We are all greatly indebted to Professor Carolyn Eisele for bringing together the most important of Peirce's unpublished manuscripts on mathematics; for her discriminating selection from a vast amount of material; and for her extensive historical researches, the results of which she has presented in the introduction.

ARTHUR W. BURKS

BULLETIN OF THE
AMERICAN MATHEMATICAL SOCIETY
Volume 84, Number 5, September 1978


*Supercompactness and Wallman spaces*, by J. Van Mill, Mathematical Centre Tracts 85, Mathematisch Centrum, Amsterdam, 1977, iv + 238 pp.

Supercompactness spaces are compact spaces characterized by having a binary subbase. That is, there is a subbase $\mathcal{S}$ for the closed sets with the property that if $\mathcal{L} \subset \mathcal{S}$ and $\bigcap \mathcal{S} = \varnothing$ then there are two sets $L_0, L_1 \in \mathcal{L}$ such that $L_0 \cap L_1 = \varnothing$. The main goal of this monograph is to study supercompact spaces and supercompact extensions of arbitrary topological spaces.

Supercompact spaces were first defined by J. DeGroot in 1967 and arose from investigations on complete regularity and compactification theory. A number of mathematicians became interested in DeGroot's work and many of his conjectures have now been proved, new techniques have been developed, and new questions have arisen. This book presents known and new results in a structured form with sufficient auxiliary and background material to make the subject accessible to a reader with a solid course in graduate level general topology. The main appeal of the book however will be for those who have an interest in pursuing research in this area.

In the first chapter, supercompact spaces are studied in general. Topics included are: Hausdorff continuous images of supercompact Hausdorff spaces, the notion of an interval structure and its use in characterizing supercompactness, the relation between graphs and supercompact spaces, regular supercompact spaces (those possessing a binary base which generates a ring of regular closed sets), and partial orderings on supercompact spaces. DeGroot conjectured that every compact metric space is supercompact and that not every compact Hausdorff space is supercompact. Although these conjectures have been proven true, there are still many open questions and several are explicitly mentioned.

Using the notion of maximal linked systems, supercompact extensions of topological spaces are obtained in a manner analogous to the construction of Wallman-type compactifications. In Chapter II, properties of superextensions (and their subspaces) are studied: those they inherit from the underlying space, and those which are new and unexpected. The contractibility of superextensions is also investigated.

Metrizable superextensions are studied in Chapter III, with particular emphasis on infinite dimensional problems, such as: is the superextension of the closed unit interval homeomorphic to the Hilbert cube? (An affirmative answer is given.)

The subject of Chapter IV reflects the second part of the book's title and relates only incidentally to supercompact spaces. Two questions are considered: Is every Hausdorff compactification of a Tychonoff space (a) a Wallman-type compactification? (b) a GA compactification (defined by DeGroot and Arts)? Since every Wallman-type compactification is a GA compactification, the questions are related. In a footnote the author mentions that (a) has supposedly been answered in the negative by Uljanov and Shapiro. Conditions are given for a superextension to be a regular supercompact space, and hence a superextension of each dense subspace.

The final chapter presents a summary of recent results on supercompact spaces which answer some of the questions posed in earlier chapters.

The monograph concludes with an extensive bibliography and an author reference index as well as a subject index. For the topologist interested in extension theory, this book provides a good insight into current research in the area of supercompactness. The author has done an excellent job of bringing together diverse results which all contribute to the general theory of supercompactness, and should be extremely valuable to anyone contemplating research in this area.

ANNE K. STEINER

BULLETIN OF THE
AMERICAN MATHEMATICAL SOCIETY
Volume 84, Number 5, September 1978


*Selected mathematical papers of Axel Thue*, edited by Trygve Nagell, Atle Selberg, Sigmund Selberg, and Knut Thalberg, Universitetsforlaget, Oslo, LVIV + 591 pp., $40.00.

The present volume, edited by T. Nagell, A. Selberg, S. Selberg and K. Thalberg, contains Thue's papers in the theory of numbers and in mathematical logic. Thue's papers on geometry and mechanics are not included, but there is a possibility that they will be collected in a later volume.

The publication of these Selected Papers is a great service to the mathematical community. Thue's name is known mostly for his theorem on diophantine approximation and on diophantine equations which appeared in 1908/1909. The present selection of his work destroys the common myth (long held by the reviewer) that this was Thue's only important contribution.

The volume contains a biography of Thue by Brun who knew Thue, there is an introduction to Thue's work in number theory by Siegel, and there is an article by Siegel which gives a deep analysis of Thue's work on approximation to algebraic numbers. These contributions almost preempt the task of the reviewer.

Thue liked to work independently, and his papers require almost no prerequisites. It appears that Thue was not much influenced by Lie, Kronecker and other great mathematicians with whom he had contact during his years of study in Leipzig and Berlin. His greatest work, on approximation to algebraic numbers, appeared in 1908/1909, when he was well in his forties, and when he had been away from the centers of mathematics for over a decade. There is an intriguing picture on a front page, with Thue gazing rather sadly into the distance.

As Siegel points out (in his (1970) article which is reprinted here), Thue wrote nine papers about approximation to algebraic numbers, but only one