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

publication is a link that can provide a common basis for the interchange of ideas.

Because of the key role played by such a book, it is important that the contributors devote considerable effort to present their material in a stimulating as well as informative manner. It is not enough to write a running commentary on a series of bibliography file cards. Outstanding examples of good review writing are to be found in chapters on "Nitrogen metabolism" (G. Webster), "Functional aspects in mineral nutrition of green plants" (A. Pirson), and "Chemical nature of disease resistance in plants" (J. C. Walker and M. A. Stahmann). These authors have the ability to weave a presentation of the latest material into the patterns of previous knowledge. Furthermore, they are able to point out the broad as well as specific areas where future research is needed.

The other articles, all of high caliber, but lacking the sparkle that would make them outstanding, concern the following topics: mineral nutrition, photosynthesis, growth regulators, flowering, abscission, ater relationships, flower colors, cotton physiology, pathogenicity, alkaloids, and tissue culture.

It seems unfortunate that H. Lundegårdh in his review on "Mechanisms of absorption, transport, accumulation, and secretion of ions" took this opportunity to present, essentially, a defense of his own theories with references made only to those works that tend to support him. The omission of the important researches of Epstein and others gives evidence of this reluctance to present a balanced view of this subject.

D. I. Arnon is to be commended for his efforts as editor for the past 6 years. It is hoped that L. R. Blinks, as the new editor, will continue to make *Annual Reviews of Plant Physiology* not only an essential encyclopedic reference source, but a dynamic and stimulating publication to be enjoyed by all plant scientists.

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Polarographic Techniques. Louis Meites. Interscience, New York–London, 1955. xiii + 317 pp. Illus. $6.

In writing a manual to guide the student who is being introduced to the science of polarography, Meites has contributed an easily read and well-organized textbook.

A short introductory chapter on the nature and scope of polarographic measurements is followed by a description of present-day instrumentation. The polarographic limiting current is the subject of the third and longest chapter (43 pages), which contains a discussion of the residual, migration, and diffusion currents followed by a description of the kinetic, catalytic, and adsorptive phenomena that complicate the interpretation of the magnitude of the limiting current. Eight experiments at the end of the chapter are included to illustrate the main points developed. In all, 28 such experiments are included in the book. After mastering the first three chapters and Chapter 6 on maximum suppressors, the student should be ready to proceed to the interpretation of current-voltage curves (Chapters 4 and 5), quantitative analyses (Chapter 7), amperometric titrations (Chapter 8), and the more specialized techniques of polarography (Chapter 9). One hundred and twenty-six well-chosen references are inserted to encourage the interest of the student in further study and research.

The limited usefulness of the appendix on trouble-shooting in polarographic circuits is more than over-balanced by the usefulness of the extensive table of half-wave potentials and diffusion-current constants of inorganic substances that is compiled in the second appendix.

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Histologische Geschwulstdiagnostik. Systematische Morphologie der menschlichen Geschwulste als Grundlage für die klinische Beurteilung. A. V. Albertini. Thieme, Stuttgart, 1955. xvi + 544 pp. Illus. $23.40.

The book of the prominent Swiss pathologist A. V. Albertini deals with the micromorphology of benign, malignant, and borderline tumors, discusses interpretations of histological structures and prognostic evaluation, and contains remarks on relative frequency, age, and sex.

The author covers systematically and completely *all* kinds of tumors of the respiratory, digestive, and urinary organs; the female genitals; the breast; the male genitals; the thyroid and parathyroids; the adrenals; the sympathetic nervous system; the heart and blood vessels; tendons and bursae; spleen and lymph nodes, bones and skin. Neoplasia of each organ is grouped according to histogenesis and cell and tissue differentiation. The scheme, well executed, permits a quick and easy orientation. Some exceptions are made either because of difficulties in classification or for reasons of tradition (for example, Ewing sarcoma and Brenner tumor).

More flexible than other conservative pathologists, the author acknowledges the usefulness of cytological tumor diagnosis and recognizes the superiority of Papanicolaou's method over other methods. Albertini is not enthusiastic about the prognostic evaluation of tumors by grading slides according to cell activity, differentiation, and mitotic index. He views this method as pseudoexact and gives preference to Walther's formula, which empirically accounts for three variables: growth by expansion, lymphatic spread, and hematogenous dissemination. However, this procedure also has shortcomings.

Albertini thinks that the cytoplasm of cancer cells gets too little attention and advocates examination of fresh unstained tumor samples by means of Zernike's phase-contrast method. This method reveals important regressive changes, otherwise missed, within the cytoplasm and in the cell membrane (in highly dedifferentiated tumors).

In each chapter the author gives an account of unsettled problems of classification. Differences of opinion occur at the delineation of precancerous conditions from cancer, as, for instance, in Hinselmann's stages III and IV of cervix pathology. Stressing histological more than cytological features, Albertini includes preinvasive carcinoma (surface carcinoma, carcinoma *in situ*, or "carcinoid") in the group of precancers. Thus, Bowen's disease is a precancer as long—and this means many years—as the numerical equilibrium between proliferation of the *cancerous* cells and their disintegration has not been shaken.

Time and again the author points out difficulties arising from disagreement between histology of a tumor—appearance as a benign tumor or a granuloma—and its malignant clinical course—for example, in Kaposi's angiosarcoma, and vice versa. Thus, he classifies skin epithelioma, because of its clinical course, as a precancerous condition, despite its histology. He also discusses histological divergencies between primary epithelial tumors and seemingly sarcomatous metastases (epithelioma fusocellulare).

Albertini still excludes leukemia from the family of tumors, and since some lymphocytic lymphosarcomas (of the mediastinum) turn into leukemia, he considers those a localized form of leukemia and not members of the sarcoma group. In view of the prevailing opinion regarding leukemia, this complex deserved a more thorough discussion than a paragraph in the subchapter on *benign* lymph-node tumors.

No place was reserved for tumors of the central nervous system, the eye, and the ear. I doubt whether Cushing and Bailey's work is a valid reason for excluding them from a comprehensive book on histopathology of tumors. Omission of these tumors is the more deplorable because, in recent years, much attention has been paid to childhood cancer. I also