He starts with a treatment of the elementary properties of retracts, deformation retracts and neighbourhood retracts found by Borsuk. Then he defines absolute (neighbourhood) extensors (ANE's) and absolute neighbourhood retracts (ANR's) for an arbitrary weakly hereditary topological class of spaces, shows that in both cases the class of all metrizable spaces is the best choice, and relates the two concepts to each other. The properties of ANE's and ANR's are dealt with, including Hanner's theorem that being an ANE is a local property. Infinite simplicial polytopes are studied with regard to the question whether they are ANR's.

Next various necessary and sufficient conditions for a metrizable space to be an ANR in terms of homotopy extension properties, partial realizations of polytopes, small deformations and dominating spaces are established. Similar conditions are then found for locally n-connected spaces and used to prove that for finite-dimensional metrizable spaces local n-connectedness, local contractibility and being an ANR are equivalent conditions. Borsuk's counter-examples are included which show that this is not true for infinite-dimensional compacta.

There follows a discussion of adjunction spaces and mapping spaces of ANR's and of Borsuk's results on compact ANR's in Euclidean spaces. The final chapter is devoted to deformation retracts. A theory of obstructions to deformations is sketched and used to establish necessary and sufficient conditions for deformation retracts in terms of homotopy and homology.

S.-T. Hu has not only succeeded admirably in the task he set himself of producing a useful and well-organised reference book, but has given us at the same time a very lucid and readable treatise on the subject. The book, which can be read by anybody with a basic training in general and algebraic topology, makes quite recent contributions to the field accessible with unexpected ease. It includes many proofs in full; for some the reader is referred to the original papers. Frequent references in the text and at the end of most sections clearly indicate the source of the material, encourage comparison with the original literature and stimulate further reading. The book finishes with a comprehensive and up to date bibliography. It will be welcomed warmly by all budding and full-blown topologists, and deserves to become a standard reference work.

Helga Schirmer, University of New Brunswick

Geometric Invariant Theory, by D. Mumford. Ergebnisse der Math. N.S. Vol. 34. Springer-Verlag, Berlin, 1965. 146 pages.

In this monograph, the author is concerned with the construction of schemes of moduli over algebraic objects and, more generally, with the problem whether an algebraic scheme, acted upon by an algebraic group, admits an orbit space. The book is written entirely in Grothendieck's language of schemes, and can only be read by those who are

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well acquainted with this language. Extensive use of results of Grothendieck, published, semi-published, and unpublished, is made (with unpublished results reviewed in the book). Those who can read the book will find it very interesting. A most unusual, but to this reviewer highly pleasing, feature of the book is the inclusion of many informal, but highly informative, discussions concerning methods and definitions.

Oswald Wyler, Carnegie Institute of Technology

Modern College Algebra, by Daniel E. Dupree and Frank L. Harmon. Prentice Hall, Englewood Cliffs, N.J., 1965. ix + 250 pages. $5.95.

The authors set themselves the commendable goal of presenting college algebra in a modern setting that will communicate the "why" as well as the "how" of the subject. Unfortunately they do not progress very far toward this goal. With the exception of a long first chapter that covers logic, set theory and number systems and a brief appendix on the use of set theory in logic, there is little in the book that deserves the title "modern".

Although mathematical induction is introduced in Chapter 1, it is not used effectively in later chapters. The laws of exponents are presented with no mention of induction; the standard techniques are used for arithmetic and geometric progressions with induction mentioned only in the exercises.

The determinant and permutations are not treated as functions, although considerable time has been spent on properties of functions that could very well be used here.

The characterization of natural numbers as a subset of the real numbers is open to two interpretations, the more obvious of which is false. There is also a lack of unity between the definition of natural numbers and the ideas of proof by induction.

The notation leaves something to be desired. Why are the reals the only number system denoted by a script letter? There should be some discussion about the interchangeability of the notations p, p/1 and (p, 1) for an integer.

It is unfortunate that so many unproved theorems appear in the book as "axioms". It is true that many of them could not be proved at this level, but this should be more clearly recognized rather than hidden in this way.

G. C. Bush, Queen's University

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