Tavole di Numeri Primi entro Limite Diversi, e Tavole Affini. By L. Poletti. Milan, Manuali Hoepli, 1920. xx + 294.

This little volume will be welcomed by many workers in the theory of numbers to whom the larger factor tables and lists of primes are not available. Even for those who are well equipped with such tables, certain features of Poletti's book will be found of value and interest.

Following a dedication to Gino Loria, which is quite poetic in its enthusiasm, there is a preface by Loria himself which gives a short account of the history of such tables. Then follows a series of tables that cover some 100 pages and give lists of primes between various limits. Table I lists the primes in the first 200,000 numbers with the exception of unity. Table II lists the primes in the first 100,000 successive numbers beyond 10,000,000. Table III lists those in the first 10,000 successive numbers beyond 100,000,000. Table IV lists those in the first 100,000 successive numbers beyond 1,000,000,000. Besides these tables there are six short tables giving the primes in the following ranges:

32,258,101 to 32,261,279,	52,631,591 to 52,636,823,
34,482,761 to 34,486,201,	58,823,533 to 58,829,411,
43,478,269, to 43,482,599,	76,923,101 to 76,930,757.

It is worth while to have these results available even though they are but tiny islands in the vast sea of the unknown, as anyone will admit cheerfully who has ever been faced with the task of determining the character of a number of such an order of magnitude.

Table V gives all the factors of all numbers less than 50,000 exclusive of multiples of 2, 3 and 5. It is arranged in the usual fashion with respect to the modulus 30, so that the number $30x + y$ will have all its factors in column headed y and in line number x. The author, for some reason which may produce some confusion, numbers the lines on the right so that the factors of $30x + y$ are found in line number $x + 1$. The scheme of listing is by no means as convenient for reference as that employed by Burckhardt, but it enables the author to use a much smaller page.

Table VI gives a scheme for finding the product of any two numbers less than 50,000 which are prime to 2, 3 and 5, being a set of tables for obtaining that line of table V where that product is to be found. The scheme is an ingenious one, but the practical importance for the computer is doubtful.

Tables XIII to XVII give the number of primes between certain limits, some of the tables distinguishing between primes of various linear forms

Table XVIII gives the list of primes of the form $n^2 - n - 1$ which lie between 1 and 10,400,000. The series of numbers given by this form is an example of what the author calls an Eratosthenean series, the sifting process being applicable to it to determine the primes in it. The author cites Eratosthenean series of higher orders, but does not indicate what restrictions should be placed on the forms to insure Eratosthenean properties, beyond the restriction that the form be irreducible. Thus the series $x^3 - 3x - 1$ is Eratosthenean, while the series $x^3 - 3x - 5$ is not. We are not told how to determine when the sifting process is applicable and when it is not. The author shows that every form of the second order gives an Eratosthenean series, and he gives in effect, by a laborious and not very convincing method of proof, the theorem that a quadratic congruence has, for a prime modulus, two roots or none. He does not seem to see the connection between the numbers represented by the form $ax^2 + bx + c$ and those represented by the binary quadratic form (a, b, c).

The author is disappointing in his answer to the question "What confidence can be placed in the accuracy of these tables?" Where accuracy is of such vital importance the user of such a table is entitled to know of some of the checks and controls employed, and if comparison has been made with existing tables, what safeguards have been employed in making the comparison. Until some other independent computation has been made of the lists of primes here given, it will be well to use them with due caution.

D. N. LEHMER.

Meccanica Razionale. By C. Burali-Forti and I. Boggio. Turin and Genoa, S. Lattes and Co., 1921. xxiv + 425 pp.

Students of mathematics who are familiar with the chapter on the application of vector analysis to mechanics in Burali-Forti and Marcolongo's book on vector analysis will be particularly interested in the book under review, since it is much more easy to find topics in mechanics which can be conveniently treated by vector methods than it is to treat the whole subject by such methods. It is stated in the preface that the authors do not present a complete treatise on rational mechanics, but that they give certain general notions which form a necessary foundation for applied mechanics. The latter part of this statement is possibly misleading, as the authors do give a systematic introduction to mechanics, using vector methods, and cover ground not much different from what is ordinarily offered in courses on mechanics in our American universities. The principal differences are that the book under review devotes more attention to geometry of motion, contains no sets of exercises, and does not take up the dynamics of the top. The pages are small, about $4\frac{1}{2}''$ by $6\frac{1}{4}''$, but to those who are familiar with the work of the authors, it is needless to state that they possess the ability to treat a subject adequately in a minimum amount of space.

The knowledge of vector analyiis and of homographies assumed on the part of the reader is briefly outlined in a thirty-eight-page introduction. As most of our students study mechanics before they have taken a course in vector analysis, an instructor using this book as a text will find it necessary to spend some time clarifying the introduction. The book will be found very suggestive also in connection with a course on vector analysis.

PETER FIELD.