$$A_k = (-1)^{N-1} \frac{(N-1)!}{\Gamma(N+s-1)Np_k^2} \left[ \frac{2N+s-2}{P_{N-1,s}(p_k^{-1})} \right]^2 .$$

All calculations were performed on the IBM 1620 system at the Computing Centre of the University of Leuven.

Application of the tables is illustrated by four diversified examples.

In his description of previous tabulations of this type the author includes references to tables by Salzer [1], [2] and by Stroud & Secrest [3], wherein $s$ is restricted to the special value 1, and to more general tables by Skoblia [4] and by Krylov & Skoblia [5].

J. W. W.


1. H. E. SALZER, "Orthogonal polynomials arising in the numerical evaluation of inverse Laplace transforms," *MTAC*, v. 9, 1955, pp. 164–177.

2. H. E. SALZER, "Additional formulas and tables for orthogonal polynomials originating from inversion integrals," *J. Math. and Phys.*, v. 40, 1961, pp. 72–86.

3. A. STROUD & D. SECREST, *Gaussian Quadrature Formulas*, Prentice-Hall, Englewood Cliffs, N. J., 1966.

4. N. S. SKOBLIA, *Tables for the Numerical Inversion of Laplace Transforms*, Academy of Sciences of USSR, Moscow, 1964. (Russian) (For a review, see *Math. Comp.*, v. 19, 1965, pp. 156–157, RMT 15.)

5. V. I. KRYLOV & N. S. SKOBLIA, *Handbook on the Numerical Inversion of the Laplace Transform*, Izdat. Nauka i Teknika, Minsk, 1968.


6 [2.20, 2.35].—A. S. HOUSEHOLDER, *KWIC Index for the Numerical Treatment of Nonlinear Equations*, Oak Ridge National Laboratory, Oak Ridge, Tennessee, 1970, vii + 129 pp., 28 cm. Available from U. S. Department of Commerce, Springfield, Va. 22151. Price: printed copy $3.00; microfiche $0.65.

The author of this index has a reputation not only for his numerous original research contributions but also for his many excellent bibliographies. For example, his extensive bibliography on numerical analysis in his book, *Principles of Numerical Analysis* [McGraw-Hill, 1953; continued in *J. Assoc. Comput. Mach.*, v. 3, 1956, pp. 85–100] has been one of the earliest reference collections in that field and as such has had considerable influence. More recently appeared a *KWIC Index for Matrices in Numerical Analysis* (Oak Ridge National Lab. Report ORNL-4418] and the present index on nonlinear equations is described as being in part a supplement to it. In the words of the preface, this is to mean that "many items, especially textbooks and treatises, relate to both topics, but (that), apart from accidental duplication, each item is listed in only one place".

The present index contains 1182 items and thus is probably the most extensive reference collection on nonlinear equations. At the same time, no claim for completeness can be or is being made. The preface specifically observes that "for the older literature, no exhaustive historical search was attempted" and that on the topic of solving systems of equations "the list is far from exhaustive", since "this area merges imperceptibly into the far more general one of solving functional equations, on the one hand, and on the other of mathematical programming, where the literature is vast". This latter point probably accounts for the fact that, for instance, a bibliography of Ortega and Rheinboldt [*Iterative Solution of Nonlinear Equations in Several Variables*, Academic Press, 1970] contains a number of titles which would appear to have been natural candidates for inclusion in this index. Also, the earlier bibliography of Traub [*Iterative Methods for the Solution of Equations*, Prentice-Hall, 1964] has some entries not subsumed here.

A KWIC index certainly increases the information content of any bibliography, since it provides ready access to sources on specific topics—as far as the titles contain the appropriate keywords. The choice of the "trivial words" in any KWIC index is almost always a matter for some debate. In this case, it appears to be surprising that such words as "system(s)" were excluded while "equation(s)" was not—resulting in over 400 entries in the index.

All in all, in the face of the explosive growth of the scientific literature, we can only be thankful when a man with the wide knowledge and critical facility of Professor Householder undertakes the large task of collecting a bibliography in an area of his interest. It would be highly desirable, however, if such bibliographies could find a more permanent place of their own in the printed literature which would assure them of a wider, continued distribution than is possible for mimeographed reports.

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**7 [5].**—S. D. ÈĬDEL'MAN, *Parabolic Systems*, North-Holland Publishing Co., Amsterdam, and Wolters-Noordhoff Publishing, Groningen, 1969, ii + 469 pp., 23 cm. Price $18.20.

This is a translation of a research monograph which appeared in Russian in 1964. It essentially concentrates on partial differential equations which are parabolic in the sense of Petrovski. The mathematical techniques are mostly classical—Fourier-Laplace transforms, the parametric approach developed by E. E. Levi in 1907, etc. Much of the work in this active field has been done by Russian mathematicians inspired by a famous paper of Petrovski's in 1938.

The translation has a certain awkwardness in the choice of terminology, order of words, etc., which is common in translations. However, no one who is mathematically prepared to read the book should have great difficulty in understanding the text.

There are four chapters and two appendices. In the first chapter, the author derives bounds for the fundamental solution in the Cauchy case. He first discusses the second-order case, then general Petrovski parabolic systems with bounded, Hölder-continuous coefficients. These results are generalized to problems with unbounded coefficients and with less restrictive assumptions on the smoothness of the coefficients. Among other topics, the work of Nash is discussed, as well as the behavior in the neighborhood of singularities and the relation between the fundamental solutions of elliptic and parabolic systems.

The second chapter is devoted to interior Schauder estimates, a discussion of hypoellipticity and Liouville type results.

In the third chapter, the fundamental solution is used to derive existence and uniqueness theorems, in the Cauchy case, for classes of initial data characterized by sharp growth conditions. Other topics include local solvability and continuation