The authors separately tabulate I_n erfc $x = A_n i^n$ erfc x, where $A_n = 2^n\Gamma\left(1 + \frac{n}{2}\right)$, and $H_n^*(x)$, which is defined in terms of the standard Hermite polynomials by the relations $H_{2n}^*(x) = H_{2n}(x)/B_{2n}$ and $H_{2n-1}^*(x) = H_{2n-1}(x)/B_{2n}$, where $B_{2n} = (-1)^n(2n)!/n!$, so that $H_{2n}^*(0) = 1$.

In a separate table I_0 erfc $x \equiv$ erfc x is given in floating-point form to 6S for $x = 0.01(.01)3.50$. On succeeding pages appears the tabulation of I_n erfc x for $n = 1(1)30$, at an interval of 0.01 in x. The precision ranges from 6S initially to 2S near the end of the table. The upper limit to the argument x depends upon n, and varies monotonically from 3.50, when $n = 1$ and 2, to 1.00 when $n = 26$–30. A preliminary table of A_n to 9S is given in floating-point form for $n = 0(1)30$; this has terminal-digit errors, beginning with A_1, which is simply the well-known constant $\sqrt{\pi}$. The table of I_0 erfc x is seriously infested with errors, which apparently arose from the retention of a fixed number of significant figures instead of a fixed number of decimal places. This loss of accuracy was also observed in the table of I_n erfc x, $n \geqq 1$. Moreover, the table-user will be annoyed to discover that certain columns have been filled out with zeros, with an attendant loss of all significant figures in those tabulated data.

Following this is a table of the coefficients B_{2n}, which are given exactly for $n = 0(1)9$ and are truncated (without rounding) to 9S for $n = 10(1)15$. The value for B_{22} contains a more serious error; namely, the sixth most significant figure is given as 0 instead the correct digit, 5.

The second principal table gives 6S values of $H_n^*(x)$ for $n = 1(1)30$, $x = 0(.01)10$. The floating-point format is retained for the entries in this table.

An introduction describes the fundamental properties of the tabulated functions, the methods used in calculating the tables, and their arrangement and use. A list of ten references includes papers by Hartree and by Kaye that contain related tables of i^n erfc x.

It is regrettable that the accuracy of these extensive tables does not match the very attractive appearance of the binding.

J. W. W.

81[L].—L. K. Frevel & J. W. Turley, *Tables of Iterated Bessel Functions of the First Kind and First Order*, The Dow Chemical Company, Midland, Michigan, 1962. Deposited in UMT File.

The authors have continued their study and tabulation of iterated functions, which has included the iterated sine (*Math. Comp.*, v. 14, 1960, p. 76), the iterated logarithm (*ibid.*, v. 15, 1961, p. 82), the iterated sine-integral (*ibid.*, v. 16, 1962, p. 119), and now this report on the iterated Bessel function of the first kind and first order.

Two tables of decimal values of $J_1^n(x)$ are presented, as computed on a Burroughs 220 system, supplemented by Cardatron equipment to permit on-line printing of the final format.

Table 1 consists of 15D values of $J_1^n(x)$ corresponding to $n = 1(1)10$ and $x = 0(0.2)10$. Table 2, comprising the bulk of the report, gives 12D values of $J_1^n(x)$ for $n = 0(0.05)10$, $x = 0.2(0.2)1.8$, and for $n = 1(0.05)10$, $x = 2(0.2)10$.

In the heading of this table, the increment in n is erroneously given as 0.02, although it is correctly stated in the abstract.

The prefatory text of three pages defines the iterated Bessel function under consideration and describes the method of computation employed in the construction of the tables. It is there stated that the entries in Table 2 were calculated to 17D prior to rounding to the tabular precision of 12D.

These data constitute another original contribution to the rapidly increasing number of new mathematical tables.

J. W. W.

82 [P, S, X].—JOHN W. DETTMAN, *Mathematical Methods in Physics and Engineering*, McGraw-Hill Book Company, New York, 1962, xii + 323 p., 23 cm. Price $9.75.

In the author's introduction to this very well written textbook he states that, whereas the traditional course in advanced mathematics for engineers and physicists is intended for students who wish to pick up additional techniques not covered in the elementary calculus, these topics are often presented in a very heuristic fashion because the students lack a solid background in analysis. Eventually, he claims, most graduate physics and engineering students will need a thorough understanding of applied mathematics.

The purpose of this book, then, is to fill the need for an introduction to mathematical physics for which a foundation has been prepared by a solid "mathematician's" advanced calculus course.

The author has done yeoman service to his announced aims. There is at least enough material here for a two-semester course, and it is characterized by a good continuity of development. Further, it is an order of sophistication beyond the aforementioned advanced engineering mathematics course.

The style is terse; perhaps this follows from his implied discontent with heuristic presentations. If so, it is not an unusual viewpoint but regrettable, nonetheless, because heuristic discourse can be quite rigorous and still serve to stimulate investigation. It merely implies a high redundancy level which is all too often disdained in textbooks.

Chapter 1 mainly prepares the algebraic foundations for later material, moving through linear algebra into infinite-dimensional vector spaces, orthonormal functions, Fourier series, quadratic forms, and vibrations problems. The second chapter covers variational methods, from maxima and minima of functions and functionals through Lagrange's equations and Hamilton's principle to boundary-value problems and eigenvalue problems.

Chapter 3 discusses separation of variables, Sturm-Liouville systems and the method of Frobenius, while chapter 4 concerns itself with Green's functions in boundary-value problems. Chapter 5 includes a lucid, but still very terse, treatment of integral equations. The final chapter treats of Fourier transforms and their applications, with mention of Laplace and other integral transforms.

Each chapter is divided into several sections, each of which is followed by a set of moderately difficult exercises. The book abounds with excellent examples of the applications of the techniques which have been developed.

While this textbook certainly will serve its intended purpose and is, in fact,