David Hilbert. Gesammelte Abhandlungen. Erster Band. *Zahlentheorie.* Berlin, Springer, 1932. xiv+539 pp.

This first volume of Hilbert's collected papers contains reprints of eleven works, one of which is the classic report on algebraic numbers of 1897, pp. 63–362. For this alone the volume will be indispensable to workers in the theory of numbers, as the French translation of some years ago was carelessly printed, and the original is not available in smaller libraries. Random sampling of the numerous formulas indicates that the printing has been accurately done.

Another great classic brings us the wonderful proof of Waring's conjecture, the last paper in the volume. Although fashion favors other proofs today, it seems safe to guess that Hilbert's proof—the first ever given—will be remembered for its perfect efficiency in attaining a prescribed goal with a maximum of skill and a minimum of effort.

It would be out of place to comment on any of the famous papers which go to make up this beautiful volume. If the work as a whole can be briefly characterized, possibly *mathematics* is sufficient. More than one sure gleam of "the light that never was on land or sea" shines in these pages.

The edition is to be completed with the publication of three more volumes, Geometry, Algebra, and the Theory of Invariants; Analysis; Miscellaneous. Workers in other fields than arithmetic will look forward to these volumes with anticipations of as keen a pleasure as the devotees of the theory of numbers will derive from this.

E. T. Bell

Cours d'Analyse. By J. Hadamard. Professé à l'École Polytechnique. Paris, Librairie Scientifique Hermann et C^ie^, 1930. Vol. II. vi+721 pp.

The first volume of this work appeared in two parts in 1925 and 1927, and was reviewed in volume 34 (1928) of this Bulletin. Like the prior volume, the present work is strongly oriented toward the applications and makes close contact with many important topics in theoretical physics and theoretical astronomy. Also, numerical computation is emphasized in connection with such topics as determining the approximate solution of differential equations. However, the ground work of analysis having been fully developed in volume I, it is possible for the writer, in the present volume, to touch on a much wider variety of the various theories of analysis that have been of fundamental use in the application of mathematics to its sister sciences.

The book is divided into six grand divisions whose sub-headings are as follows: Newtonian Potential Function; Calculus of Variations; Analytic Functions of a Complex Variable; Ordinary Differential Equations; Partial Differential Equations; Theory of Probabilities. The central aim of the work, namely to introduce all the important disciplines of analysis that are of wide use in the field of applications previously designated, has necessarily limited the treatment of some of the classical theories to the more elementary developments. On the other hand this same principle of selection has operated to introduce certain topics that are sometimes omitted in much more extensive treatments of the same classical theories. For example the discussion of analytic functions of a complex variable includes a brief treatment of the theory of functions of several complex variables. In the portion devoted to ordinary dif-