Book Reviews

An Outline of Atomic Physics. Oswald H. Blackwood, Thomas H. Osgood, and Arthur E. Ruark. Wiley, New York; Chapman and Hall, London, ed. 3, 1955. x + 501 pp. Illus. $7.50.

In this third edition, Blackwood, Osgood, and Ruark present a revision of their well-known standard textbook that was first published in 1933. Once widely used and liked by students as well as teachers, the earlier editions of the book became obsolete because of the fast progress of nuclear physics, and the book was gradually replaced by more modern texts. The book was replaced with great reluctance and regret, for it provided a very satisfactory course intermediate between mathematical treatments intended for specialists and texts using mainly word pictures and analogies. The new edition again achieves this good balance and at the same time has been brought completely up to date. I am convinced that teachers are looking forward to making use again of this excellent *Outline of Atomic Physics.*

The structure of atoms and molecules and the nature of radiation are discussed in the first half of the book. This part, though extensively rearranged and improved in many places, is essentially the same as it was in the earlier editions. The clarity of the presentation has been enhanced considerably. The second part, which deals mainly with nuclear physics and related problems, has been rewritten almost entirely. New chapters on applications of nuclear physics and on cosmic rays, including a discussion of pi and mu mesons and other unstable particles, have been added, and a chapter on elementary particles has replaced the chapter "Neutrons, positrons, and nuclei" of the former edition.

On the whole, the book is well organized, the arrangement of the topics is excellent, and the presentation is clear and simple, yet without loss in depth. Mathematical arguments are rare; instead, physical reasoning or analogies are used to interpret the phenomena of modern physics. For the most part, a modest amount of previous knowledge is required; a 1-year course in college physics should suffice.

Apparently the authors intended to plan the book so that it advances within the increasing knowledge and experience of the reader. That may explain why the theory of relativity is presented in the very last chapter of the book, although use is made of the results of the special theory of relativity from the beginning.

The simple approach to many difficult problems that is used throughout the well-illustrated book makes it a very good text for an introductory lecture in atomic and nuclear physics. It is very well suited to the needs of students who are not majoring in physics.

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Bergsonian Philosophy and Thomism. Jacques Maritain. Trans. Mabelle L. Andison and J. Gordon Andison. Philosophical Library, New York, 1955. 383 pp. $6.

This volume by the noted French philosopher Jacques Maritain comprises all of his first work *La Philosophie Bergsonienne* published originally in 1913 as well as two essays on Bergson that appeared in *Ransoming the Time* (1941). An appendix is devoted to some "Marginal notes on Aristotle" and a bibliography of Bergson's works.

The book makes available for the first time in English translation Maritain's searching critique of Bergsonian philosophy against the background of Thomist thought. The study as a whole has an especial interest for the student of modern philosophic thought who is here allowed to witness the dramatic struggle between two of the greatest philosophers of 20th-century France. The issue at stake is whether the radical empiricism of Bergson, with its emphasis on the primacy of change and time, or the "perennial philosophy" of Thomism, with its metaphysics of being and potentiality, is to prevail. Maritain, the student turned critic, is uncompromising in his critique of Bergson's philosophy of nature in the name of Thomism. The author has included his valuable preface to the second edition of *La Philosophie Bergsonienne* (1929) in which he summarizes the basic issues as he sees them in retrospect and endeavors to give the master the homage and credit that are due him.

Maritain has wisely distinguished the "Bergsonism of fact" from the "Bergsonism of intention." He seeks to do justice to the intentions that motivated Bergson's thought in his struggles against the positivism and materialism prevalent in the France of his day, while criticizing the latter's "departures from truth" in the formulation of his own philosophy of creative evolution. Maritain's thesis is that, in order to avoid current mechanism and determinism, Bergson sacrificed the human intellect and the metaphysics of being and potentiality; that the latter confused substance and movement, making time that flows, duration, the very stuff of things; that Bergson confused freedom and contingency; and that he denied reason an authentic power of attaining the true, the so-called "truths of reason" being nothing more than pragmatically useful abstractions from the concrete, creative becoming known by intuition. Bergsonian philosophy is pictured as a kind of inverted Spinozism, which views all things under the aspect of duration rather than of eternity and changeless substance.

In the *Two Sources of Morality and Religion* (1932) Bergson incorporated much of traditional religious mysticism and recognized the unique historical value of the fact of Christianity. By distinguishing the forces of "pressure" and "attraction" and the corresponding "static" and "dynamic" forms of religion and morality as manifested in "closed" and "open" societies, Bergson found it possible to acknowledge in the name of his suprarational intuition the moral and religious ideals that the classical philosophers and theologians had derived from reason and revelation. The fact that in his will of 1937 (he died in 1941) Bergson professed an inclination toward Catholicism serves as a unique and dramatic confirmation of the validity of Maritain's original evaluation of the spiritual intentions of Bergson's philosophy.

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Annual Reviews of Plant Physiology. vol. 6. D. I. Arnon, Ed. Annual Reviews, Stanford, California, 1955. xi + 505 pp. $7.00.

In the ever-increasing deluge of scientific publications, no one can question the value, perhaps even the necessity, of the Annual Review series. Particularly in the field of plant physiology, where the spectrum of research reaches from classical taxonomy to esoteric biophysics, this