than six elements, or when $A \cdot A(r)$ or $D \cdot D(r)$ are suitably restricted. With conditions on A, the criterion for finite D generalizes to infinite D. If $D(A)$ and (hence) A are denumerably (nondenumerably) infinite, then $D(A) \cdot (D(A))(r)$ is necessarily denumerably (nondenumerably) infinite for denumerably (nondenumerably) many r's. If D' is of measure zero or of the first Baire category, then the continuum-hypothesis implies the existence of an A for which $D = D(A)$. Finally, many properties of D are enumerated which exclude the existence of the required A.

Aside from occasional use of transfinite induction and the continuum-hypothesis, the proofs may fairly be called elementary. On the other hand, they are often quite intricate, simple results requiring the examination of a myriad cases. Pushed with patient energy, this study has yielded a remarkable amount of detailed information, from which one may form a definite idea of the difficulties and rewards to be met in the directions here pursued. One also finds general results of great interest, which do not claim to be complete. Many problems are explicitly proposed, and many others at once suggest themselves. For this solid progress we are very substantially indebted to the author, who doubtless shares the hope that a still deeper analysis—possibly along somewhat different lines—may presently yield a more satisfying theory.

Remarks: 1. Considerable data are given on sets A in higher dimensional spaces, but such results have been ignored here for the sake of brevity.

2. Though the argument is apparently not vitiated by its omission in the text (for reasons which will not escape a reader), the reviewer feels compelled to record here the fact that the property P (p. 54) is not invariant under translation, is accordingly peculiar to the position of a set on the line, and may not be shared by a set congruent to a set which has it.

3. One should take care, on p. 39, line 19, to read "$D(A) + D(CA)$" instead of "$D(A)$" (see Property 2, p. 46).

4. This book regrettably upholds the secretive tradition under which the index is omitted.

F. A. FICKEN

Tables of probability functions, Vol. II. New York, Work Projects Administration, 1942. 21+344 pp. $2.00.

The first volume of *Probability functions* appeared in 1941; it was reviewed in Bull. Amer. Math. Soc. vol. 48 (1942) p. 201. The present volume tabulates the functions

$$I=\frac{1}{(2\pi)^{1/2}}e^{-x^2/2}, \qquad H=\frac{1}{(2\pi)^{1/2}}\int_{-x}^{x}e^{-y^2/2}dy$$

from 0.0000 to 1.0000 at intervals of 0.0001 to fifteen places of decimals, and from 1.000 to 8.285 at intervals of 0.001 to fifteen places. Tables II include the functions I and $1-H$ from 6.00 to 10.00 at intervals of 0.01 to six places of decimals. The bibliographical data provided give valuable information concerning uses of the tables. The extensive and systematic tests for accuracy are as in the earlier volumes of the series.

VIRGIL SNYDER

Tables of sine and cosine integrals for arguments from 10 *to* 100. New York, Work Projects Administration, 1942. 185 pp. $2.00.

The present volume is a continuation of *Tables of sine, cosine and exponential integrals*, vols. I and II which appeared in 1940 and were reviewed in Bull. Amer. Math. Soc. vol. 47 (1941) pp. 677–678, except that exponential integrals are not included over the new interval. New features in the present volume are graphs of $\mathrm{Si}(x)$ and $\mathrm{Ci}(x)$ and a bibliography of applications as well as of tables and of reference texts.

The Tables themselves are to ten places, at intervals of 0.01 from 10 to 100, arranged as in the earlier volumes. Then follow $n\pi/2$ to fifteen places, n ranging by integers from 1 to 100, and $p(1-p)$ and $p(1-p^2)$, each to six places.

The Tables are reproduced by the photo-offset process as were the previous volumes. Such use has been made in the checks and controls described in the Introduction as to secure a very high degree of accuracy in the results.

VIRGIL SNYDER