Although any two dense linearly ordered sets are indistinguishable by first order sentences and only partly distinguishable by monadic properties (Gurevich, Magidor and Shelah), some resolution is possible if the perspective is slightly changed and automorphism groups are considered. For example, there is a first order sentence of the language of group theory that is satisfied by the automorphism group of a 1-homogeneous linearly ordered set if and only if the linearly ordered set is the real line (Gurevich, Holland, Jambu-Giraudet and Glass)—and this does not depend on set theory, nor do similar results.

Like this review, the book has a decidedly model-theoretic slant and relies heavily on the Ehrenfeucht-Fraïssé game technique, which I found helpful. Anyone who has taught a course in model theory knows only too well how difficult it is to find theories in which students can "get their hands dirty" and perform detailed computations. Linear orderings provide one of the few exceptions so it is very nice to see that Rosenstein has peppered his pages with calculations. This is further brought out by many exercises—4.4.4.(3) is most challenging; it contradicts 4.4.4.(5) and is one of the few misprints I found (the others are obvious). The book has clearly been written with the graduate student in mind; I have never read a mathematics book before where the author has so obviously chosen his words carefully to ensure that the reader is in the right frame of mind when he or she comes across each new concept. It can certainly be used for a graduate course in infinite combinatorics or in model theory; in the latter case, it might be used as supplementary reading for such a course, though since all the standard model theory is introduced thoroughly, with proofs, before linear orderings are considered specifically, this is not necessary. However, there is such a mine of information in the book that it will be useful for researchers in these disciplines as well as other mathematicians and is a must for libraries. Because of the price, I fear that they and reviewers will be the only owners! Its appearance now that there is a need to study unstable theories is most propitious. The only complaints I have are that Rosenstein makes no attempt in his book, even in his introduction, to relate his subject to other areas of mathematics—something I have tried to right in this perhaps lopsided review—nor, where possible, to deal with partial orderings when little or no extra work is needed. However, any complaints are most churlish since I learnt a lot from the book, have great admiration for the author's own central work and influential role in the subject, and found this a superbly written book.

A. M. W. GLASS

BULLETIN (New Series) OF THE
AMERICAN MATHEMATICAL SOCIETY
Volume 9, Number 1, July 1983

0273-0979/83 $1.00 + $.25 per page

Hankel operators on Hilbert space, by S. C. Power, Research Notes in Mathematics, No. 64, Pitman Advanced Publishing Program, Boston-London-Melbourne, 1982, 87 pp., $13.95. ISBN 0-273-08518-2

Hankel operators have been studied on and off for years, because they arise in a variety of problems of complex analysis and operator theory. At their