

*Foundations of algebraic topology*, by S. Eilenberg and N. Steenrod, Princeton University Press, 1952 (second printing, 1957), 15 + 328 pp., \$7.50

This book has had a profound influence on the development of topology both before and after its publication. In the five years since its first printing it has become a standard textbook and reference work for anyone interested in topology.

The first course in algebraic topology is usually a difficult one for the student. He faces a mass of unfamiliar algebraic machinery whose motivation is difficult to grasp and whose applicability is appreciated only much later. Realizing this, the authors have adopted an axiomatic approach to the subject of homology theory. Starting with seven easily stated axioms relating algebra and geometry (and assuming only the basic concepts of algebra and point set topology as prerequisites) they show how many important and interesting theorems can be proved directly from these axioms. The axioms themselves are presented without motivation, but their immediate application is intended to make it easier for the student to accept them. Only after the reader has seen the power of the theory is he led into the details of the existence and uniqueness of homology theories.

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Whether one agrees that the axiomatic approach is a good one for beginning students or not, there is much to recommend the book for use as a text (most suitable, perhaps, for a second year graduate course). The treatments of the singular and Čech theories are modern, complete, and quite readable by themselves. Diagrams of homomorphisms, which are used so frequently today, were first systematically used in this book, both to motivate proofs and to assist the reader in following arguments. Each chapter of the book begins with an introduction stating what the chapter covers and how the material fits into the general scheme of the book. Notes are at the end of the chapter. These discuss the historical development of the subject and its relations to other topics. References to the literature are also found in these notes. Each chapter is followed by a set of exercises. Some of these are easy and some more difficult but most of them are interesting, and the student who works his way through them will learn a great deal.

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