fect validity that the sphere of application of relativistic mechanics is not confined to microscopic phenomena but actually extends to large-scale technology, as, for example, in the operation of high-energy accelerators.

There are several conventional ways of providing a logical basis for relativistic mechanics. The author abandons these and begins his treatment with the simple assumption of the second law of Newton written in relativistic form, i.e., with variable mass. He then develops the mechanics of a particle so slightly accelerated that the usual radiation reaction terms may be neglected. Throughout his treatment he clings to the particle concept as more fundamental than that of the field. In fact his aim is to deduce the equations of electromagnetism from the relativistic mechanics of charged particles applied to electrostatics. The reader used to the more conventional field approach will raise many questions. Some of these are answered by the author in rather lengthy philosophical "asides" and by detailed references to an extensive bibliography. In his interest in the historical development of relativistic ideas his methods remind one somewhat of those of the late E. T. Whittaker in his *History of the Theories of Aether and Electricity*, though the latter work covers far more territory. In a rather detailed logical discussion of the concepts of force and mass, the reviewer was surprised to find no reference to the work of Mach.

The second part of the present volume applies the fundamental ideas of the first part to the coulombic interaction of particles in uniform or slowly accelerated motion. Here the author derives from his method the electrodynamics of Maxwell and Lorentz. Here again the particles are considered paramount and no energy is assigned to the field, which is treated essentially as a mathematical formality. Though this view has always had some adherents, it must be confessed it is not now in general favor among theoretical physicists and engineers. However, it will certainly be of interest to note the continuation of the author's program in his subsequent volumes.

The Principles of Quantum Mechanics (4th Revised Edition). By P. A. M. Dirac. 312 pp. Oxford U. Press, New York, 1958. $5.60. *Reviewed by J. C. Polkinghorne, University of Edinburgh.*

Dirac's book is one of the classics of physics. It develops the principles of quantum mechanics with a great clarity and an awe-inspiring appearance of inevitability. Its fame has stood established for nearly thirty years and it is as valuable today as it was in 1930.

This edition differs from its predecessors principally in the treatment of quantum electrodynamics. The λ-limiting process and all attempts to use an analogy with classical electrodynamics are abandoned. Instead the second quantization of the Dirac equation is given and the theory of the interaction of electrons and the electromagnetic field is shown to be covariant. The