Part III consists of: formulas from algebra, elementary geometry, trigonometry, analytic geometry, and the calculus; graphs for reference; a compilation of 323 indefinite integrals and 37 definite integrals; and a concluding selected list of infinite series (including the well-known infinite-product expansions for sin πx and cos πx).

It is interesting to note that a number of similar collections of tables and formulas appeared shortly after the first edition of the present work. Two of these are by Burington [1] and by Dwight [2], which together include such additional material as interest and mortality tables, formulas and tables relating to elliptic functions and integrals, the gamma function, probability integral, Legendre polynomials, and Bessel functions.

Further expansion and elaboration of such information appears in the recent compilation published by the Chemical Rubber Company [3]. For example, herein we find statistical tables, dictionaries of Laplace and Fourier transforms, and a number of other tables not to be found in the references previously cited.

Thus a comparison of the tables of Carmichael and Smith with similar books published subsequently reveals the continual growth of applied mathematics. In brief, the book under review, although acceptable as an inexpensive elementary reference, cannot be considered adequate as a general reference for mathematical formulas and numerical information, more than thirty years after its initial appearance.

J. W. W.

1. R. S. BURINGTON, *Handbook of Mathematical Tables and Formulas*, Handbook Publishers, Inc., Sandusky, Ohio, 1933; second edition, 1940; third edition, 1953.

2. H. B. DWIGHT, *Tables of Integrals and other Mathematical Data*, The Macmillan Company, New York, 1934; revised edition, 1947; third edition, 1957; fourth edition, 1961. [See *MTAC*, v. 1, 1943–45, p. 190–191, RMT **154**; v. 2, 1946–47, p. 346, RMT **447**; v. 16, 1962, p. 390–391, RMT **42**.]

3. S. M. SELBY, R. C. WEAST, R. S. SHANKLAND, & C. D. HODGMAN, Editors, *Handbook of Mathematical Tables*, Chemical Rubber Publishing Company, Cleveland, Ohio, 1962. [See *Math. Comp.*, v. 17, 1963, p. 303, RMT **34**.]

71 [A, I].—ALAN BELL & ADELE HIGGINS, *Table of Stirling Numbers of the Second Kind* $S(n, k)$, $k = 1(1)n$, $n = 1(1)100$, Sylvania Electric Products, Inc., Reconnaissance Systems Laboratory Report RSL-1330-1 SN, Mountain View, California, 2 October 1961, 18 p., 28 cm.

The table consists of 6S values of the Stirling numbers of the second kind, presented in floating-point form over the range indicated in the title. The necessary calculations were performed on a Burroughs 220 computer, using a program written in BALGOL capable of producing a similar table of $S(n, k)$ to $n = 350$, if a core memory of 10,000 words is fully utilized.

The authors define these numbers and give some of their properties, referring the reader to books by Richardson [1] and Riordan [2] for further information. No reference is made, however, to the considerable existing literature of tables of these numbers. For example, tables of *exact* values up to $n = 50$ have been prepared by Gupta [3] and Miksa [4]. A number of smaller tables are referenced in the new edition of the FMR *Index* [5].

Numerous rounding errors in the table under review have been revealed by a comparison with Miksa's table. Apparently the editing routine consistently neglected later figures, so that the inaccurate published data invariably err in defect.

With this realization that the last figure is unreliable by as much as a unit, the table-user can still derive useful information from these tables, especially for values of n exceeding those in previous publications.

J. W. W.

1. C. H. RICHARDSON, *An Introduction to the Calculus of Finite Differences*, D. Van Nostrand Company, Inc., New York, 1954.
2. JOHN RIORDAN, *An Introduction to Combinatorial Analysis*, John Wiley & Sons, Inc., New York, 1958.
3. H. GUPTA, *East Panjab University Research Bulletin*, No. 2, 1950, p. 13–44.
4. FRANCIS L. MIKSA, *Table of Stirling Numbers of the Second Kind*, ms. deposited in UMT File. See RMT **85**, *MTAC*, v. 9, 1955, p. 198.
5. A. FLETCHER, J. C. P. MILLER, L. ROSENHEAD & L. J. COMRIE, *An Index of Mathematical Tables*, Second edition, Addison-Wesley Publishing Co., Inc., Reading, Massachusetts, 1962, p. 106–107.

72[F].—C. A. NICHOL, JOHN L. SELFRIDGE, & LOWRY MCKEE, under the direction of RICHARD V. ANDREE, *A Table of Indices and Power Residues for All Primes and Prime Powers Below 2000*, W. W. Norton & Co., New York, 1962, 20 + approx. 700 unnumbered pages, 22 cm. Price $10.00.

This is the published form of the tables [1] previously available on magnetic tape. They list, for each of the 302 odd primes $p < 2000$, and $i = 0(1)p - 2$, the *power residues*,

$$n \equiv g^i \pmod{p}, \tag{1}$$

where g is the smallest positive primitive root of p. In parallel tables are listed the *indices* i that satisfy (1) for every $n = 1(1)\ p - 1$. Following these 302 pairs of tables are 22 more pairs corresponding to the odd prime powers $p^a (a > 1)$ from $9 = 3^2$ to $1849 = 43^2$, inclusive. In these latter tables the g chosen is again the smallest and also is that corresponding to p. (This would not always remain possible if these tables were to be much extended. Thus, in Miller's table [2] one finds that 5 is the least positive primitive root of $p = 40487$, while Hans Riesel has determined that $5^{p-1} \equiv 1 \pmod{p^2}$ for this prime. But such instances, where the smallest positive primitive root of p is *not* also a primitive root of p^2, are no doubt very rare; this is the only example known to this reviewer.)

Jacobi's famous *Canon Arithmeticus* [3] (usually mentioned with the adjective "monumental") gave similar tables for p and $p^a < 1000$, but did not generally use the smallest positive g.

This volume includes an historical and theoretical introduction by H. S. Vandiver and a shorter, unsigned preface. In the latter we learn that the tables were computed on an IBM 650–653. Checking was accomplished by sum checks, echo-checking of the printer, re-printing, and spot checks.

These tables are highly useful in many number-theoretic computations and are the best of their kind available. The figures are clear and legible, but exhibit the usual variations in darkness so common in photographically reproduced tables.

There is an assortment of minor inelegancies in the format and printing, including: no space between the headings and the arguments; faulty zero suppression, so that some blanks appear instead as 0 or 0000; failure of the page eject on the