

## BOOK REVIEWS

*Lattice theory* by Garrett Birkhoff. 3rd ed. New York: American Mathematical Society Colloquium Publications, 1967.

*Lattice theory: First concepts and distributive lattices* by George Grätzer, San Francisco; W. H. Freeman and Company, 1971.

In the past decade several books on the subject of lattice theory have appeared. These include works intended as reference books and those intended for use as course texts. Most of these books deal with one specific area in lattice theory, Maeda's *Theory of symmetric lattices* and von Neumann's classical *Continuous geometry* being but two of many examples.

Perhaps the best known book on lattices in general is Garrett Birkhoff's *Lattice theory*, first published in 1940, revised in 1948 and more recently in 1967. This is mainly a reference work—the field has grown too big to allow a complete and exhaustive treatment in one book. It is excellent reading, and the many references Birkhoff gives makes it the best place to start when one wishes to explore some portion of lattice theory or to appreciate the general flavor of the field.

Quite a different approach is used in George Grätzer's *Lattice theory: First concepts and distributive lattices*. This book is meant to be a text—it is written with the student in mind. Furthermore Grätzer limits himself to the study of distributive lattices—the book is geared in this direction from the beginning, and taken as a whole it gives a very well organized, cohesive treatment of this particular type of lattice.

Both authors have worked extensively in lattice theory. In particular both have made significant contributions to universal algebra. One has chosen to present an overall picture in a reference book; the other to write a specialized text. While the books differ in subject matter, and style, they agree in their high quality. There is, thus, no point in comparing or contrasting them, other than in making the remarks above—rather we will discuss each separately as two noteworthy examples of lattice theory books which differ in scope and intent.

R. P. Dilworth says in his review of the second edition of Birkhoff's *Lattice theory*, “. . . it should be the definitive work in the subject for some time to come, particularly, since the rapid growth of the field makes it unlikely that another such comprehensive account will be written.” Subsequent events have proved Dilworth right—in this third edition Birkhoff claims to have made “no attempt at completeness” and wisely