ciable shift was seen, in the Miller case a partial shift (cause unknown) was detected.

The decrease in frequency, the increase in wavelength, of a spectral line sent out from an atom in a very strong gravitational field as compared with the radiation in a weak field is set forth, but again the author's knowledge of physics is greatly at fault. According to him "the number of vibrations of the light emitted by a *circulating electron* is a measure of the number of revolutions of the electron about the nucleus." That point of view, briefly held, was exploded thirty years ago. The author believes that the confirmation of this result of the relativity theory —the red shift of spectral lines due to strong gravitational fields—depends on the completion of the "Einstein tower" in Potsdam, "a structure combining to perfection every astronomical and physical contrivance," designed by E. Freundlich (who according to the translator was forced to leave Germany in 1933), who was to measure with high accuracy the dark lines of the solar spectrum. But the shift for radiations coming from dense stars has been found. It is several times greater than the computed solar shift and is in accord with the theory.

The book is intended to acquaint philosophers with some of the new aspects of matter and motion. But the author does not feel that it is necessary, perhaps not even advisable, to point out that some of these new properties, such as the increase of mass on account of motion, have an experimental basis entirely apart from the theory of relativity. It may be that the author desires to avoid, for himself and his probable readers, the difficulties involved in the elucidation of these experiments.

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RADIOLOGY IN INDUSTRY

Industrial Radiology. By ANCEL ST. JOHN and HERBERT R. ISENBURGER. Second edition. New York: John Wiley and Sons, Inc. 1942.

THE first edition of this book, entitled "Industrial Radiography," was published in 1934. The chief subjects of the first edition and of the present revised edition are the examinations by means of x-rays and gamma-rays of castings, forgings, welded joints, packaged materials, assemblies such as vacuum tubes and other industrial products. The authors are pioneers in this field of investigation. During the last five years, the use of the methods which they discuss has increased tremendously. Thus, they have an admirable background for describing the radiographic and fluoroscopic methods which are used for examining a great variety of the products of industry.

The new second edition contains in slightly revised form the material of the first edition. The discussions of gamma-ray radiography and fluoroscopy have been expanded in the new book.

The most important new material in the second edition is the expansion of the list of references in the field of industrial radiography. In the first edition, the bibliography at the end of the book lists 426 books and articles in technical journals. In the new edition, there are 1,314 items listed in the bibliography; some of these are as recent as October, 1942. The index is very usefully arranged. After each item of the index, page numbers appear, as in the conventional index; in addition, there are numbers in italics and these refer to the numbered references in the bibliography. Thus, if the book is used as a reference work, an item in the index will refer the reader not only to the material in the book on this particular subject, but also to the work of one or more writers who have presented their work in the technical literature.

No material is included in this book on the use of x-ray spectroscopy in industry. One might be led to believe that such material would form a part of "industrial radiology." Apparently, the use of x-ray spectroscopy in industry and the use of x-rays and gamma-rays for making fluoroscopic or radiographic examinations are two distinct fields; the authors of this book confine their attention to radiography and fluoroscopy, except for a brief note on the diffraction of x-rays in Chapter IV.

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ENZYMES

Chemistry and Methods of Enzymes. By JAMES B. SUMNER and G. FRED SOMERS. 365 pp. New York: Academic Press, Inc. 1943.

AN author of a book on enzymes, unless he writes an all-inclusive one such as Oppenheimer's Handbuch, faces the same problem as an anthologist. His choice and emphasis will follow his personal predilection or some definite plan. The authors of this book on enzymes appear to have followed the former method.

The enzymes are classified in the usual way into esterases, proteases, oxidases, etc. With the exception of urease, which is discussed as a possible important factor in the nitrogen cycle, no attempt is made to assess the functions of the enzymes in the cell. Perhaps as a consequence of this, the amount of space allotted to an enzyme is not commensurate with its known importance. For instance, under the esterases the cholinesterase is discussed in one and a half pages and no description of the methods of isolation is given, whereas chlorophyllase, the function of which is still unknown, is allotted more than two pages which include a detailed description of its preparation. Under the proteases, the methods for the crystallization of