Appendix II is an impressive list of references. A notation and symbol index at the beginning of the book and a subject index at the end of the book are of considerable help to the user. The intervening 17 years have not diminished the stature of this important treatise.

Y. L. L.

1. A. Erdélyi et al., *Higher Transcendental Functions*, Vols. 1 and 2, McGraw-Hill, New York, 1953. (See *MTAC*, v. 11, 1957, pp. 114–116.)
2. F. G. Tricomi, *Funzioni Ipergeometriche Confluenti*, Edizioni Cremonese, Rome, 1954.
3. L. J. Slater, *Confluent Hypergeometric Functions*, Cambridge Univ. Press, New York, 1960. (See *Math. Comp.*, v. 15, 1961, pp. 98–99.)
4. L. J. Slater, *Generalized Hypergeometric Functions*, Cambridge Univ. Press, New York, 1966. (See *Math. Comp.*, v. 20, 1966, pp. 629–630.)
5. A. W. Babister, *Transcendental Functions Satisfying Nonhomogeneous Linear Differential Equations*, Macmillan, New York, 1967. (See *Math. Comp.*, v. 22, 1968, pp. 223–226.)
6. Y. L. Luke, *The Special Functions and Their Approximations*, Vols. 1 and 2, Academic Press, New York, 1969.

64[2, 3, 4, 5, 13].—Robert L. Ketter & Sherwood P. Prawel, Jr., *Modern Methods of Engineering Computation*, McGraw-Hill Book Co., New York, 1969, xiv + 492 pp., 23 cm. Price $15.50.

The book is intended to provide an introductory numerical analysis text for second- or third-year students of engineering and applied science. Some familiarity with computer programming is assumed.

After two introductory chapters on engineering problems and digital computers, the authors devote five chapters on matrix computation. Among the topics included are determinants, matrices, linear algebraic systems, matrix inversion, and the eigenvalue problem. Surprisingly, there is no mention of pivotal strategies in connection with Gauss elimination. Nonlinear equations are treated next, and topics related to interpolation, numerical differentiation and integration, least squares approximation, are collected in a chapter entitled "Miscellaneous Methods." There follow two chapters on the numerical solution of ordinary and partial differential equations, and a final chapter on optimization.

The discussion is verbose and discursive, throughout, and there are numerous instances of lax terminology and factual inaccuracies. The reviewer does not believe, therefore, that the book adequately fills the needs of the students for which it is intended.

W. G.

65[2, 4, 12].—W. A. Watson, T. Philipson & P. J. Oates, *Numerical Analysis—The Mathematics of Computing*, American Elsevier Publishing Co., New York, 1969, v. 1, xi + 224 pp.; v. 2, x + 166 pp., 23 cm. Price $4.50 and $5.50, respectively (paperbound).

This attractive textbook in two volumes was written specifically as an introduction to numerical analysis in the sixth form of British secondary schools and for more advanced students. Nevertheless, it should serve equally well as a lucid introduction to this subject in other school systems, such as that in this country.

Volume 1 provides in the space of nine chapters a very readable introduction to such topics as the use of hand-calculating machines; rounding errors; flow charts; curve tracing and the graphical solution of equations; iterative methods for the solution of equations in one or more variables; differences of a polynomial and their application in locating and correcting tabular errors; solution of linear simultaneous equations by the methods of elimination, triangular decomposition, and Gauss-Seidel iteration; numerical solution of polynomial equations; linear interpolation; and numerical integration by the trapezoidal, mid-ordinate, and Simpson rules.

Volume 2 treats equally clearly and concisely in eight chapters such topics as the interpolation formulas of Gregory-Newton, Bessel, and Everett (including throwback); inverse interpolation; Lagrange interpolation (including Aitken's method); numerical integration using differences; numerical differentiation; numerical solution of ordinary differential equations of the first and second orders; curve fitting by least squares; and the summation of slowly convergent series by Euler's method and the Euler-Maclaurin formula.

Each volume is well supplied with illustrative examples as well as with exercises (and answers) for the student. Also included are short bibliographies of material for further reading and study.

J. W. W.

66[2.10].—F. G. Lether & G. L. Wise, *Ralston Quadrature Constants*, Tables appearing in the microfiche section of this issue.

An n-point quadrature rule of the form

$$\int_{-1}^{1} f(x)\,dx \simeq \sum_{j=2}^{n-1} a_j f(x_j) + a_1(f(-1) - f(1))$$

which is of polynomial degree $2n - 4$ is termed a Ralston Quadrature Rule. A list of weights and abscissas for $n = 3(1)9$ is given, together with coefficients e_1 and e_2 which may be used to bound the approximation error in terms of bounds on the first or second derivatives of $f(x)$.

Rules of this type may be used in cytolic integration. Because $a_1 = -a_n$ and $x_1 = -x_n = -1$, if the integration interval is divided into N equal panels and the n point rule used in each, only $N(n - 2) + 2$ distinct function values are required for a result of polynomial degree $2n - 4$. This may be compared with $N(n - 2)$ distinct function values using a Gauss Legendre formula to obtain a result of polynomial degree $2n - 5$.

The weights and abscissas are given to between nine and eleven significant figures. The authors also list the coefficients in the polynomials whose roots are the abscissas. This information may be useful both to users and to theoreticians, and I am happy to see its inclusion with the tables.

J. N. L.