

*The Fundamental Concepts of Physics in the Light of Modern Discovery.*

By Paul R. Heyl. Baltimore, Williams and Wilkins, 1926. xii+112 pp.

This pleasing little book consists of a six-page foreword and three lectures on the changing bases of the fundamental concepts of physics. The first chapter deals with the eighteenth century, which is characterized as the century of materialism. The nineteenth century, treated in Chapter II, is called the century of correlation. In the third chapter is an account of fundamental physical concepts as they are conceived in the twentieth century. This century is characterized as the century of hope. The book is not such as should have a detailed review in a mathematical journal, but it is one of distinct interest to the mathematician who wishes to think of a part of his science in relation to the fundamental questions of physics with which certain domains of mathematics are intimately connected. It is a stimulating little volume.

R. D. CARMICHAEL

*Elementare Reihenlehre.* By Hans Falckenberg. Berlin, Walter de Gruyter, 1926. 136 pp.

This small volume of the well known Sammlung Göschen begins with a chapter on the fundamental properties of real numbers. In particular, the author shows how to perform the four fundamental operations on irrational as well as rational numbers. Irrational numbers are introduced by means of the well known Dedekind cut.

A brief chapter follows, dealing with finite series and their sums. Here are found many useful formulas relating to finite arithmetic series of any order, and finite geometric series. Here also are found the binomial theorem, the polynomial theorem, and a discussion of the binomial coefficients.

In Chapter III, the fundamentals of the theory of infinite series are treated very fully. Beginning with sequences, the subject is developed by a succession of carefully worded definitions, theorems, and rules, including, of course, the usual well known tests for convergence. This portion of the book is arranged for ready reference by means of black-face marginal notations.

As the title indicates, the book deals only with the elementary portions of the theory of series. The topic of uniform convergence, for example, is not treated. The author does, however, include in the last chapter some of the more fundamental properties of power series. The convergence of the binomial series is discussed; also the hypergeometric series. Finally the elementary properties of the functions defined by the exponential series and the sine and cosine series are derived; the inversion of series is discussed; and the inverses of the exponential function and the trigonometric functions are studied.

Altogether, there is crowded into the 136 pages of this little work a surprising amount of useful material in an attractive and easily accessible form.

LOUIS INGOLD