56[L, X].—FRANÇOISE MICHAUD. *Étude sur les représentations approchées des solutions de l'équation de Mathieu*, Centre National de la Recherche Scientifique, Institut Blaise Pascal, Paris, 1965, 108 + 10 unnumbered pp., 27 cm.

This pamphlet summarizes some of the known results relating to Mathieu's equation, $y'' + [b - s\cos^2 x]y = 0$, and the corresponding modified equation. Its main part is devoted to the characteristic values corresponding to real parameters, s. Several methods of generating these numbers are reviewed. No new methods are developed, but the author has used Bazley's method for self-adjoint operators to compute some additional values and compare them with the National Bureau of Standards tabular values. Her comments indicate that for $s = 100$ and the 8th characteristic value, 12 "intermediate problems" yielded 6 significant figures, and this accuracy could not be improved by further calculations.

This reviewer does not agree with her comment that the method of finding the roots of the classical continued fraction is "very tedious." Compared with this method, Bazley's method involves much more work, and its use is justified only as an exercise, to give insight into his techniques. His methods are of profound importance in more difficult problems, where other means are not available. As an exercise, then, the results now given have value.

The author includes two FORTRAN II codes; one for computing the trigonometric coefficients by the "method of G. Blanch." This code is useful only in the region where none of the trigonometric coefficients pass through zero. For example, there would be division by zero when generating A_0/A_2 (as she does) if 8 or 10 significant digits were carried and $s = 85.19452484$, order $r = 2$. The second code relates to one phase of Bazley's technique.

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57[P, X].—V. E. BENEŠ, *Mathematical Theory of Connecting Networks and Telephone Traffic*, Volume 17, Academic Press, Inc., New York, 1965, xiv + 319 pp., 24 cm. Price $12.00.

Various combinatorial problems associated with communication networks are the principal concern of this research monograph. Special emphasis is given to the arithmetic for the synthesis and design of connecting networks (such as those occurring in the telephone system of a central office), to the classical statistical mechanics of traffic analysis, and to the routing of signals in complex networks. The author's "thermodynamic model" of traffic flow in communication *networks* is sufficiently plausible as to lead the reviewer to conjecture that a "quantum model" exists for a related communication *field*.

Except for minor details, seven of the eight chapters coincide nearly word-for-word with the author's publications in the *Bell System Technical Journal* over the past ten years. The remaining chapter gives results by C. Clos on nonblocking connecting networks for telephone systems. This book, unlike others which have been "pitchforked" together and published, does not suffer from discontinuities between chapters, although one occasionally finds technical terms used before they

are defined or even delimited. It makes exceptionally good use of elementary lattice-theoretical ideas, switching theory, and number-theoretic notions.

Since there are no study problems, the compendium, by itself, would be unsuitable as a textbook. It should be particularly valuable to researchers interested in novel and practical communication networks or in queueing theory.

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58[X].—I. M. KHABAZA, *Numerical Analysis*, Pergamon Press Ltd., Oxford, England, 1965, xii + 239 pp., 20 cm. Price 25s. (Paperbound).

This book is an elementary approach to desk and computer calculation, yet it contains much advanced material (sometimes a bit too compressed for easy reading by the beginner). The basic approach, after a pair of chapters on digital computers and desk machines, is classical via many interpolation formulas derived by symbolic operator methods. The book also covers the topics of zeros of polynomials, solution of ordinary differential equations, and simultaneous linear algebraic equations including latent roots and vectors, orthogonal polynomials, and a bit on Gaussian quadrature. Thus it contains much of the usual material.

The material is well presented, has many practical remarks to aid the beginner, plus worked examples and exercises; thus it could serve as a text in a junior level course (except possibly for its occasional emphasis on desk machine methods which are passé with American students).

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59[X, Z].—*4-ème Congrès de Calcul et de Traitement de l'Information*, Dunod, Éditeur, Paris, 1965, 413 pp., 22 cm.

This is a collection in French of more than fifty separate short articles presented at the 4th Congress of the Association Français de Calcul et de Traitement de l'Information (AFCALTI) held April 21–April 24, 1964. The subjects range from a treatment of singular integral equations to the training of management engineers.

The book is parsed into three main sections—reports, communications and conferences. The Congress touched the areas of combinatorial analysis, compilers, numerical analysis, systems, boolean algebra, digital and analogue computers, integral equations, programming languages for administration, and boundary value problems and variational methods. This record of the Congress is touted as being addressed to management specialist as well as mathematician, logician as well as technician and computing center director as well as student.

Perhaps because of the extent of subject matter and audience, the treatment of topics tends to be rather superficial, and as in most collections of conference papers,