tables of pairs of Laplace transforms, no table can be complete, since such tables are by their nature infinite in character. Nonetheless, pure and applied workers should find this compendium useful.

The volume is divided into three parts. Part I states some tests for the convergence of a series and conditions for series rearrangement, multiplication, etc. Some expansion methods are briefly outlined. These include Taylor's theorem, Fourier series and Euler's summation formula. This section is by no means complete since, for example, general expansion formulas in series of orthogonal functions and Bessel functions are not mentioned, though many samples of such expansions are listed in Parts II and III. Part II is a list of series corresponding to a given function. This is divided into 12 subsections, for example, rational algebraic functions, trigonometric functions and Bessel functions of the first kind. Part III gives sums of series and is in a way the inverse of Part II. Here we are given a series, and we seek the function it represents. This portion is divided into 6 subsections, for example, series involving only natural numbers, series of algebraic functions and series of Bessel functions.

In Parts II and III, some data are given beside each entry to identify the source from which the series was taken or was deduced. This is useful to check entries and to aid in the evaluation of similar series not given in the table. In one instance, see p. 107, the author incorrectly deduces the "formula" $\int_x^\infty Y_\nu(t)dt = 2\sum_{n=0}^{\infty} Y_{2n+1+\nu}(x)$, $R(\nu) > -1$, a divergent expansion, from the source's correct formula $\int Y_\nu(z)dz = 2\sum_{n=0}^{m-1} Y_{2n+1+\nu}(z) + \int Y_{2m+\nu}(z)dz$, $m = 1, 2, \cdots$. Our casual reading has revealed some typographical errors. On p. 5, top of page, line 2, for $(2m + 2)$ read $(2m + 1)$. On p. 27, the letter c has been omitted in the spelling of the inverse hyperbolic functions. Aside from these and other possible discrepancies, we believe this to be a worthwhile volume.

Y. L. L.

5[K, S, X].—E. B. Dynkin, *Markov Processes*, Vols. I and II, Die Grundlehren der Mathematischen Wissenschaften in Einzeldarstellungen, Vol. 121, Springer-Verlag, Berlin and Academic Press, New York, 1965, xii + 365 pp., 24 cm. Price $12.00.

This is a translation from the Russian book which appeared in 1963. In the last decade the theory of Markov processes in continuous time has become a serious subject. Thus it was found necessary to re-lay the foundation as the author did in his book *Die Grundlagen der Theorie der Markoffschen Prozesse* (Springer-Verlag, Berlin, 1961). The present book developed the general concepts and tools (characteristic operators, additive and multiplicative functionals, transformations, stochastic integrals), related them to known theories of harmonic functions and partial differential equations, and examined certain particular cases such as processes with continuous paths and diffusion and Wiener processes. These topics are still undergoing intensive research for which this book will be a valuable guide. It is fortunate that it is written in the author's usual careful, explicit and expansive style. Nonetheless, a casual perusal would not be easy owing to rather heavy cross-references within the book itself and to the *Grundlagen* cited above. The book would become even more useful if another more specialized and more concrete summary of the basic results in the *Grundlagen*, but restricted to the cases actually applied here, could be appended to a latter edition.

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6[L].—M. I. ZHURINA & L. N. OSIPOVA, *Tablitsy vyrozhdennoy gipergeometricheskoy funktsii* (*Tables of the confluent hypergeometric function*), Computing Center of the Academy of Sciences of the USSR, Moscow, 1964, xviii + 244 pp., 27 cm. Price 2.50 rubles.

This volume is one of a well-known series edited by V. A. Ditkin, and lists values of solutions of the confluent hypergeometric equation

$$xu'' + (\gamma - x)u' - \alpha u = 0$$

in the case $\gamma = 2$. The solution called $F(\alpha, \gamma, x)$ is regular at the origin, and is identical with the usual one, often denoted by ${}_1F_1(\alpha; \gamma; x)$, $M(\alpha, \gamma, x)$ or $\Phi(\alpha, \gamma; x)$. The solution called $G(\alpha, \gamma, x)$ is the $\Psi(\alpha, \gamma; x)$ of [1] and the $U(\alpha; \gamma; x)$ of [2]; in general, for $\gamma = 2$, it has a singularity at the origin, but $G(0, 2, x)$ is unity.

Table I (pp. 2–121) and Table II (pp. 124–243) give $F(\alpha, \gamma, x)$ and $G(\alpha, \gamma, x)$ respectively; since F and G are not mentioned in page headings, and the two tables are similarly arranged, the user has to keep his wits about him to avoid dipping into the wrong table. Both F and G are given to 7S or 7D for $\alpha = -0.98(0.02) + 1.10$, $x = 0(0.01)4.00$. No differences are given; Lagrange interpolation is used when necessary in the illustrative examples, which never involve interpolation in both α and x.

For the two integral values of α included in the range ot tabulation, namely 0 and 1, the solutions tabulated reduce to:

$$F(0, 2, x) = 1, \qquad G(0, 2, x) = 1,$$

$$F(1, 2, x) = (e^x - 1)/x, \qquad G(1, 2, x) = 1/x.$$

Thus for $\alpha = 0$ the tabulated G solution fails to be independent of the F solution; but for this value of α an independent second solution, $Ei(x) - x^{-1}e^x$, may easily be calculated from tables of the exponential integral and function.

The early part ot the Introduction contains a number of formulas relating to confluent hypergeometric functions; they include the usual formulas connecting "contiguous" functions, which allow F and G to be calculated for values of α outside the range of tabulation, and integral values of γ different from 2.

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1. A. ERDÉLYI, W. MAGNUS, F. OBERHETTINGER & F. G. TRICOMI, *Higher Transcendental Functions*, Vol. 1, McGraw-Hill, New York, 1953; Ch. 6.
2. L. J. SLATER, *Confluent Hypergeometric Functions*, Cambridge Univ. Press, New York, 1960.