrix games, the second of which admits no saddle point, and introduces the concepts of mixed strategy and value. This is followed by a discussion of games in extensive form, and their normalization. A section on graphical representation is followed by the description of the equivalent linear program, and the Shapley-Snow "algorithm" is offered as an alternative method of calculating equilibrium strategies and value. Next the concept of equilibrium point in non-zero sum games is discussed, followed by three examples of infinite games. The book closes with an appendix proving the main theorem of matrix games along Ville's lines.

This book, compiled from lecture notes of short courses offered by the author, is suitable as a text for a short course for students with slight mathematical preparation.

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58[W, Z].—FRANZ L. ALT, Editor, *Advances in Computers*, Vol. 1, Academic Press, Inc., New York, 1960, x + 316 p., 24 cm. Price $10.00.

Advances in Computers is a useful addition to the rapidly growing literature on modern high-speed computers and their application. It is intended by the editor to be the first volume in a series which will contain monographs by specialists in vari-

ous areas of work in this field. These are to be written in non-technical language, so as to be easily understood by specialists in areas other than those of the writer.

The present volume contains six articles by well-qualified authors in six significant and interesting areas of work related to computers. Four summarize progress to date in the application of computers to weather prediction, translation of languages, playing games, and recognition of spoken words. Two are related to techniques used in computer programming and design. The titles and authors are:

1. General-Purpose Programming for Business Application—Calvin E. Gotlieb
2. Numerical Weather Prediction—Norman A. Phillips
3. The Present Status of Automatic Translation of Languages—Yehoshua Bar-Hillel
4. Programming Computers to Play Games—Arthur L. Samuel
5. Machine Recognition of Spoken Words—Richard Fatehchand
6. Binary Arithmetic—George W. Reitwiesner.

Since most of the areas of work covered by the papers in this volume are in a rapid state of flux, the assignment to write survey papers in these areas, undertaken by the authors, is a most difficult one. Each author has proceeded to carry out this assignment in his own characteristic manner. Thus, Gotlieb attempts to present a factual summary of some of the programming procedures used at present in processing data for business applications; whereas, Yehoshua Bar-Hillel presents a critical evaluation of the various efforts conducted in the field of automatic translation of languages—at times, highly critical. A large part of the material covered is admittedly subjective, and bears the imprint of the writers' points of view and contributions. Nevertheless, the six papers in this volume constitute authoritative surveys of the areas of work discussed. Together with the bibliographies given at the end of each paper, these articles will be valuable to the new researcher in the fields covered, as well as to the interested layman who wishes to familiarize himself with the exciting advances in computer technology.

<div align="right">H. P.</div>

59[Z].—Andrew D. Booth, *Automation and Computing*, The Macmillan Co., New York, 1959, 158 p., 21 cm. Price $5.00.

This book is intended mainly for the educated layman. In it the author attempts "to bridge the gap between the superficial accounts of electronic computers and automation . . . and the specialists' monographs. . . ." He has given an admirably written and lucid account of digital and analogue computers. His three chapters on the logical design of digital computers, the physical basis of this design, and programming for digital computers are very clear and informative, though concise.

The three chapters on automation in clerical work, control of continuous processes, and automatic machine tools and assembly processes are not as well done as the first three. The well-educated layman will have to expend a great deal of effort in order to follow the discussion in these chapters.

The last two chapters entitled "Strategic and Economic Planning" and "Non-numerical Applications of Computing Machines" are very brief. The former is much too short to give the reader more than a glimmer of what is involved in game theory. The last chapter furnishes a well-written introduction to methods for non-