



BOOKS

Two Struiks

YANKEE SCIENCE IN THE MAKING. By Dirk J. Struik. 430 pp. Little, Brown and Company, Boston, 1948. \$5.00.

This is a leisurely and rambling history of New England's early inventions, its budding industry, its educational beginnings, and its efforts at scientific research from the time when the Pilgrims fought the Indians until that later period when their descendants put on uniforms against the Confederates. Some readers may find it too slow and discursive to suit the twentieth century tempo of communication. Others, and particularly those who have lived in New England, may find a special kind of charm in the highly detailed narrative.

Struik is the MIT mathematician, but here he pays his respects to shipbuilders, gunmakers, geologists, naturalists, botanists, and educators. Today physics is getting to be a fairly important industry along the banks of the Charles River, but that is a phenomenon of this electronic and atomic age. Struik reconstructs the very different scene of a century and more ago, when not only Yankee science but American technology as a whole was in the making in New England.

Harry M. Davis
Newsweek

A CONCISE HISTORY OF MATHEMATICS. Two Volumes. By Dirk J. Struik. 299 pp. Dover Publications, Inc., New York City, 1948. \$3.00.

These two little volumes are properly named. They are a history of mathematics rather than a history of mathematicians. One won't find the anecdotes of the precocity of Gauss as a child or the usual estimates which leave only Archimedes and Newton to compare with him, although the author does say, "It is perhaps not entirely fair to compare Gauss with any mathematician except the very greatest." Histories not infrequently reveal more about the author than about the historical subject. That is not true in this case. However, on page 222 we find the following interesting sentences. "Cauchy, like his contemporary Balzac with whom he shared a capacity for an infinite amount of work, was a legitimist and a royalist. Both men had such a deep understanding of values that despite their reactionary ideals much of their work has retained its fundamental place." Political views and scholarly facility have never seemed to this reviewer to be closely related, so that it comes as no great shock to find that these gentlemen compared favorably in achievement with the more politically supple Laplace.

The book contains thirty-three illustrations, including an attractive picture of Euler which replaces in the reviewer's mind a somber picture of the aging genius.

There are also interesting reproductions of pages from famous first editions and from manuscripts. Theoretical physics is barely touched; so that people such as Helmholtz, Gibbs, and Maxwell are only names.

The book is written with a real feeling for mathematics. Such things as Felix Klein's "Erlangen program" and the later statement of problems by Hilbert are presented in an interesting if incomplete way. Finally one must say the books were read with pleasure and they provide a valuable beginning to a study of the history of mathematics, with abundant references for continuing the study.

Henry Eyring
University of Utah

Tracers

RADIOACTIVE INDICATORS. By George Hevesy. 556 pp. Interscience Publishers, Inc., New York City, 1948. \$10.00.

Thirty-five years ago the first paper on the use of radioactive indicators was published by Paneth and Hevesy and for several years they were the only research workers applying this new tool. Ten years later, in 1923, Hevesy reported the first biological application of radioactive indicators: a study of the absorption and translocation of lead in plants. The present book is the most recent of a long series of distinguished publications by this pioneer in applied radioactivity.

Physicists, chemists, metallurgists, and others not primarily concerned with life science research will find little of direct interest in "Radioactive Indicators," since the true scope of the book is revealed in the subtitle "Their Application in Biochemistry, Animal Physiology, and Pathology." However, within this framework a thorough and well-documented presentation is made.

The first three chapters cover the production, availability, and measurement of radioactive tracers. The next two chapters on atomic interchange and indicators in chemical analysis are very sketchy but are pointed toward the problem involved in biological applications. The remaining eighty percent of the book is a substantial contribution to the literature of radioactive indicators, representing as it does a summary of thirteen years of intensive work by many investigators in a very active field of research.

This section follows a logical pattern, starting with the general considerations of absorption, distribution, and excretion of more than twenty-five elements, as simple inorganic species, in the whole animal organism. This is followed by a discussion of the problems associated with the transport of ions and compounds across the many types of membranes in living systems. Metabolic studies, including intermediary metabolism, are treated next. This section closes with a survey of the new information obtained from radioactive indicator studies of the special organs, skeleton, and red cells. The shortcomings of radioactive indicators in biology provides a timely warning for overenthusiastic readers. The book has an excellent author and subject index.

For some years to come this book will provide a ready reference for anyone desiring information on the use of