author has derived any ideas or assistance. The fourth volume completes the list of papers published up to the end of 1910: we hope that as further material accumulates it may be cast into the same form.

ERNEST W. BROWN.

YALE UNIVERSITY.

MATHEMATICAL ECONOMICS.

Manuel d'Economie politique. Par VILFREDO PARETO. Paris, Giard et Brière, 1909. 695 pp.

IN the year 1906 Pareto's Manuale di Economia politica con una Introduzione alla Scienza sociale was published at Milan. Three years later a French translation by Alfred Bonnet, with revisions by the author, appeared as volume 38 in the Bibliothèque internationale d'Economie politique. This work, although written by the economist who has most insistently stood for the scientific mathematical method in economics, is not itself primarily mathematical except in spirit. The text to be sure, uses curves freely, is replete with logical keenness, and draws considerably upon mathematical language and upon mechanical, or even thermodynamical, analogy in discussing and illustrating economic equilibrium; but the strictly mathematical treatment, which might be technical to the point of causing some of the world's best literary economists insuperable difficulties, has in every instance been relegated to the long appendix of 133 pages. This arrangement has also been adopted by Irving Fisher in his recent work on The Purchasing Power of Money. So long as only a few students of political economics acquire the necessary knowledge of calculus such a segregation must remain inevitable.

In the first place, as there seems to be no very widespread notion among mathematicians, perhaps even among economists, as to what mathematical economics is and does, it may be well to define a little.

It is clear that the individual as a social unit and the state as a social aggregate require a certain modicum of mathematics, some arithmetic and algebra, to conduct their affairs. Under this head would fall the theory of interest, simple and compound, matters of discount and amortization, and, if