The basic technique applied to axially symmetric flows is to find a basic solution Φ^B of the form

$$\Phi^B = y^{3n-2}f(\zeta)$$

where $\zeta = x/y^n$ and n is a constant. The variable f then satisfies the ordinary differential equation

$$(f' - n^2\zeta^2)f'' + (5n^2 - 4n)\zeta f' - (3n - 2)^2 f = 0.$$

Further solutions necessary to satisfy particular boundary conditions are then found by perturbing the basic solution by the function $\bar{\Phi}$, i.e.,

$$\Phi = \Phi^B + \bar{\Phi}(x, y, \omega).$$

Then $\bar{\Phi}$ is assumed to satisfy the linear equation

$$-\Phi_x{}^B\bar{\Phi}_{xx} - \Phi_{xx}^B\bar{\Phi}_x + \bar{\Phi}_{yy} + \frac{\bar{\Phi}_y}{y} + \frac{\bar{\Phi}_{\omega\omega}}{y^2} = 0.$$

Particular solutions of the equation are then found in the form

$$\bar{\Phi} = y^\nu g(\zeta) \cos m\omega; \qquad m = 0, 1, 2, \cdots$$

Then $g(\zeta)$ satisfies the ordinary differential equation

$$(f' - n^2\zeta^2)g'' + [f'' + (2\nu n - n^2)\zeta]g' + (m^2 - \nu^2)g = 0.$$

The solution of this equation leads to an eigenvalue problem with the eigenvalue ν.

The present report tabulates the functions f and g together with their derivatives and some other related functions. In Table 1 appear 6D values of $f(\zeta)$ and $dg/d\zeta$ for $\zeta = -7.5(.1) - 3(.02)1$; in Table 2 similar information appears for $g(\zeta)$ and $dg/d\zeta$. These tabular data are given for several values of the eigenvalue ν.

A rather complete discussion of the mathematical problems involved is given in the introduction. The eigenvalues are found using a contour integration technique. It is stated that the numerical calculations are performed on an ERA 1103, with considerable pains taken to insure accuracy. The entries are stated to be correct to within one unit in the last place.

The tables should be quite useful to anyone interested in the study of special cases of transonic flow.

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56[W].—H. L. Toothman, *A Table of Probability Distributions useful in War Games and other Competitive Situations*, NRL Report 5480, U. S. Naval Research Laboratory, Washington, D. C., May 16, 1960, i + 91 p., 27 cm.

A player makes a maximum of $(2r - 1)$ plays. On odd-numbered plays he scores 1 with probability p_1 and 0 with probability $1 - p_1$; on even-numbered plays he is eliminated from subsequent play with probability p_2. The probability that he will score exactly n is

$$S_n = \binom{r}{n} p_1^n(1 - p_1)^{r-n}(1 - p_2)^{r-1} + \sum_{k=n}^{r-1} \binom{k}{n} p_1^k(1 - p_1)^{k-n}p_2(1 - p_2)^{k-1}.$$

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-