Elementary topology. By D. W. Hall and G. L. Spencer, II. New York, Wiley, 1955. 12+303 pp. $7.00.

The textbook reviewed here is meant for an undergraduate course (possibly even for juniors) with this dual objective: first, to produce such understanding of the facts and techniques of elementary topology as "will help the student immeasurably in his courses in advanced calculus, real variables and complex variables . . . "; and second, to constitute that course in which the student is definitely acquainted with rigor. It does present the basic material carefully and patiently, with many exercises, a good part of which requires much reexamination of the proofs given; and there are twenty-six figures. Using the book in the way suggested would involve (in most schools) serious revision of the program of courses. The book ought also to be considered simply as an introduction to topology.

The following topics are included in the first four and one-half chapters, which are suggested, on the basis of experience, for an undergraduate year course: (1) Introductory set theory; (2) The real number system; (3) Concepts such as metric, closure, compactness, etc.; (4) Metric spaces more intently, including metrics specially related to local connectedness, completion, the space (C) and its completeness, Urysohn's metrization theorem, etc. Among the exercises we find Directed sets, the Hilbert cube and Baire's density theorem (not involved in the regular text) suggested with references as topics for a series of short papers at this point; (5) The study and characterization of arcs, curves, the 1-, and 2-sphere, and (other) spaces which are continuous images of the unit interval, to the extent of fifty pages, which is nearly half of the fifth chapter. This chapter is the real core of the book. In a graduate course it could probably be covered together with the remaining two: (7) Partitionable spaces (R. H. Bing's fruitful concept); (8) The axiom of choice, containing also infinite topological products (that is, those with more than a finite number of factors) and Tychonoff's theorem.

In my estimation this book would be very useful in a graduate semester course in set theoretic topology where it is desired to include the carefully prepared material of the fifth chapter. The authors deserve praise for exhibiting a teeming arena for the application of easily intelligible topological techniques, to say nothing of the inherent interest of the topics already mentioned (and Jordan's curve theorem, to mention another).

They contend that the treatment has been kept especially elementary through the careful avoidance of algebraic arguments. Indeed,