the scope of this book and would be contrary to the principal aim of the book, which is to develop basic mathematical ideas in as simple a manner as possible. More bluntly, the author expresses his view that "anybody who has mastered the underlying mathematical principles will have no difficulty in learning the numerical methods very quickly from the vast relevant literature."

The reviewer was astonished to discover that the second chapter (on optimization) is essentially a reproduction of the first two chapters of the book by Collatz and Wetterling [1]. Moreover, he is appalled at the incredible amount of typographical and grammatical errors, revealing little if any editorial supervision.

W. G.

1. L. COLLATZ & W. WETTERLING, *Optimierungsaufgaben*, Springer, Berlin and New York, 1966.

32[5].—GARRETT BIRKHOFF, *The Numerical Solution of Elliptic Equations*, Society for Industrial and Applied Mathematics (SIAM), Philadelphia, Pa., 1971, xi + 82 pp. Price $4.20.

This book consists of the revised notes of a series of lectures given at an NSF sponsored Regional Conference in Applied Mathematics. It gives a concise, readable and up to date survey of most available methods for the numerical solution of elliptic equations. It contains many well-chosen references and should therefore also be quite useful as a guide to further studies.

There are nine lectures. The first describes typical elliptic problems, and, in the last, the author discusses some of his experiences with complicated practical problems. Lectures two and three are on classical analysis and finite difference methods, while the following two lectures survey the well-known successive overrelaxation, semi-iterative and alternating direction methods. The sixth lecture discusses the use of the classical integral equation approach, a topic often neglected in surveys of this kind. In addition, there are two sections on approximation theory and closely related variational methods.

A discussion of special methods for problems which can be solved by separation of variables such as Hockney's and Buneman's methods, of great importance in specialized applications, is missing. Cf. Hockney, *Methods in Computational Physics*, vol. 9, 1970.

The finite element method which is now rapidly being developed (to perhaps the most important numerical method for elliptic problems) is discussed only briefly. (It should be noted, however, that the following regional NSF conference dealt exclusively with variational methods. The notes by R. S. Varga are going to appear in the same series.)

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