to recommendations of the national and international groups establishing standards in radiation protection.

Technically the book is excellent. Only a few errors were noted during a first reading. The book is intended primarily as a textbook of health physics at the graduate level but will certainly be used widely by practicing health physicists as well.

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Mathematically bound

INTRODUCTION TO PARTIAL DIFFERENTIAL EQUATIONS AND BOUNDARY VALUE PROBLEMS. By Rene Dennemeyer. 376 pp. McGraw-Hill, New York, 1968. $13.75

by Peter L. Balise

In spite of their great importance partial-differential equations are one of the mathematics subjects that often cannot be squeezed into the science or engineering curriculum. However, the author teachers a senior course for mathematics and nonmathematics majors and his book has evolved from this course. Compared with several other treatments of similar purpose, the work is little oriented towards physical situations, apparently reflecting the author's primary interest in mathematics more than his considerable industrial experience.

Instead of starting with the classic vibrating-string introduction, the book commences with classification, definitions and a treatment of first-order equations, including an existence and uniqueness proof for the Cauchy problem. In this and the following analysis of linear second-order equations, Dennemeyer discusses characteristic curves and surface with notable clarity. Elliptic equations are considered next, especially Laplace's and Poisson's equations, but with negligible attention to the major role of these equations in physical situations. Not until the middle of the book is the wave equation treated, including three-dimensional, cylindrical and spherical waves. The last chapter deals with the heat equation, but no mention is made here of mass diffusion.

Other omitted topics of importance in applications are conformal mapping, wave propagatin in terms of complex exponential parameters, and numerical methods. Thus the book appears an unlikely choice for a course strongly directed towards physical problems, but its soundly presented mathematics and ample exercises suggest it as a good text for mathematics courses.

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The reviewer, professor of mechancial engineering at the University of Washington, teaches courses emphasizing the commonality of mathematics in different physical situations.

Lab manuals: telling it like it is

DISCOVERY IN PHYSICS. By Leonard H. Greenberg. 239 pp. W. B. Saunders, Philadelphia, 1968. Paper $4.75

by James B. Kelley

This is indeed a new type of "laboratory manual" because it is actually much more. Probably no part of a laboratory science can be more boring or seem more useless to a student than the laboratory part. The "cook-book" experiments (an old-fashioned cook book, at that!) usually prove little even to the interested science student, let alone the poor student who is taking the course to fulfill a graduation requirement.

What Leonard Greenberg of Saskatchewan University has attempted here is interesting, and in the hands of the right instructors could do a great deal to make laboratory work more challenging. Instead of following the usual procedure of going along the mechanics-heat-sound-electricity-optics-modern-physics path in what is always a hopeless attempt to keep laboratory and lecture together, he has set up his laboratory as though it deserved to stand on its own feet. And this is as it should be. The introduction he has written and the table of contents give the tip-off of what is to follow.

Actually what most laboratory courses in physics fail to realize completely is that such courses were not designed to measure once more the value of g or some other such thing, but that the laboratory experiments were (at some distant time, we hope) designed to show what experimental physics is all about. As the modern idiom would have it: "The laboratory should show it (experimental physics) like it is." Instead of studying errors, one does an experiment and then sees what happens; one learns, at least a little bit, of why we have experimental science and what it can and cannot do. We find, for example, Ohm's Law combined with apparent depth in related experiments. Resistors, rolling objects and chance are all combined in one section. And that's the way physics is; it is not a neatly compartmentalized subject that can conveniently be broken down into discrete (and unrelated?) parts.

Presentation of data, laboratory-record bookkeeping, graphical analysis of experimental data and so on are all here. And the important fact is that these sections are presented in relation to experiments the student is doing and are thus made a real part of the course.

The title of the book is itself the best indication of Greenberg's approach, "Discovery in Physics." This is what a laboratory should be, a discovery of the fun and adventure involved in the experimental process.

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James B. Kelley, professor of physics at Marquette University, specializes in electromagnetism and electrodynamics.

On peace and people

PUGWASH—THE FIRST TEN YEARS: HISTORY OF THE CONFERENCES OF SCIENCE AND WORLD AFFAIRS. By J. Rotblat. 244 pp. Heinemann, London, 1967. 36s.

by Peter G. Bergmann

The Secretary General of the Pugwash Continuing Committee has prepared a well-documented historical record of the Pugwash movement and of the Pugwash Conferences that extends through the first months of 1967. The narration is contained in the first 74 pages; the appendices consist of the so-called "Russell-Einstein Manifesto," the formal statements issued after each