accuracy in the roots due to ill-conditioned polynomial coefficients, even when the eigenvalues are well-conditioned, is only hinted at. Indeed, the author takes the whole matter of "stability" or "instability" of a method with regard to numerical computation much too lightly. One gets the impression that the author's primary experience and concern is with methods for hand computation, hardly appropriate in this day and age.

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**28[3, 4, 5].**—A. S. HOUSEHOLDER, *KWIC Index for Matrices in Numerical Analysis*, Volume I: Primary Authors A–J, viii + 124 pp., Volume II: Primary Authors K–Z, vii + 151 pp., 1969, Oak Ridge National Laboratory, Oak Ridge, Tennessee, 28 cm. Available from National Technical Information Service, U. S. Department of Commerce, Springfield, Virginia 22151. Price: Printed copy $3.00, Microfiche $0.65, each volume.

Here are listings of papers and books which Professor Householder has compiled during the last ten years. Subjects included are numerical linear algebra, theory of real and complex matrices, difference schemes for differential equations. For the most part, the subjects of infinite matrices, Banach spaces, Hilbert spaces, matrices over arbitrary fields, combinatorial and functional analysis are not represented.

The 2600 items are listed alphabetically by author and also in a KWIC (Key Word in Context) Index. The authors are also listed separately.

All people who work in the field of matrix computations should be grateful to Professor Householder for making available to us this valuable information retrieved from the passing flood of scientific publications.

A third volume will contain more recent titles and also foreign titles which have not yet been translated.

B. N. P.

**29[3, 4, 5, 8, 13.35].**—R. V. GAMKRELIDZE, EDITOR, *Probability Theory, Mathematical Statistics, and Theoretical Cybernetics*, translated from Russian, Plenum Press, New York, 1969, vii + 112 pp., 24 cm. Price $15.00.

This book is a peculiar combination including, as it does, two papers entitled: "Markov Processes and Differential Equations" by M. I. Freidlin and "Discrete Problems in Mathematical Programming" by A. A. Korbut and Yu. Yu. Finkel'shtein. As such, two subject matters, entirely and fundamentally disparate, are presented, and the likelihood of finding readers, let alone reviewers, interested in the contents or competent to judge the merits of both, is nil.

This reviewer's competence extends only to the second paper. The first is devoted largely to a survey of the Russian literature (viz., on p. 2, "A great deal of work represented in the survey comes from papers by Soviet authors. Indeed, this reflects the true state of affairs, that our mathematicians stand at the forefront in the application of probabilistic methods to differential equations."), and may or may not be a complete guide to the Soviet contributions to the subject. The extent to which it does summarize Russian work measures its usefulness, since it is full of "... it turns out that ..." and "... it has been proved that ...".

The second paper, however, is of no particular use. It is a survey of integer programming which makes passing reference to some Russian work but emphasizes the Western contributions to the subject. This is unfortunate, for one learns almost nothing about what the Russians are doing in this field. The inference is that they are doing very little, indeed. On the other hand, what remains of the survey seems to be—by and large—gleaned from survey papers published in the West (notably the papers of Dantzig (*Econometrica*, 1960), Balinski (*Management Science*, 1965), and Beale (*Operational Research Quarterly*, 1965)).

The mystery remains: why does the book exist in English?

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**30[7].**—HENRY E. FETTIS & JAMES C. CASLIN, *A Table of the Complete Elliptic Integral of the First Kind for Complex Values of the Modulus*: III. *Auxiliary Tables*, Aerospace Research Laboratories, Office of Aerospace Research, United States Air Force, Wright-Patterson Air Force Base, Ohio, 1970, iv + 162 pp., 27 cm. Copies may be obtained from the Defense Documentation Center, Cameron Station, Alexandria, Virginia 22314.

For the review of Parts I and II, see *Math Comp.*, v. 24, 1970, pp. 993–994, RMT 76.

Let

$$K(k) = K(R, \theta) = \int_0^{\pi/2} (1 - k^2 \sin^2 \lambda)^{-1/2} \, d\lambda, \qquad k = Re^{i\theta},$$

$$K'(k) = K(k'), \qquad k' = (1 - k^2)^{1/2} = \rho e^{-i\varphi}.$$

This report gives tables of the auxiliary functions

$$K(R, \theta) - F(R, \theta) = \left\{1 + \frac{2}{\pi} K'(R, \theta)\left[\ln \frac{4}{\rho} - 1 + i\varphi\right]\right\}, \qquad K'(R, \theta),$$

and

$$K'(R, \theta) - F'(R, \theta) = \left\{1 + \frac{2}{\pi} K(R, \theta)\left[\ln \frac{4}{R} - 1 - i\theta\right]\right\}, \qquad K(R, \theta),$$

for

$$R = 0.700(0.001)1.0, \quad \theta = 1°(1°)10°, \quad 10\text{ D}$$

and

$$R = 0.01(0.01)0.35, \quad \theta = 1°(1°)90°, \quad 10\text{ D}$$