REVIEWS AND DESCRIPTIONS OF TABLES AND BOOKS

39[A].—OTTO EMERSLEBEN, *Quadratwurzeln von 1–1000 nebst Reziproken auf 20 Dezimalstellen*, Anwendungen der Mathematik Nr. 10, Institut für Angewandte Mathematik der Universität Greifswald, Greifswald, 1963, v + 43 p., 30 cm.

The four tables here are $\sqrt{n}$ and $1/\sqrt{n}$ rounded to 20D for $n = 1(1)1000$ together with the sums $\sum_{m=1}^{n} \sqrt{m}$ and $\sum_{m=1}^{n} 1/\sqrt{m}$. The tables were checked by squaring and by the Euler-Maclaurin summation formula. A physical problem which was the motivation for the tables is discussed in the appendix. In the introduction there is a discussion of previous tables of $\sqrt{n}$ and of the two topics: "Benötigt man heute noch Tafeln mathematischen Funktionen?" and "Benötigt man Rechnungen mit groszer Stellenzahl?"

D. S.

40[A].—F. GIANNESINI & J. P. ROUITS, *Tables des coefficients du binôme et des factorielles*, Dunod, Paris, 1963, 114 p., 27 cm. Price 12 F. (paperbound).

There are two tables here. The first is of $C_n^p = n!/p!\,(n-p)!$ to 10S for $n = 2(1)100$ and $p < n$. The second is of $n!$ to 20S for $n = 1(1)1775$. Both tables are in floating decimal.

The introduction gives no bibliography, although many similar tables have appeared. The exact binomial coefficients to $n = 100$, for example, are found in the recent volume [1] of Davis and Fisher. In Davis-Fisher these exact values are printed on 25 pages, while the present generous format requires 69 pages for the 10S approximations. The second table may be compared with the recent Reid-Montpetit table [2]. The latter is less precise (10S) but covers a much larger range: $n = 0(1)9999$. There also is the older Reitwiesner table [3] which is equally precise (20S), but does not have quite the range: $n = 1(1)1000$.

The preface was written by J. Legras. In it he states that since $n!$ is "difficult" to compute for large n, an investigator might content himself with approximate formulas, such as Stirling's formula, "thus introducing poorly known errors". It may be remarked that if an investigator has indeed computed the leading term, $(2\pi n)^{1/2}(n/e)^n$, as an approximation to $n!$, the asymptotic series [4] that multiplies this, namely, $1 + (1/12n) + (1/288n^2) - \cdots$, is relatively easy to compute and would suffice, for the twenty-place accuracy given here, for all $n > 10$.

D. S.

1. H. T. DAVIS & VERA J. FISHER, *Tables of the Mathematical Functions: Arithmetical Tables*, Volume III, Principia Press, San Antonio, Texas, 1962. Reviewed in *Math. Comp.*, v. 17, 1963, p. 459–460, RMT **68**.

2. J. B. REID & G. MONTPETIT, *Table of Factorials 0! to 9999!*, Publication 1039, National Academy of Sciences -National Research Council, Washington D. C., 1962. Reviewed in *Math. Comp.*, v. 17, 1963, p. 459, RMT **67**.

3. G. W. REITWIESNER, *A Table of the Factorial Numbers and their Reciprocals from 1! through 1000! to 20 Significant Digits*, Ballistic Research Laboratories Technical Note No. 381, Aberdeen Proving Ground, Md., 1951. (*MTAC*, v. 6, 1952, p. 32, RMT **955**.).

4. For the first 20 terms of this series see F. D. MURNAGHAN & J. W. WRENCH, JR., *The Converging Factor for the Exponential Integral*, Report 1535, January 1963, David Taylor Model Basin, p. 34, 35, and 49.