(L) p. 322. It is shown that the Čech and Vietoris homology groups over a discrete group G are isomorphic. Special finite coverings of a topological space by closed sets whose interiors are disjunct, called *gratings*, lead to a net which is a spectrum and whose net homology theory is the same as the Kurosch homology theory by finite closed coverings. The projective theory of this spectrum is the homology theory of Alexander-Kolmogoroff. In Chapter VIII the topological space is specialized to be a polyhedral or simplicial complex K and the covering to be by barycentric stars of the derived (that is, regularly subdivided) complexes of K. A proof of the topological invariance of the algebraic homology groups of K then quickly results from the Čech theory. The manifold, intersection and fixed point theories given earlier are specialized to this case and a discussion of the singular chains which played such a large part in (L) and of continuous chains is included. Finally differentiable complexes and group manifolds are discussed. Hopf by generalizing simplicial group manifolds (group not necessarily abelian) defined a Γ-manifold. Lefschetz further generalizes to obtain a Γ-complex and proves Hopf's theorems for it: the rational homology groups and ring of a Γ-complex are isomorphic with those of a finite product of odd-dimensional spheres; and every finite product of odd-dimensional spheres is a Γ-manifold.

In Appendix A by S. Eilenberg and Saunders MacLane are proved for infinite complexes results on universal coefficient groups similar to those of Chapter III for finite complexes. The group of group extensions of a given group by another is the algebraic tool used. In Appendix B, P. A. Smith describes his application of algebraic topology to the study of the fixed points of a periodic homeomorphism T of a topological space R into itself. His technique is first worked out for R a simplicial complex and T a simplicial homeomorphism. The algebra is that of special homology groups defined by means of T. Then by the Čech method it is extended to compact spaces, particularly those having the homology groups of the n-sphere, and there yields topological results. Some unsolved problems are described at the end of this appendix.

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Principles of mechanics. By J. L. Synge and B. A. Griffith. New York and London, McGraw-Hill, 1942. 12+514 pp. $4.50.

In their preface the authors state that mechanics stands out as a model of clarity among all the theories of deductive science, and they have succeeded very well in support of that statement in the production of this book. The notation and the arrangement are good, and