

brought to light a new world of thought as to the relations of space and time to the ultimate data of perceptual knowledge. "The present work is largely concerned with providing a physical basis for the more modern views which have thus emerged. The whole investigation is based on the principle that the scientific concepts of space and time are the first outcome of the simplest generalizations from experience, and that they are not to be looked for at the tail end of a welter of differential equations."

Three main streams of thought—the scientific, the mathematical, and the philosophical—are relevant to the theme of the enquiry. About half the book is given to parts I and II on the traditions of science and the data of science respectively. In part III on the method of extensive abstraction we have a philosophical and postulational treatment of the space-time manifold; and this is employed in part IV to yield a theory of objects. The fundamental assumption elaborated "is that the ultimate facts of nature, in terms of which all physical and biological explanation must be expressed, are events connected by their spatio-temporal relations, and that these relations are in the main reducible to the property of events that they contain (or extend over) other events which are parts of them."

R. D. CARMICHAEL.

*Differential Equations.* By H. BATEMAN. Longmans, Green and Company, London and New York, 1918. xii + 306 pp.

"THE subject of Differential Equations has grown so rapidly in recent years that it is difficult to do justice to all branches of the subject in a single volume." So reads the opening sentence of the preface to the book under review. The statement is literally true; but it is nevertheless of such form that its connotation may be misleading to the learner. One who is not acquainted with the subject of differential equations may justly conclude from this sentence that it is possible, though indeed difficult, to do justice to all branches of the subject in a single volume. And yet it is probable that no one who knows the field would be willing to maintain such a judgment. It is in fact true that it would be difficult to do justice to all branches of the subject in ten volumes of the size of the one under consideration.

In the second sentence of his preface the author indicates