BOOK REVIEWS

Tables of Probability Functions. Vol. I. New York, Work Projects Administration. 1941. 28+302 pp. $2.00.

The earliest systematic table of the error function or probability integral was prepared by James Burgess and published in the Transactions of the Royal Society of Edinburgh, volume 39, Part II, 1898, pp. 257–321. This was followed by that compiled by W. F. Sheppard under the auspices of the British Association for the Advancement of Science, published by the Cambridge University Press in 1939, and by various other minor tables.

The present Tables extend the range of all existing ones and provide a smaller tabular interval. The usual control methods employed by the Agency to make them accurate have been used.

Both functions have been calculated to fifteen decimal places at intervals of 0.0001 in the range between 0 and 1 and at intervals of 0.001 in the range from 1 to 5.6. A short supplementary table (Table II) is included giving the values of $H(x)$ and its derivative to eight significant figures for x ranging from 4 to 10 at intervals of 0.01. The procedures for direct and inverse interpolation are explained and the degree of approximation attained are emphasized. The method employed for the actual computation is outlined together with the checks for control of accuracy.

The pages are 9 by 4 inches, both $H'(x)$ and $H(x)$ appearing in contiguous columns. There are 51 lines on a page in blocks of five, the last entry on a page being repeated at the top of the following one.

VIRGIL SNYDER

Guide to Tables in the Theory of Numbers. By Derrick Henry Lehmer. (Bulletin of the National Research Council, Number 105. Division of Physical Sciences, Committee on Mathematical Tables and Aids to Computation, Report 1: Report of the Subcommittee on Section F: Theory of Numbers.) Washington, D. C., National Research Council, 1941. 14+177 pp. $2.50.

In a foreword Professor R. C. Archibald, Chairman of the Committee, states that "In broad outline it exhibits the general plan for all Reports in the series. In adopting this plan the Committee desires to make clear that the Reports are being prepared primarily for scholars and others active in scientific work throughout the world."

Directions for the use of the Report are given in the Introduction.

This also contains an explanation of the practical point of view adopted in deciding what constituted a table in the theory of numbers and what tables were worthy of inclusion. The omissions include old obscure tables which have been superseded by more extensive and more easily available ones, and short tables in which every entry may be easily computed.

The rest of the Report is in three parts:

I. Descriptive Survey.
II. Bibliography.
III. Errata.

In Part I, which is about 80 pages in length, topics in the theory of numbers are classified under 17 headings **a**–**q**, with subheadings indicated by subscripts. Under each heading there is a description of what tables are listed in this topic and what they contain. The pages are numbered at the bottom and the topic described on a page is indicated by the appropriate letter of classification at the top.

With each table mentioned in Part I there appears the author's name followed by a number which refers to the complete bibliographic reference of Part II. Here the material is arranged alphabetically by authors. Following each reference a letter (with or without a subscript) in square brackets indicates the nature of the tables contained in the work referred to. In addition, libraries in which the work may be found are given in the coding used by the *Union List of Serials*. For this purpose 37 representative libraries were selected, the list and key to the code being given following the foreword of the book.

Thus it will be seen that if either the subject matter or the author's name is known the location of the table is a simple matter. This feature in itself makes the book of great value, but even this is overshadowed by Part III which collects for the first time the list of errors which have been discovered in the tables. The authority for corrections and a reference to the source, if published, are usually given after the errors. Tables in which errors have been found are indicated in Part II by an asterisk.

This report is indeed a guide to tables in the theory of numbers and it is, moreover, one which can be followed with ease.

R. D. James

Waves. A Mathematical Account of the Common Types of Wave Motion. By C. A. Coulson. Edinburgh, Oliver and Boyd, 1941. 156 pp. $1.50.

This book will be welcomed by those who are interested in an ele-