

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.

Since its publication the terminology and notation of the book has been almost universally adopted by topologists. The axioms have led to cleaner proofs of many theorems and increased their generality at the same time. In addition, the axioms have been applied to prove new results. One of the most recent of these applications is the theorem proved by Dold and Thom (C. R. Acad. Sci. Paris vol. 242 (1956) pp. 1680–1682) to the effect that the q th homotopy group of the infinite symmetric product of a polyhedron X is isomorphic to the q th homology group of X . They prove this by showing that the homotopy groups of the infinite symmetric product of X , regarded as functions of X , satisfy the axioms, whence the result follows from the uniqueness theorem for polyhedra.

The book contains no discussion of cup products or cross products. This was to be included in a projected second volume, which was to contain also a treatment of cell complexes and the practical calculation of the homology groups of such spaces. It is to be hoped that the authors have not abandoned their plan to write this second volume. Such a continuation of the present useful book would be a welcome and worthwhile contribution to the mathematical literature.

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Vorlesungen über Himmelsmechanik. By Carl Ludwig Siegel. Springer, Gottingen, 1956. 9+212 pp. DM 29.80. Bound DM 33.

The appearance of this remarkable book is certainly one of the great mathematical events of the century. Written on the subject matter which is the mother field of modern mathematics and spar-