



BOOKS

Too Many Too Soon?

ADVANCES IN BIOLOGICAL AND MEDICAL PHYSICS. Volume I. Edited by John H. Lawrence and Joseph G. Hamilton. 496 pp. Academic Press, Inc., New York City, 1948. \$8.60.

In this first volume of what will presumably be an annual affair, Drs. Lawrence and Hamilton have gathered together a scattered selection of articles concerned with the application of nuclear physics to biological problems. As is customary in such compendia, all of the articles have been written by acknowledged experts in the separate fields they present, and they cover a wide range of topics in this specific field, ranging all the way from the clinical use of isotopes to the political use, as represented in a survey of the effects of the atom bomb on the Japanese. This is a good book; indeed in the physics sections, at least, it provides the first adult presentation of radioactivity to the biologist.

There are many contributions of very high caliber. Miss Vennesland leads the unwary carefully through the traps and pitfalls of intermediary metabolism. Her article is typical of many in the book, and is particularly good because it starts with the basic facts and develops its argument clearly and comprehensibly. H. M. Parker, certainly a leading authority on health physics, has presented an account of these new problems now facing universities and industry alike. It is also straightforward and factual, and Parker does not shrink from introducing an integral equation when necessary to make his point. Chaikoff and Zilversmit go even further than Parker, for they point out that an ignorance of elementary mathematics may lead to a misinterpretation of experimental biological facts. The simple mathematical arguments developed by Zilversmit should go far toward making turnover a more exact and useful concept.

Nonetheless, in spite of its virtues, it is now pertinent to point out that too many books have been written about this field. It is new and rapidly growing, and it has long suffered from a dearth of good books. Publishers and scientists both have been struck by this barrenness, and too many have rushed in to fill the gap. To this reviewer's certain knowledge, two other such compendia have already been published in the present year, and two more are now in press. Two textbooks covering the field have recently appeared and a third is already announced. There has been so much talk about the interrelation between economics and sciences, that it is tempting to speculate whether this present spate of books will be halted earlier by the cold facts of economics, or by the good sense of the writing scientists.

Two unfortunate consequences arise from the appearance of so many books. First, the very weight of words distorts the importance of isotopes in biological sciences, and makes it seem that the isotope is the major contribution of physics to medicine and biology. Such a situation

is very unfortunate, particularly for those of us who feel that the isotope is merely one of a series of fronts which mark the interaction of medicine and physics. Second, since the supply of experts is necessarily limited, the same ones contribute again and again to review after review. Thus, Hevesy, the pioneer in this special field, is the author of the newest textbook, and the contributor of a fine article in this present volume on nucleic acid metabolism. Much of the work on nucleic acid involves radioactive phosphorus, and so it is not surprising to find that Hevesy has written an extensive article on phosphorus metabolism in "Advances in Enzymology for 1947." One consequence of the repeated experience of the authors with their material is that each successive presentation seems clearer and more lucid than its predecessor. It may be this which accounts for much of the excellence of the present volume.

Robley Evans' article on "Fundamentals of Radioactivity and Its Instrumentation" is particularly clear. Here the basic facts are marshalled together and presented directly. The exact mathematical formulation is available for those who can make use of it, and the text is especially clear in explaining the mathematics and pointing out the bearing of the equations on the practical problems that confront investigators in this field. Much of the information has appeared before, however, part as a seventy-five-page contribution to "The Science and Engineering of Nuclear Power" (Addison-Wesley Press, 1947; Editor, Clark Goodman) and part as an article in the journal *Nucleonics*.

The fault of this fine volume lies in its timing. However, those readers who have not been exposed to the previous volumes will find this an excellent, authoritative introduction to the application of isotopes to medicine and biology.

One can be sure that Drs. Lawrence and Hamilton do not feel that biological and medical physics includes only nuclear physics and isotope research. Nonetheless, this reviewer would have been reassured had they mentioned in their foreword that future volumes in this series would include articles concerned with other basic interrelations between physics and biology.

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Ballistics

BALLISTICS OF THE FUTURE. By J. M. J. Kooy and J. W. H. Uytendogaart. 472 pp. McGraw-Hill Book Company, Inc., New York City, 1948. \$12.00.

"Ballistics of the Future" is not designed for an afternoon of light reading. At first glance it is two pounds, fifteen and a half ounces of heavy mathematics. At second glance it is a book without which no technical library can claim completeness. And in spite of the rather high price there will be many physicists and engineers who will feel that their own libraries are incomplete without this book.

The authors are two Dutch scientists, both top-ranking experts in their fields. One of them, Dr. Kooy, who is associated with the Aeronautical School at The Hague,