matrix manipulation have been included to some extent in view of their application to particular methods.

Books, journals and research reports (both government and industry) are referenced. The time period is mostly 1960–1966, though numerous earlier references are also presented.

There are essentially four parts. The first is a bibliography of entries giving title and source of article, where it is reviewed, abstracted, etc. In illustration of the review aspect, the bibliography notes where an article has been reviewed in *Mathematical Reviews*, *Computing Reviews*, *Nuclear Science Abstracts*, etc. The entries in this part are not completely alphabetized by author. Here each entry is given an accession number to facilitate cross-referencing with other parts. The second part is an author index. The third part is a source index listing the source abbreviations used throughout the volume. The fourth part and perhaps the most useful for information retrieval is a Key-Word-In-Context (KWIC) index of titles of articles. This is not a subject index but rather a list of all the titles each permuted about all the significant words in the title.

There are three appendices. Appendix A describes the bibliography format. Appendix B gives a key which tells the language in which an article is written. Appendix C presents a transliteration scheme from the Cyrillic alphabet. Additional information on the project and its development is found in the introduction.

The value and usefulness of this volume to all research workers is clear. We hope that steps are being taken to continually update the literature of the subject at hand, and to extend these ideas to other segments of the mathematical literature.

Y. L. L.

3[4, 5, 6, 7, 13.15].—R. SAUER & I. SZABO, Editors, *Mathematische Hilfsmittel des Ingenieurs*, Part I: G. DOETSCH, F. W. SCHÄFKE & H. TIETZ, Authors, Springer-Verlag, New York, 1967, xv + 496 pp., 24 cm. Price $22.00.

This is the first volume of a projected four-volume set. Though labelled as a handbook for engineers, the material is useful to all applied workers. The present volume is divided into three parts.

The first part written by H. Tietz is on function theory. Here in 84 pages are covered the rudiments (mostly without proof) of complex variable theory, elliptic functions, and conformal mapping.

The second part written by F. W. Schäfke deals with special functions. The special functions are conceived as those functions of mathematical physics which emerge by separation of the 3-dimensional wave equation $\Delta u + k^2 u = 0$ by use of certain orthogonal coordinate systems. To this class of functions, the Γ-function is also appended. The latter is treated in the first section. Separation of the wave equation in various coordinate systems is taken up in the second section. The next eight sections deal with cylinder functions, hypergeometric function (the Gaussian ${}_2F_1$), Legendre functions, confluent hypergeometric functions, special functions which satisfy the relation $a(x, \alpha)(dy/dx)(x, \alpha) + b(x, \alpha)y(x, \alpha) = y(x, \alpha + 1)$, orthogonal polynomials (mostly classical), Mathieu functions and spheroidal functions. For the most part, proofs are given. A considerable amount of material is covered in 145 pages, though much valuable material was evidently omitted in view of space requirements. A short list of books on the subject of special functions is provided. Here the *Handbook of Mathematical Functions with Formulas, Graphs and Mathematical Tables*, Applied Mathematics Series 55, U. S. Government Printing Office, Washington, D. C., 1964 (see *Math. Comp.*, v. 19, 1965, pp. 147–149) is conspicuous by its absence.

The third part of the handbook written by G. Doetsch is on functional transformations. It is the longest of the three parts (253 pages). After an introduction to the subject and Hilbert space (Chapter 1), Fourier transforms (both two-sided and one-sided) are taken up in Chapter 2. Basic results including existence theorems and rules are clearly outlined. Classically, some serious drawbacks to transform theory arose, for in the applications one often encountered functions for which the transforms diverged. Also considerable formalism had become quite common in the use of transforms (e.g., the Dirac δ function). In recent times, a discipline called "Distribution Theory" has been constructed which provides a rigorous framework for the development of a transform theory to meet the deficiencies noted above. The present handbook is noteworthy in that it contains an appendix giving pertinent results on distribution theory, and in Chapter 2 there is presented a modified distribution theory and its connection with Fourier transforms. For physical applications, considerable attention is devoted to idealized filter systems (Fiktive Filtersysteme) and realizable filter systems. In the idealized situations, the topics covered include frequency and phase response, distortion, and high, low, and band pass systems. Chapter 3 is concerned with Laplace transforms and their inversions. Applications are made to ordinary and partial differential equations. Physical applications include vibration problems and analysis and synthesis of electrical networks. The two sided Laplace transforms and Mellin transform are treated in Chapter 4. The two-dimensional Laplace transform is the subject of Chapter 5. A discretized version of the Laplace transform known as the Z-transform is developed in Chapter 6 along with applications to difference equations. Chapter 7 treats finite transforms including those known by the name of Fourier (i.e., finite exponential, cos and sin transforms), Laplace and Hankel. An appendix gives short tables of the following transforms: Fourier, Laplace (one- and two-dimensional), Mellin, Z, finite cos and sin.

Y. L. L.

4[7].—V. A. Ditkin & A. P. Prudnikov, *Formulaire pour le Calcul Opérationnel*, Masson & Cie, Éditeurs, Paris, 1967, 472 pp., 25 cm. Price F 65.

This translation from the Russian gives tables for the evaluation of one- and two-dimensional Laplace transforms (actually p-multiplied Laplace transforms which are called Laplace-Carson transforms) and their inverses. Thus the one-dimensional and two-dimensional transforms tabulated are of the form

$$\bar{f}(p) = p \int_0^\infty e^{-pt} f(t) dt \,,$$

$$\bar{f}(p, q) = pq \int_0^\infty \int_0^\infty e^{-px-qy} f(x, y) dx dy \,.$$

Chapter 1 [2] gives $\bar{f}(p)$ [$f(t)$] for a given $f(t)$ [$\bar{f}(p)$] while Chapter 3 [4] gives $\bar{f}(p, q)$ [$f(x, y)$] for a given $f(x, y)$ [$\bar{f}(p, q)$]. The influence of the book *Tables of Integral Trans-*