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The homology of Hopf spaces, by R. M. Kane, North-Holland, Amsterdam, New York, Oxford and Tokyo, 1988, xv + 479 pp., $105.25. ISBN 0-444-70464-7

In 1988 Richard Kane published his book, *The homology of Hopf spaces.* I remember at the 1986 Arcata Topology Conference (before the International Congress of Mathematicians) when Alex Zabrodsky, John Harper, Clarence Wilkerson and I received mimeographed preprints of Richard's book, we were all pleasantly surprised that someone had taken the time to amass many of the details of this growing field into a coherent book. More recently, Frank Williams commented that Kane's book will probably be the only book on finite H-spaces published in the 1980s. For myself and others who have Ph.D. students working in the area, Kane's book is an excellent first reference for many of the ideas currently used by the experts.

An H-space (or Hopf space) is simply a pointed space $X, *$ together with a binary pairing $X \times X \to X$ such that the two inclusions

$$X \times * \to X \times X \to X$$
$$* \times X \to X \times X \to X$$

are homotopic to the identity.

Mathematicians are interested in these spaces because all topological groups are H-spaces, and further, if one takes an arbitrary topological space, its loop space is an H-space. The interplay between space and loop space has been an important area of study. For example, the homotopy and homology of space and loop space are intimately related by suspension