

$f(x) = x[x]$, ($[x]$ indicating the largest integer contained in x), is an example of a function which is discontinuous at points for which x is an integer, but whose derivative is continuous.

$f(x) = x[1/x]$ is an example of a function which is discontinuous at points where x is an integer and whose derivative is also discontinuous at these points.

The chapter on the applications of the differential calculus contains nothing more than the applications to indeterminate forms and maxima and minima. It seems rather unfortunate that Taylor's and Maclaurin's series should be omitted entirely.

The part of the book dealing with algebra contains a chapter of forty pages on determinants, and a chapter on algebraic equations which treats of resultants, discriminants, and the solution and discussion of numerical equations.

The last 140 pages are devoted to analytical geometry. It is rather remarkable to note that geometric loci are discussed on the fourth page, the equations of the conics, strophoid, cissoid, Cassinian ovals, and four cusped hypocycloid being derived as examples in loci. The particular equations of the line and conic are then taken up and discussed in detail. The treatment of analytical geometry is satisfactory indeed.

The book as a whole is well adapted to the purpose for which it was written, but as is usually the case with the European text it does not contain a sufficient number of exercises and problems which are left for the student. Throughout there are many footnotes, mostly of a historical nature, which are sufficient to arouse an interest in the history of the subject.

C. L. E. MOORE.

Récréations Mathématiques et Problèmes des Temps Anciens et Modernes. Par W. W. ROUSE BALL. Deuxième édition française traduite d'après la quatrième édition anglaise et enrichie de nombreuses additions par J. FITZ-PATRICK. Paris, A. Hermann, 1907. 8vo. 3 parts. 5 francs each.

THE subject of mathematical recreations has always occupied a prominent position in the history of science. Zeno, Alcuin, Bachet, Fermat, Lucas, — these are only a few of the hundreds of names that might be mentioned of those who have contributed to this interesting field. Many of these men have been mathematicians of no small repute, for in reality the border line between recreative and serious mathematics is purely imaginary. To the mathematician all mathematics is a recreation; it is to