REVIEWS AND DESCRIPTIONS OF TABLES AND BOOKS

77[1].—R. V. GAMKRELIDZE, Editor, *Progress in Mathematics*, Vol. I: *Mathematical Analysis*, Translated from Russian, Plenum Press, New York, 1968, ix + 246 pp., 24 cm. Price $15.00.

The original was published in 1966 for the All-Union Institute of Scientific and Technical Information in Moscow as a volume of Itogi Nauki-Seriya Matematika. It contains three survey articles, each with extensive references to the literature. The first, by V. A. Ditkin and A. P. Prudnikov, is on *Operational Calculus*, the second, by V. P. Khavin, on *Spaces of Analytic Functions*, and the third, by V. V. Nemytskii, M. M. Vainberg and R. S. Gusarova, on *Operational Differential Equations*. Readers of this journal might be interested in a section on numerical methods for inverting the Laplace transform, which appears in the first article.

W. G.

78[2.05, 2.10, 2.15, 2.20, 2.55, 3, 4, 5, 8, 12, 13.15, 13.35, 13.40].—MELVIN KLERER & GRANINO A. KORN, Editors, *Digital Computer User's Handbook*, McGraw-Hill Book Co., New York, 1967, xii + 922 pp., 24 cm. Price $27.50.

Quoting the editors of this massive tome, "We have aimed at a comprehensive single-volume work treating practical and currently applicable methods of programming, numerical analysis and leading fields of computer applications." In our opinion, they have not succeeded; and it is doubtful that any such venture would succeed. What emerges here is another anthology of 31 separate articles, ranging in quality from excellent to poor and misleading, and in form from mathematical essay (e.g., Wilkinson) to tables of formulae (e.g., Karplus and Vemuri). It is difficult to imagine the buyer who would find this a useful investment at the purchase price required.

The book is divided evenly into three parts: Programming, Numerical and Statistical Methods, and Applications.

Programming. Elements of Programming, M. Klerer; Computer Number Systems and Arithmetic, M. Klerer; Errors, Loss of Significance, and Data Presentation, M. Klerer; Computer Characteristics Table, Charles W. Adams Associates; Algorithmic Compiler Design, A. A. Grau; Structure and Use of ALGOL 60, H. Bottenbruch; List-processing Languages, Paul W. Abrahams; Computer Languages for System Simulation, Howard S. Krasnow; PERT/CPM, William C. Geoghan; Sorting and Merging, Martin A. Goetz.

Numerical and Statistical Methods. A Survey of Function-approximation Techniques, Granino A. Korn; Solution of Linear Algebraic Equations and Matrix Problems by Direct Method, James H. Wilkinson; Solution of Nonlinear Equations, Royce E. Beckett; Interpolation, Curve Fitting, and Differentiation, Kaiser S. Kunz; Numerical Integration, A. H. Stroud; Numerical Solution of Ordinary Differential Equations, R. W. Hamming; Numerical Solution of Partial Differential Equations, Walter J. Karplus and Venkateswararao Vemuri; Introduction to Statistical Methods, Granino A. Korn; Statistical Techniques and Computations,

Henry Tucker; Computation of Power Spectra, Melvin Klerer; Random-Number Generation and Monte-Carlo Methods, T. E. Hull.

Applications. Symbolic Logic and Practical Applications, J. V. Wait; Information Theory and Codes, Harvey L. Garner; Linear Programming, Lloyd Rosenberg; Nonlinear Programming, E. M. L. Beale; Commercial Data Processing, Robert V. Head; Digital Computers for Logical Design, Richard E. Merwin and Jere L. Sanborn; Information Retrieval, Jack Belzer and Orrin E. Taulbee; Some Parameter-optimization Techniques, Robert B. McGhee; Scheduling and Inventory Control, Jerry L. Sanders; Real-time Operations with Small General-purpose Computers, Barbara W. Stephenson.

J. M. O.
E. J. SCHWEPPE

University of Maryland
Computer Science Center
College Park, Maryland 20740

79[2.05, 2.10, 2.15, 2.35, 2.55, 3, 4].—DAVID G. MOURSUND & CHARLES S. DURIS, *Elementary Theory and Application of Numerical Analysis*, McGraw-Hill Book Co., New York, 1967, xi + 297 pp., 24 cm. Price $8.95.

The authors' objectives are to provide an introduction to modern numerical analysis at the sophomore-junior level, to describe a few selected but important methods and algorithms with mathematical rigor, paying due regard to error analysis, and concurrently, to review and solidify some basic relevant concepts of elementary calculus. These objectives have been attained to a remarkable degree, and the book can be highly recommended for its intended use. The chapter headings are: 1. Solution of equations by fixed-point iteration, 2. Matrix computations and solution of linear equations, 3. Iterative solution of systems of equations, 4. Polynomials, Taylor's series, and interpolation theory, 5. Errors and floating-point arithmetic, 6. Numerical differentiation and integration, 7. Introduction to the numerical solution of ordinary differential equations, 8. Numerical solution of ordinary differential equations. Each chapter contains numerous numerical examples, programs in FORTRAN with sample outputs, and a large number of exercises, mostly of the "drill" type.

W. G.

80[2.05, 6, 7].—MARTIN AVERY SNYDER, *Chebyshev Methods in Numerical Approximation*, Prentice-Hall, Inc., Englewood Cliffs, N. J., 1966, x + 114 pp., 24 cm. Price $7.50.

This is another volume of the Prentice-Hall Series in Automatic Computation. It is concerned with methods for constructing polynomial and rational approximations to functions. Emphasis is given to those methods employing Chebyshev polynomials (Chebyshev series, economization of power series, Lanczos' τ-method, Maehly's method, economization of continued fractions), although other miscellaneous methods are also considered (Padé approximation, Kopal's method, Thiele's continued fraction). Contrary to what the title might suggest, minimax approximation is discussed only incidentally. There are two introductory chapters, one de-