The c.f.'s $C_n(n + 1)$ and $C_n(n + \frac{1}{2})$ are tabulated to 45D in Case (A) and to 48–50D in Case (B), for $n = 4$ or 5(1)20. In Case (C), $C_n(n + \frac{1}{2})$ and $C_n(n)$ are given to 63D for $n = 0(1)64$ and $n = 2(1)64$, respectively. In addition, auxiliary tables are presented which permit the evaluation to comparable accuracy of a c.f. when the argument is not an integer or half an integer. These take the form of tables of coefficients in the Taylor series for $C_n(n + 1 + h)$ (Cases (A) and (B)) or $C_n(n + \frac{1}{2} + h)$ (Case (C)). The same series, whose coefficients can be generated by recurrence, were in fact used to compute the key values $C_n(n + 1)$ (or $C_n(n + \frac{1}{2})$) for successively decreasing integer values of n. We note that when x is small a very large number of terms is needed; thus in Case (C), 326 terms in the expansion of $C_1(1.5 + h)$ are significant to 63D. A variant of the method, in which this difficulty is avoided by use of a variable interval in x, has been described by the reviewer [2] and applied to Case (B).

A starting value $C_n(n + 1)$ or $C_n(n + \frac{1}{2})$, for some large n, can be calculated from an expansion in inverse powers of n. The so-called Airey asymptotic series, applicable in Cases (B) and (C), is extended in II from the 23 terms listed by Airey [1] to as many as 67 terms. Various generalizations are also treated. In Case (A), 21 coefficients (of which only 4 were available previously) are derived by ingenious use of recurrence relations. As a by-product, 20 coefficients in Stirling's asymptotic series for the Gamma function are also obtained, 13 more than had previously been published. (The computational utility of the extended Stirling's series in the evaluation of factorials of integers has been noted in a recent review [3].) Furthermore, in I function (A) is tabulated to 44S for $x = 6(1)20$, and function (B) to 45D for $x = 6(1)21$.

These reports undoubtedly constitute an important contribution to the art of calculating special functions to high precision.

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1. J. R. Airey, "The 'converging factor' in asymptotic series and the calculation of Bessel, Laguerre and other functions," *Philos. Mag.*, (7), v. 24, 1937, pp. 521–552.
2. G. F. Miller, *Tables of Generalized Exponential Integrals*, Math. Tab. Nat. Phys. Lab., v. 3, 1960. (See *Math. Comp.*, v. 15, 1961, pp. 213–214, RMT **49**.)
3. See RMT **40**, *Math. Comp.*, v. 18, 1964, p. 326.

72[P].—James L. Marshall, *Introduction to Signal Theory*, International Textbook Co., Scranton, Pa., 1965, xv + 254 p., 24 cm. Price $9.00.

Professor Marshall's well-written monograph on the transformation of signals is intended to be an elementary textbook for advanced undergraduate students in the physical and engineering sciences or in applied mathematics. Following tradition, prime emphasis is given to electric systems rather than to nuclear, mechanical, chemical, or thermal processes. Graduated problems, together with some solutions, accompany each of the ten nonintroductory chapters of this handy book.

The author gives the rudiments of such standard topics as polynomial and trigonometric approximations to wave forms, use of Fourier and LaPlace transforms for the analysis of linear systems, complex Fourier series, reciprocal spreading relations, Parseval's theorem, and partial-fraction expansions of rational functions. A novel feature of the book is a brief discussion of almost-periodic signals in the sense of H. Bohr [1], who is also known for work on Dirichlet series. Special attention is given to *finite*-series representations with *incommensurable* periods, although most of the results hold for infinite-series representations, too. Further, Parseval's theorem for almost-periodic functions is mentioned. Probability theory is considered in order to discuss the engineering uses of correlation functions and the notion of information. Finally, some basic nonlinear processes are discussed including such subjects as modulation and detection. A discussion or mention of Wiener's idea [2] of using shot noise as a standard signal for probing nonlinear systems would have added to the value of the monograph. Finally, if the author had treated Thévenin's theorem or Norton's theorem, the analysis of various interesting systems with a single nonlinear element would have been amenable.

The book should be especially useful for supplementary reading by undergraduates in electric science.

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1. H. Bohr, *Almost Periodic Functions*, Chelsea, New York, 1947.
2. N. Wiener, *Nonlinear Problems in Random Theory*, Technology Press and Wiley, New York, 1958.

73[P, X].—Patrick Billingsley, *Ergodic Theory and Information*, John Wiley and Sons, Inc., New York, 1965, xiii + 193 pp., 23 cm. Price $8.50.

This beautiful little book, which grew out of a series of lectures given by the author in 1963, centers about the Kolmogorov-Sinai theory of entropy of measure-preserving transformations.

The book begins with a discussion of the ergodic theorem, whose significance is illustrated by a well-chosen battery of examples drawn from analysis and from probability theory; the notion of ergodicity is explained; criteria for ergodicity are derived, and applied to various of the examples considered. A succinct proof of the ergodic theorem by the method of Riesz follows. Various more subtle examples of measure-preserving transformations are then discussed, including the standard measure-preserving transformation associated with the continued fraction expansion of real numbers lying in the unit interval, whose analysis, in a truly elegant section of 10 pages, yields numerous interesting measure-theoretic results concerning this expansion.

The second main, and the central, chapter of the book begins with a general discussion of the problem of isomorphism for measure-preserving transformations, following upon which the entropy invariant is defined, its properties established, and, after a technical section on separable measure spaces, its invariance proved. The nonisomorphism of certain measure-preserving shift transformations follows. An additional section discusses the spectral type of a measure-preserving transformation as another isomorphism invariant, and exhibits transformations of different entropies with identical spectral types. A final section in this chapter surveys some additional results and describes a number of open problems.

Next follows a chapter of a preparatory character which sets forth the basic