number of straightforward but relevant problems. The one possible flaw as a text book is the complete lack of reference to applications. In spite of this the elegance and extreme lucidity of the presentation make this an outstanding contribution to the text book literature on probability theory.

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Elementary partial differential equations, by Paul W. Berg and James L. McGregor. Holden-Day Inc., San Francisco, 1966. xv + 421 pages. $11.95.

Some knowledge of methods of solution of linear partial differential equations, particularly those based on separation of variables, is essential for the modern physical scientist or engineer. An understanding of the basic ideas involved, particularly of the question of what auxiliary conditions are appropriate to each class of equations, is necessary for a true grasp of these methods. In the past, there have been many books aimed at covering this material, usually together with a collection of other topics of importance to students in the physical sciences and engineering. The book by Berg and McGregor, like the one by H. Weinberger reviewed in the Bulletin recently (vol. 10, no. 1, p.149), concentrates on partial differential equations. This does not mean that either of these books is devoted exclusively to partial differential equations; both include a good deal of material on ordinary differential equations and Fourier series which are needed. As most students have probably not seen such material previously, this is an excellent idea.

The book by Berg and McGregor is a careful treatment of partial differential equations, well-motivated by physical problems. After some introductory material, various problems for the heat equation are treated by separation of variables. This leads to an explanation of eigenfunction expansions and Fourier series, and a discussion of the existence problem with particular attention to the assumption of boundary values. The remainder of the book covers the wave equation, problems on infinite intervals (by Fourier transform methods), initial - boundary value problems, the Laplace equation, and problems which involve Bessel functions. The treatment throughout is careful, correct, and readable. Most important, it is presented from a modern point of view; nothing in this book will have to be unlearned by a student who goes on to more advanced work in partial differential equations.

It is natural to try to compare this book with the one by Weinberger. Both are mathematical treatments, motivated by physical problems, and presented by authors who are in touch with modern developments. Weinberger's treatment is a little more thorough, but is undoubtedly more difficult for students. In the reviewer's opinion, if a student is equipped to cope with Chapter 1 of Weinberger's book, he should. If not, and this may be the more common situation, the book by Berg and McGregor is a good choice.

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