How are we to learn to distinguish between important and unimportant programming details if such things are not discussed somewhere? How this should be done I am not quite sure. The study of Volumes I and II of the *Handbook for Automatic Computation* might be a good way to begin.

B. P.

1. T. J. DEKKER AND W. HOFFMAN, *Algol* 60 *Procedures in Numerical Algebra, Parts I and II,* Mathematisch Centrum, Amsterdam, Holland, 1968.
2. H. H. GOLDSTINE, F. J. MURRAY AND J. VON NEUMANN, "The Jacobi method for real symmetric matrices," *J. Assoc. Comput. Mach.*, v. 6, 1959, pp. 59–96.

31 [4].—C. WILLIAM GEAR, *Numerical Initial Value Problems in Ordinary Differential Equations*, Prentice-Hall, Inc., Englewood Cliffs, N. J., 1971, xvii + 253 pp., 24 cm. Price $12.95.

"I have tried to gather together methods, mathematics and implementations and to provide guidelines for their use on problems." The author has succeeded admirably in this effort. With a careful selection of illustrative examples, he presents clear discussions of the reasons that various algorithms perform as they do. In each case, he begins with a concrete description of the numerical method and ends with a definite mathematical analysis of the procedure. The reader is masterfully guided through the regions of stability for each method. He explains how to choose an appropriate method (step size and order) for solving the initial value problem; and in particular, discusses the treatment of stiff equations, gives a brief development for handling singular perturbation or singular implicit equations, and shows how to solve for certain parameters that may appear as unknowns in a given system of differential equations. The author only describes those techniques that he has found to be of the most utility; in this way the book is kept slim and its subject matter alive. Three FORTRAN subroutines for the numerical solution of differential equations are listed. As indicated in the preface, the author hoped to repay his debt to society by setting his "thoughts on paper so that the useful among them might benefit others." In this connection, the reviewer believes that Gear's debt has been repaid many times.

E. I.

32 [7].—ALFRED H. MORRIS, JR., *Table of the Riemann Zeta Function for Integer Arguments*, Naval Weapons Laboratory, Dahlgren, Virginia, ms. of 3 pp. +2 computer sheets deposited in the UMT file.

The Riemann zeta function, $\zeta(n)$, is herein tabulated to 70D for $n = 2(1)90$. Confidence in the complete reliability of the tabular entries is inspired by the accompanying description of the details of the underlying calculations, which were carried to 80D.

This carefully prepared tabulation constitutes a valuable supplement to the corresponding 50D table of Lienard [1] and the 41S table of $\zeta(x) - 1$ of McLellan [2].

J. W. W.

1. R. LIENARD, *Tables Fondamentales à 50 décimales des Sommes* S_n, u_n, Σ_n, Centre de Documentation Universitaire, Paris, 1948. (See *MTAC*, v. 3, 1948–1949, p. 358, RMT **589.**)
2. ALDEN MCLELLAN IV, *Tables of the Riemann Zeta Function and Related Functions*, Desert Research Institute, University of Nevada, Reno, Nevada, ms. deposited in UMT file. (See *Math. Comp.*, v. 22, 1968, pp. 687–688, RMT **69.**)

33 [7].—ALFRED H. MORRIS, JR., *Tables of Coefficients of the Maclaurin Expansions of* $1/\Gamma(z + 1)$ *and* $1/\Gamma(z + 2)$, Naval Weapons Laboratory, Dahlgren, Virginia, ms. of 2 pp. + 4 computer sheets deposited in the UMT file.

Using independently the method previously employed by this reviewer [1], the author has calculated and tabulated to 70D the first 71 and 72 coefficients, respectively, of the expansions

$$1/\Gamma(z + 1) = \sum_{n=0}^{\infty} a_n z^n \quad \text{and} \quad 1/\Gamma(z + 2) = \sum_{n=0}^{\infty} b_n z^n .$$

These coefficients are connected by the known relation $a_i = b_{i-1} + b_{i-2}$. The recursive calculation of the b_i's involved the Riemann zeta function for integer arguments, which the author had calculated [2] to more than 70D for this express purpose.

Comparison of these more extended tables with the corresponding 31D tables [1] of this reviewer has revealed a series of erroneous end figures in the latter tables. Detailed corrections therein are listed in the errata section of this issue.

J. W. W.

1. J. W. WRENCH, JR., "Concerning two series for the Gamma function," *Math Comp.*, v. 22, 1968, pp. 617–626.
2. A. H. MORRIS, JR., *Table of the Riemann Zeta Function for Integer Arguments*, ms. deposited in the UMT file. (See *Math. Comp.*, v. 27, 1973, p. 673, RMT **32.**)

34 [7].—RAÚL LUCCIONI, *Tables of Zeros of* $hJ_0(\xi) - \xi J_1(\xi)$, Instituto de Matematica, Facultad de Ciencias Exactas y Tecnologia, Universidad Nacional de Tucuman (R. Argentina), ms. of 10 pp. deposited in the UMT file.

A need for such zeros arises in a variety of physical problems, as noted by Carslaw & Jaeger [1], who have tabulated the first six zeros to 4D for 36 values of h ranging from zero to infinity.

In a recent paper [2] by the author, in collaboration with S. L. Kalla and A. Battig, it was found that more zeros are required to insure sufficient accuracy in the evaluation of certain infinite series.

Accordingly, the present tables have been prepared listing to 10D the first 25 zeros corresponding to $h = 0.1(0.1)6.0$.

Y. L. L.

1. H. S. CARSLAW & J. C. JAEGER, *Conduction of Heat in Solids*, Oxford Univ. Press, New York, 1947, p. 379.
2. S. L. KALLA, A. BATTIG & RAÚL LUCCIONI, "Production of heat in cylinders," *Rev. Ci. Mat. Univ. Lourenço Marques Ser. A*, v. 4, 1973.