Foundations of Geometry and Induction. By Jean Nicod, with prefaces by Bertrand Russell and André Lalande. New York, Harcourt, Brace, and Co., 1930. 284 pp.

This book is a posthumous publication of the two theses which its author had completed before his death in 1924. The first part, consisting of about 190 pages, is entitled Geometry in the Sensible World and has a preface by Bertrand Russell; the second, of about 80 pages, which deals with the Logical Problem of Induction, is introduced by André Lalande. After having perused the book the reader will doubtless agree with these two teachers of the author, that he was a man of great promise and that his early death was a distinct loss for the future development of the philosophy of the sciences. It would be unfortunate, however, to consider this work as a mature attainment. It seems to me valuable rather for what it attempts than for what it actually accomplishes.

The second part, which deals with a problem of real concern to the natural sciences rather than to mathematics, is linked very closely to the Theory of Probability of Keynes, with whose position the author agrees in the main. This part of the book will also be of interest to those acquainted with Nicod's earlier paper on *A reduction in the number of primitive propositions of logic* (Proceedings of the Cambridge Philosophical Society, vol. 19), in which he showed how the formal logic of Whitehead and Russell's *Principia* could be based on the single undefined notion of "negation."

The first part represents an elaboration and partially a critique of those sections in Poincaré's *Science et Hypothèse* in which this great scientist sought to establish for geometry a basis in the domain of the senses. We find here constructions in terms of sense data, isomorphic with certain simple geometries; these constructions are more or less elaborate, but in every case they are robbed of their immediate reality by idealizations without which the problem would probably be entirely unmanageable. A clear account of these constructions can not be made without mention of many details; and hence a critical examination of the work must be omitted. The principal purpose of this work becomes clear from the following passage on page 13: "The discernment of the sensory order around us, which forms the qualitative background of our life and of our science, and which is ever present, however indistinctly, should certainly be a source of curiosity to any philosopher, even if his metaphysics should not obtain any aid from it. Such is the end at which we aim. We hope to approach it by the study of the objective aspect of geometry. It is impossible, in fact, to possess a proper idea of the order of our sensations if we are hampered by a false or confused idea of space."

There are unfortunately some things in this book which will cause mathematicians to squirm; such are the discussion of "infinitely small" on page 217, the talk about infinite probability, and a passage like the following on page 21: "The discovery of one system of meanings satisfying a group of axioms is always logically very important; it constitutes the proof that these axioms do not contradict one another."

Finally I must make a remark which applies not only to this book but equally to most other philosophical books which deal with the foundations of mathematics. There are definitions and reasoned discussions; but one is never informed as to the fundamental, undefined concepts nor about the basal as-