Ordered topological vector spaces by A. L. Peressini. Harper and Row, New York, 1967. x + 228 pages. U.S. $10.25.

In the second edition of his 'Lattice Theory' Garrett Birkhoff included a chapter on vector lattices which begins "Abstract function spaces... have shed so much light on the theory of functions that their study is now recognized as an important branch of mathematics. Usually ... this study has been based on an analysis of distance in vector spaces. The author believes that an analysis of the properties of order in function spaces is equally deserving of attention and may prove equally fruitful". Shortly after that, in 1950, there appeared in Russian the encyclopedic work of Kantorovič, Vulih and Pinsker on partially ordered spaces and, in Japan, H. Nakano published his work on ordered linear spaces. Since then a considerable amount of work has been done on various aspects of the theory of ordered spaces and positive operators, much of which has crystallized into a reasonably stable form. For some time, therefore, there has been felt the need for a comprehensive book on the subject.

The author of 'Ordered Topological Vector Spaces' does not make any claim to be comprehensive and this relatively small book consists of only four (fairly long) chapters and an appendix which gives an outline of locally convex linear space theory. The chapter headings are: Ordered vector spaces; Ordered topological vector spaces; Intrinsic topologies of ordered vector spaces; and Selected topics in the theory or ordered topological vector spaces.

Chapter 1 is devoted to the algebraic aspects of the theory although the last section deals with the various intrinsic types of convergence encountered in vector lattices. Much of the chapter is concerned with vector lattices and the central part is the Choquet-Kendall theorem stating that a generating cone with base B induces a lattice order in a vector space if and only if B is a simplex (i.e. the intersection of any two homothetic translates of B is another such translate).

The second chapter deals with possible relationships which can be imposed between order and topological structures. The two central notions here are that of normality and $\mathfrak{b}$-cone and the duality between these notions is well brought out. The development in this chapter follows the work of H.H. Schaefer very closely.

Motivated by the last section of Chapter 1 on intrinsic modes of convergence, Chapter 3 deals with precisely what the heading says.

Chapter 4 pursues four 'special topics' more or less independently. The most important one is the relation between order completeness and topological completeness.

This is a useful book. It is concisely written and yet is easily readable. Thus it is valuable as an introduction to the subject and also as a reference work since it contains as well as the major results in the theory many useful propositions which are sometimes termed the 'folk-lore' of the subject. Each definition is well illustrated by examples from function spaces and Köthe sequence spaces. There is a good bibliography and, especially pleasing, are the historical notes at the end of each section. The index is adequate, the typography is clear and there are very few misprints.

Of course, one regrets the omissions. In particular, that only the algebraic Choquet-Kendall theorem is given and not the measure theoretic aspects (although these are mentioned); there is also very little mention of positive linear operators and no mention of spectral theory. One is left, therefore, with the feeling that the need for a comprehensive book on the subject has not quite been met.

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Einführung in die Graphentheorie, by Jiří Sedláček. Teubner, Leipzig, 1968. 171 pages. Kcs 23.

This book is a German version of the author's "Kombinatorika v teorii a praxi Úvod do teorie grafů" which appeared in 1964; its purpose is to provide an elementary introduction to graph theory, not only for students in mathematics but also for students in other disciplines where graph theory might have applications.

The book begins with a short chapter on sets, mappings, permutations, and groups. The second (and longest) chapter deals with the basic definitions and properties of undirected graphs; some of the topics mentioned are connectedness, trees, separating sets, Euler graphs, factors, chromatic numbers, and point-bases. Directed graphs are treated in the third chapter; much of the emphasis here is on connectedness properties and how these are reflected in properties of the corresponding incidence matrices. It is shown that the set of all paths of a directed graph form a category. The book concludes with a short chapter of historical remarks.

There are many diagrams in the text and there are frequent references - especially in the exercises - to additional results in the literature.

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Twelve geometric essays, by H. S. M. Coxeter. Southern Illinois University Press, Carbondale, Illinois, 1968. xiii + 242 pages. U.S. $7.00.

This book is a collection of twelve first-rate mathematical papers by Professor Coxeter, rather than a collection of "philosophical ramblings" as the title might, at first glance, suggest. The papers have all appeared in various journals and books over the last 33 years.

The papers give an overall view of the geometrical topics which have interested Professor Coxeter. Thus we find papers on polytopes (including the famous Wythoff construction for uniform polytopes), honeycombs and sphere arrangements in both Euclidean and non-Euclidean spaces, configurations, and applications of geometry to number theory ("Integral Cayley Numbers") and relativity ("Reflected Light Signals"). As is to be expected in Coxeter's work, group theory and projective geometry are the basic tools.

The concluding chapter, called briefly "Geometry" appeared in "Lectures on Modern Mathematics, Vol. III" [John Wiley and Sons Inc., 1965]. It is itself a summary of the geometry treated in this book, and should "help to reveal the healthy state of development of this fascinating subject, including its interactions with other branches of... mathematics".

Comprehensive bibliographies are found in each chapter, and the index is most helpful. The extensive list of references in the last chapter merits special notice.

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