

## BOOK REVIEWS

*Guide to the literature of mathematics and physics including related works on engineering science.* By N. G. Parke. New York, McGraw-Hill, 1947. 15+205 pp. \$5.00.

This book has been written in order to enable mathematicians, physicists, and engineers to have entry into the important literature of fields which are related to their own specialty. Two-thirds of the volume are devoted to a listing under subject headings of the leading treatises and texts. Judging by the books in mathematics, one would conclude that the author is exceedingly well informed as to important titles. Probably, some of the works are somewhat too advanced for the outsider. For example—examples are always unfair—E. H. Moore's *General analysis* is more of a curiosity than a reference text for the electronics specialist. Some typical headings are: aeronautics, 27 titles; algebraic geometry, 10 titles; electric discharge through gases, 16 titles; relativity, 23 titles.

In part I of this book, the author discusses the principles of reading and study, self-directed education, and the search of the literature. The young student will find here sound advice, warmly written. The scientist who wishes to collect a library, a desire which this reviewer regards with strict neutrality, will obtain valuable guidance from this work.

E. R. LORCH

*Eleven and fifteen-place tables of Bessel functions of the first kind, to all significant orders.* By E. Cambi. New York, Dover Publications, 1948. 5+154 pp. \$3.95.

Bessel functions are in great favor, as usual, with the makers of mathematical tables. This is a handy set for  $J_n(x)$ ,  $0 \leq x \leq 10.5$ ,  $\Delta x = .01$ ,  $n = 0, 1, \dots, 29$ , 11 decimals. A supplementary table gives  $J_n(x)$ ,  $0 \leq x \leq .5$ ,  $\Delta X = .001$ ,  $n = 0, 1, \dots, 11$ , 15 decimals. A question may be raised as to whether the simultaneous publication of these tables and similar ones by the Annals of the Computation Laboratory of Harvard University represents a duplication of effort.

E. R. LORCH

*Tables of spherical Bessel functions.* Vol. II. Prepared by the Mathematical Tables Project, National Bureau of Standards. New York, Columbia University Press, 1947. 20+232 pp. \$7.50.

The functions tabulated here are  $(\pi/2x)^{1/2}J_\nu(x)$  where  $\nu$  is one-

half an odd integer. Volume I treated the range  $V = \pm 1/2, \pm 3/2, \dots, \pm 27/2$ . In the present volume we find tables corresponding to  $\nu = \pm 29/2, \pm 31/2, \dots, \pm 61/2$ . The entries are given to 8–10 significant figures for  $x \leq 10$  and to 7 figures for  $x > 10$ . For  $|\nu| \leq 43/2$ ,  $x$  varies from 0 to 10 at intervals of .01 and from 10 to 25 at intervals of .1. For  $|\nu| > 43/2$  the entries correspond to the range  $10 \leq x \leq 25$ . Second and sometimes fourth differences are given. The introduction contains instructions for interpolation.

E. R. LORCH

*Tables of Bessel functions of fractional order.* Vol. I. Prepared by the Computation Laboratory of the National Bureau of Standards. New York, Columbia University Press, 1948. 42+413 pp. \$7.50.

The above tables list  $J_n(x)$  for  $n = \pm 3/4, \pm 2/3, \pm 1/3, \pm 1/4$ ,  $0 < x < 25$ ,  $\Delta x = .01$ , 10 decimals. For values of  $x$  close to zero, the tables are refined by taking  $\Delta x = .001$ . Second differences are tabulated. The differential equations of wave theory provide an example in which these functions arise.

E. R. LORCH

*Tables of the Bessel functions of the first kind of orders four, five, six, seven, eight, and nine.* (Annals of the Computation Laboratory of Harvard University, vols. 5 and 6.) Cambridge, Harvard University Press, 1947. \$10.00.

The staff of the computation laboratory at Harvard University has undertaken to produce tables of the function  $J_n(x)$  for  $n = 0, 1, 2, \dots, 100$ . In volumes III and IV the values  $n = 0, 1$  and  $n = 2, 3$  were treated. The present volumes take us up to  $n = 10$ . And even as you and I sleep, the indefatigable Automatic Sequence Controlled Calculator is pouring forth endless decimals which will shortly complete this series. Future publications in the set will not receive notice on these pages. We invite the interested reader to peruse the last page of the Bulletin which lists new publications. The functions  $J_n(x)$  are listed for  $0 \leq x < 25$  with  $\Delta x = .001$  and for  $25 \leq x < 100$  with  $\Delta x = .01$ . The tables are printed to 10 decimal places.

E. R. LORCH