REVIEWS AND DESCRIPTIONS OF TABLES AND BOOKS

The numbers in brackets are assigned according to the revised indexing system printed in Volume 28, Number 128, October 1974, pages 1191–1194.

1 [2.30, 7.05].—RICHARD P. BRENT, *γ and e^γ to* 20700D *and Their Regular Continued Fractions to* 20000 *Partial Quotients,* Australian National University, 1976, 76 computer sheets deposited in the UMT file.

These are the four tables referred to in Brent's paper [1]. They give γ and e^γ to 20700D and their regular continued fractions

$$q_0 + \frac{1}{q_1} + \frac{1}{q_2} + \cdots \frac{1}{q_{20000}}$$

to 20000 partial quotients. For historical, computational and statistical details, see Brent's paper.

A paradoxical point in Brent's paper is this: He attributes to Euler the "suggestion that e^γ could be a more natural constant than γ". Euler should know and I might add that I am inclined to agree: certainly e^γ and $e^{-\gamma}$ occur more frequently in analysis. Now γ is known, by experience, to be harder to compute than π, and π is harder than e. Yet here Brent first computes γ by Sweeney's method, which is the most efficient known, and *then* he computes e^γ from γ. Why not reverse the order? So the question is: What occurrence of e^γ in analysis will lead to an efficient algorithm for its (direct) computation?

Originally, Brent computed γ to 10488D and when this was compared with the previous computation of γ by Beyer and Waterman a discrepancy between the two led to the discovery of an error in the value of Beyer and Waterman. A Table Errata in this issue gives details.

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1. RICHARD P. BRENT, "Computation of the regular continued fraction for Euler's constant," *Math. Comp.*, v. 31, 1977, pp. 771–777.

2 [3.00, 4.00].—A. C. BAJPAI, I. M. CALUS & J. A. FAIRLEY, *Numerical Methods for Engineers and Scientists,* Taylor & Francis Ltd., London, 1975, xii + 380 pp., 25 cm. Price £6.75.

This is a course book written for undergraduates and engineering students. It emphasizes the practical side of the subject and the more theoretical aspects have been largely omitted. The book is unconventional in that it is a programmed text book. It is divided into three units: Unit 1 – Equations and Matrices, Unit 2 – Finite Differences and their Applications, and Unit 3 – Differential Equations. Each unit is then subdivided into programs (between 3 and 5) and each program consists of a sequence of frames (on the average 3 frames per page). Miscellaneous examples with answers and hints are given at the end of each program.

The topics are presented through a sequence of carefully chosen examples mostly with some physical or technical background. The reader first works through one or several numerical examples and then arrives at a more mathematical presentation of the method. The book reflects the authors' interest in educational technology and their experience in teaching mathematics to engineering students, who often do not have a very high mathematical ability and are in need of motivation.