hands were dealt from a complete shuffled deck. As the game is actually played, however, the later hands come from a decreasing deck. Thus, the probability of winning and the optimal strategy should fluctuate. Further, the player should have the advantage frequently. Using an IBM 704, the author computed, as a function of the cards in the depleted deck, the situations when the player has the advantage.

The book begins with a discussion of the rules of the game and then proceeds to describe the optimal strategy as a function of the amount of information (the cards depleted from deck) the player is able to remember. If no information is remembered, the optimal strategy yields 0.21 percent advantage to the casino. However, keeping track of the fives, the player obtains an advantage of 3 percent. If a player is able to keep track of more than four cards, tens and aces, he can obtain an advantage which ranges from 4 to 15 percent.

The book contains an account of the author's successful test in Nevada. The chapter on how to spot cheating is unique. The book also contains an appendix giving the probabilities for hands dealt from a complete deck.

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48[L].—ROLIN F. BARRETT, *Tables of Modified Struve Functions of Orders Zero and Unity*, MS of 55 typewritten sheets $8\frac{1}{2}$ x 11 in., deposited in the UMT File.

Following a one-page introduction, which gives the general definition of the Struve functions, their expansions in both power series and asymptotic series, and an outline of the contents of the tables, the author presents decimal approximations to $L_0(x)$ and $L_1(x)$ to 5 and 6S for $x = 0.02(0.005)\,4(0.05)\,10(0.1)\,19.2$, calculated by power series, and approximations to 2S, in floating-point form, for $x = 6(0.25)\,59.50(0.5)\,100$, calculated by asymptotic series. All calculations were performed on an IBM 650 at North Carolina State College, where the author is a member of the Department of Mechanical Engineering.

No bibliography is presented, and apparently no comparison of these data was made with existing tables such as those of the National Bureau of Standards [1]. A single comparison with the latter tables revealed numerous last-place errors (ranging up to 5 units) in the tables under review.

Apart from these discrepancies, the manuscript tables appear to be reliable, and they supply tabular information corresponding to a range of the argument extending considerably beyond that of previous tables of these functions.

J. W. W.

1. National Bureau of Standards, *Tables of Functions and of Zeros of Functions*, Applied Mathematics Series, v. 37, U. S. Government Printing Office, Washington, D. C., 1954, p. 113–119.

49[L].—AVNER FRIEDMAN, *Generalized Functions and Partial Differential Equations*, Prentice-Hall, Inc., Englewood Cliffs, New Jersey, 1963, xii + 340 p., 23 cm. Price $10.00.

The main subject of this book by Avner Friedman is a somewhat specialized topic in the theory of partial differential equations; namely, the Cauchy problem

for partial differential equations of elliptic and hyperbolic type with constant coefficients, in various classes of functions and distributions. However, the book is of value to the general reader, since it contains good accounts of such topics of general interest as a theory of linear topological spaces, generalized functions, distributions, convolutions, and Fourier transformations of generalized functions and distributions. It also contains a good account of such important topics in the theory of partial differential equations as fundamental solutions of equations with constant coefficients and the differentiability of solutions of hyperelliptic equations. It contains a statement and proof of the Sobolev lemma, and it is the only book which contains a proof of the important Seidenberg-Tarski theorem. One typographical error was noted: in the statement of the theorem on page 218, change sigma to a on the third line from the bottom and 16 spaces from the left.

P. D. L.

50[L].—Solomon Lefschetz, *Differential Equations—Geometric Theory*, second edition, John Wiley & Sons, Inc., New York, 1963, x + 390 p., 23.5 cm. Price $10.00.

The second edition of Lefschetz's now classical book has a considerable amount of important new material. After the preliminary chapters containing standard information on existence theorems and linear systems, including Floquet theory and stability, the author proceeds to a detailed study of Liapunov stability. Considerable emphasis is put on the direct method. An important feature is the treatment of the converses of the Liapunov theorems in case the system is suitably stable at a critical point.

After a study of the n-dimensional case, where many of the results are still fragmentary, there is a detailed study of two-dimensional systems, including the critical cases and structural stability.

The remainder of the book is concerned with equations of the second order, including the Cartwright-Littlewood theory and the Hill-Mathieu equations.

The methods used are both analytic and topological. The reader untrained in geometry may have difficulty with the close geometric reasoning of the latter chapters. On the other hand, the material is not readily available in any other single source.

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51[P].—S. G. Lekhnitskii, *Theory of Elasticity of an Anisotropic Elastic Body*, Holden-Day, Inc., San Francisco, 1963, xii + 404 p., 26 cm. Price $10.95.

This monograph is a translation from Russian of a text written in 1950 by one of the leading pioneers in the theory of anisotropic elasticity. His earlier book *Anisotropic Plates*, written in 1947, is already classical. The present monograph represents the results of the author's investigations (and related works) on another class of important problems in anisotropic elasticity.

The author's stated purpose in writing this book was to bring together some scattered results on anisotropic problems which have appeared in the literature