1. B. S. KASHIN, "Diameters of some finite-dimensional sets and classes of smooth functions," *Izv. Akad. Nauk SSSR*, v. 41, 1977, pp. 334–351.

2. A. KOLMOGOROFF, "Über die beste Annäherung von Funktionen einer gegebenen Funktionenklasse," *Ann. of Math.*, v. 37, 1936, pp. 107–110.

3. C. A. MICCHELLI & A. PINKUS, "Some problems in the approximation of functions of two variables and the n-widths of integral operators," *J. Approx. Theory*, v. 24, 1978, pp. 51–77.

4. A. PIETSCH, "s-numbers of operators in Banach spaces," *Studia Math.*, v. 51, 1974, pp. 201–223.

44[65D20].—C. G. VAN DER LAAN & N. M. TEMME, *Calculation of Special Functions: The Gamma Function, the Exponential Integrals and Error-Like Functions*, CWI Tract 10, Centrum voor Wiskunde en Informatica (Centre for Mathematics and Computer Science), 1984, iv + 231 pp., $23\frac{1}{2}$ cm. Price Dfl. 33.30.

This book is the first of a projected series intended to supplement AMS 55, the *Handbook of Mathematical Functions* [1], by providing detailed information for preparing and testing computer software for special functions. AMS 55 remains unsurpassed as a no-nonsense compilation of the properties of special functions, but it was prepared too early to contain the software information supplied here.

This book contains five chapters. The first is an introduction for the entire projected series. It contains an annotated bibliography on the computation of elementary and special functions, and a survey of major sources of function software. The latter includes a brief summary of the design criteria (e.g., whether portability is emphasized and how it is achieved) for a given collection whenever those criteria are known.

Chapter 2 is by far the longest in the book. It discusses topics that are fundamental to the following chapters. These include a brief discussion of error analysis, a particularly thorough discussion of linear recurrences, and quick overviews of continued fractions and hypergeometric functions.

Each of the remaining three chapters is dedicated to a different family of functions. Chapter 3 concerns the gamma family; Chapters 4 and 5 are dedicated, respectively, to the exponential integral family and the error function family. The overall plan of these three chapters is first to summarize important analytic properties, emphasizing those that are useful in numerical evaluation, and then to discuss algorithms and existing software in detail. The text is liberally sprinkled with references to recent work on practical convergence and utility of expansions, problems of range reduction, tables of coefficients, error analysis, etc. Thus, each chapter informs the potential designer or user of function software which methods might be useful, which have already been tried, which have succeeded, and where the software is to be found.

If there is a criticism of this book, it is in the binding. The paperback binding is not sturdy enough for a volume this useful. One of the two copies I own is already losing pages.

In summary, this book, together with those by the late Yudell Luke [2], [3], is an essential companion to AMS 55 and should be on the shelf of anyone concerned about the computation of special functions. We can all hope that Van der Laan and

Temme follow through on their intention to provide additional volumes in the series.

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1. M. ABRAMOWITZ & I. A. STEGUN (Editors), *Handbook of Mathematical Functions with Formulas, Graphs and Mathematical Tables*, Nat. Bur. Standards Appl. Math. Series, 55, U. S. Government Printing Office, Washington, D. C., 1964.

2. Y. L. LUKE, *The Special Functions and Their Approximations*. Vols. I and II, Academic Press, New York, 1969.

3. Y. L. LUKE, *Mathematical Functions and Their Approximations*, Academic Press, New York, 1975.

45[62Q05].—W. J. KENNEDY, R. E. ODEH & J. M. DAVENPORT (Editors), *Selected Tables in Mathematical Statistics*, Vol. VIII, Amer. Math. Soc., Providence, R.I., 1985, ix + 270 pp., 26 cm. Price $30.00.

This book is a collection of three sets of tables, each accompanied by a paper which presents the statistical problem being studied, summarizes the theory underlying the problem, discusses how the tables were calculated, explains how to use the tables, and provides several examples of their use. The first two sets of tables are of use in the design of experiments. The third set has applications to the construction of estimators and goodness of fit tests when the underlying distribution belongs to a family having structure similar to Student's t. Presumably, these tables have been constructed so as to make the associated statistical methodology more accessible to practitioners. In what follows I shall therefore try to describe situations for which the tables might be useful and comment on the readability of each paper.

The first set of tables by Benon J. Trawinski can be used to design and analyze balanced paired comparison experiments when the goal of the experimenter is to select from a set of T treatments a subset of size S containing the best. Balanced paired comparison experiments involve comparing all possible pairs of treatments equally often, specifying a preference each time. Such experiments arise, for example, in the food industry where food samples are to be compared for taste or visual preference, or in rehabilitation where treatments for the improvement of patient performance are to be compared.

The tables enable an experimenter to determine the number of replications of a balanced paired comparison experiment necessary to guarantee that the subset of size S selected contains the best treatment with probability no less than some prespecified value. They can be used to determine the rule for selecting the subset as well as the expected size of the subset. These tables would seem to be of particular value to researchers who conduct paired comparison experiments on a regular basis.

I found the explanatory material accompanying the tables a bit difficult to read. The examples in Sections 3 and 5 can be used to determine how to use the tables, but these examples are not as clear as they could be. This is especially true of the