

SHORTER NOTICES

Electricity and Magnetism. By Vincent C. Poor. New York, Wiley, 1931. vii+183 pp.

This book is divided into five chapters having the titles Vector Analysis, Electrostatics, Magnetism and Polarized Dielectrics, Current Electricity and The Dynamics of the Electric Current, The Electron Theory and The Application of Special Relativity Theory to Electricity. The fact that only eight pages are devoted to vector algebra and vector calculus and that the entire text consists of one hundred seventy-five pages, gives an idea of the compressed character of the treatment of this vast subject. In his preface the author says "This monograph is in no way intended as a treatise, but rather as a *path through* the subject of electrical theory. According to the observation of one of the referees, it should be a 'big time-saver.'"

It seems to me that the path is not very clear and that it is questionable whether the degree of conciseness is conducive to saving time. Had the book been expanded judiciously to double its size, without introducing new topics, it might have become even a bigger time-saver. In any case the object of a book on such a difficult subject should be, it seems to me, to give the student a clear, comprehensive grasp of the subject and not merely to save time.

In spite of the introduction of the electron theory in the last chapter, the book is written from the point of view which antedates the electron theory. This explains the section headings, "Fictitious Magnetism" and "Fictitious Electricity." It would have been better to present the subject in the light of the progress of electrical theory during the last thirty-five years and to present the subject throughout from the point of view of the electron theory. This would have made it unnecessary to call real electrical phenomena at the boundaries of dielectrics "fictitious."

The notation of the book is at times confusing. For example, "curl" and "rot" are used indiscriminately even on the same page; on the other hand "divs" and "curls" are used where "div" and "curl" would have done just as well.

The Lorentz transformations are introduced on the hypothesis of the Fitzgerald-Lorentz contraction and later it is pointed out that these satisfy the special theory of relativity. The derivation of these transformations from the postulates of relativity, which can be done very simply, would have carried a greater conviction of their reality to the student.

The author rightly states in his preface "In general, the professional electrical engineer is graduated without being able to read electrical theory. This is a deplorable situation; the theory of electricity should not be a closed book to the good electrical engineer." His remedy, however, given in the statement "It would seem feasible to correct this state of affairs by a one-hour course for junior and senior electrical students," is not adequate. It seems to the present reviewer that most of the shortcomings of the book are due to this feeling on the part of its author that the theory of electricity can be adequately covered in a very short course.

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