REVIEWS AND DESCRIPTIONS OF TABLES AND BOOKS

107[A–F, K–N, Q].—ROBERT C. WEAST, SAMUEL M. SELBY & CHARLES D. HODG-
MAN, Editors, *Handbook of Mathematical Tables*, Second edition, The Chemical
Rubber Co., Cleveland, Ohio, 1964, x + 680 p., 24 cm. Price $7.50.

This second edition is 100 pages longer than the previous one, which was re-
viewed here in [1]. The largest addition is the 52-page section on the numerical
solution of ordinary and partial differential equations. This topic is a new one for
this handbook, but not for some of its competitors, e.g. [2]. In addition, the section
on finite differences is expanded 15 pages, but in another location; this disjointedness
being a persistent feature of this handbook. Vector analysis is expanded by 9
pages, and tables concerning octal-decimal conversion (7 pages) and solid angles
(17 pages) have been added. The latter is excerpted from a larger table previously
reviewed here [3]. A one-page table of Bernoulli and Euler numbers has been
dropped, no reason being given, although it does make the increase in pages ex-
actly 100. Happily, the price has remained the same, but unhappily, the quality of
the paper has not.

Some of the table-consuming public will appreciate the additions here available,
but perhaps owners of previous editions may feel some annoyance with the pub-
lisher's policy of constant modification. Future editions are already promised. It
would seem that less frequent, and more thorough and careful revisions might be
more appropriate. In their preface the publishers deny, by implication, any com-
mercial motivation, and suggest instead that they feel subject to a compulsive
sociological imperative. They write:

"Society can no longer afford the time of waiting for the explosive growth of
knowledge to make its way gradually into the schools' curricula and industrial
change-over. Improvements must be made with instantaneous speed in academic
instruction, as well as the appreciation of new principles and techniques for tech-
nological development.

"This scientific environment has created the motivating influences responsible
for a re-examination of the information contained in the first edition. Numerical
analysis with all its ramifications has become a necessary tool for research, irrespec-
tive of what discipline in science is involved."

The implication here that the need for these additions developed sometime
between 1962 and 1964 could certainly be contested, assuming that it was meant
to be taken seriously.

As a procedure for designing a fine collection of tables this policy of constant
patching does have serious drawbacks. There are disturbing variations in typog-
raphy, duplications (e.g., in $1/n!$ on p. 209 and p. 268), disorder in the sequencing
of the tables (discussed previously in the review of [1]), and even contradictions
(e.g., use of $\lfloor n$ for $n!$ on p. 463, and admonition against such a use on p. 651).
Quantity replaces quality.

D. S.

1. SAMUEL M. SELBY, ROBERT C. WEAST, ROBERT S. SHANKLAND & CHARLES D. HODGMAN,
Editors, *Handbook of Mathematical Tables*, Chemical Rubber Publishing Company, Cleveland,
Ohio, 1962. (Reviewed in *Math. Comp.*, v. 17, 1963, pp. 303–304, RMT **34**.)
2. MILTON ABRAMOWITZ & IRENE A. STEGUN, Editors, *Handbook of Mathematical Func-*

tions with Formulas, Graphs, and Mathematical Tables, National Bureau of Standards Applied Mathematics Series, No. 55, U. S. Government Printing Office, Washington, D. C., 1964. (Reviewed in *Math. Comp.*, v. 19, 1965, pp. 147–149, RMT **1**.)

3. A. V. H. MASKET & W. C. RODGERS, *Tables of Solid Angles: I. Solid Angle Subtended by a Circular Disc; II. Solid Angle Subtended by the Lateral Surface of a Right Circular Cylinder*, Office of Technical Services, Washington, D. C., 1962. (Reviewed in *Math. Comp.*, v. 17, 1963, pp. 207–208, RMT **25**.)

108[B, I, L].—(a) D. S. MITRINOVIĆ & D. Ž. DJOKOVIĆ, *Specijalne Funkcije (Special Functions)*, Gradjevinska Knjiga, Belgrade, 1964, 267 p., 24 cm. (b) D. S. MITRINOVIĆ (Editor), *Zbornik Matematičkih Problema (Collection of Mathematical Problems)*, three volumes, three editions, three publishers (see below), Belgrade, 1957–62, 24 cm.

One sometimes encounters a collection of tables which contains little original or very extensive, yet is worth noting as a collection. The tables contained in the works under review are, broadly speaking, of this character. The texts of the works are printed in the Latin alphabet of the Serbo-Croat language. *Specijalne Funkcije* (hereafter called *S.F.*) is a concise exposition of the field of special functions, while *Zbornik* (hereafter *Zb.*) is a collection of problems (some solved, some to be solved) from a wide field of mathematics; both works are designed for students at universities and similar institutions. All volumes contain numerical tables, mostly grouped together near the end.

As far as tabular matter is concerned, *S.F.* gives a moderately wide coverage of Legendre polynomials $P_n(x)$ and Legendre coefficients $P_n(\cos\theta)$, Bessel functions $J_n(x)$, $N_n(x)$, $I_n(x)$, $K_n(x)$, Kelvin functions ber x, bei x, Laguerre polynomials $L_n(x)$, Hermite polynomials, both $H_n(x)$ based on exp $(-x^2)$ and $H_n^*(x)$ based on exp $(-\frac{1}{2}x^2)$, Chebyshev polynomials $T_n(x)$ and Chebyshev functions $U_n(x)$. For some of these, the information given includes all of (i) explicit analytical expressions, (ii) numerical values of functions, (iii) numerical values of zeros, and (iv) graphs. For example, to take a case in which *S.F.* may well be found convenient (because of the comparative paucity of other sources), the following information is tabulated for the Laguerre polynomials $L_n(x)$: explicit algebraic expressions for $n = 0(1)10$ on p. 70, 6D zeros for $n = 1(1)15$ on p. 222, 4D values for $n = 2(1)7$, $x = 0(0.1)10(0.2)20$ on pp. 226–228, and graphs of exp $(-\frac{1}{2}x)L_n(x)/n!$ on p. 262.

Explicit expressions for $P_n(x)$ and for $P_n(\cos\theta)$ as Fourier series are quoted for $n = 0(1)20$ on pp. 25–26 and pp. 29–30 respectively from the 1936 tables of the Egersdörfers. *S.F.* also contains exact factorials up to 60! on p. 213, and complete and incomplete elliptic integrals of the first and second kinds, also period ratios and log q, on pp. 237–248. On pp. 250–263 is a set of graphs by D. V. Slavić. It is no doubt a sign of the times that young Yugoslav mathematicians have available, for use in science, engineering, technology and so on, as handsome a set of graphs of the more usual higher functions as the reviewer can recall seeing anywhere.

A review of *S.F.* implies mention of *Zb.*, which contains, among other tables, a number in common with *S.F.* Using roman numerals for volumes and suffixes for editions, the reviewer has had available *Zb.* I$_1$ 1957, I$_2$ 1958, I$_3$ 1962, II$_1$ 1958 and III$_1$ 1960; II$_2$ 1960 has not been available. I$_1$ and I$_2$ were published by Nolit, and II$_1$ by Naučna Knjiga; I$_3$ and III$_1$ were published by Zavod za izdavanje Udžbenika N.R.S., which now presumably publishes all three volumes. The variations between editions are very great.