INTERPRETING THE LANDSCAPE: LANDSCAPE ARCHAEOLOGY AND LOCAL HISTORY by Michael Aston. London and New York: Routledge Press, 1985 (reprinted 1997).

Interpreting the Landscape presents a multidisciplinary approach to understanding ancient settlement systems, integrating methods and perspectives from physical and cultural geography, archaeology, and archival historical studies. It serves both as a how-to book for the enthusiastic amateur, as well as a basic introductory text for students of geography and archaeology. It is both well-written and well-illustrated. This fifth printing of the volume is indicative of both its high quality as well as the general interest in the subject matter.

The book begins with a brief introduction to landscape archaeology. In essence, Aston sees settlements as embedded in both a physical and a cultural matrix. His emphasis is on the smaller villages and hamlets and how they were integrated into a larger geographical landscape.

This introduction is followed by 12 chapters which review both the methods of landscape archaeology and the different components and scales of analysis. Thus, chapter titles are 'How do we know what we know'?, 'Early landscapes', 'Estates and boundaries', 'Status in the landscape', 'Deserted villages and after', 'Surviving villages', 'Farms and hamlets', 'Sites and patterns', 'Land uses', 'Field systems', 'Communications—The links between', and 'What does it all mean?' Classic case studies are reviewed in brief to serve as examples of different types of analysis. Emphasis is primarily on the synchronic reconstruction of functioning landscape systems in different periods. Although Aston recognizes the chronological dynamics of these systems, the basic constraints of the data relevant to landscape history and reconstruction, especially with respect to detailed chronologies, render explication of those dynamics difficult.

The problem of scarce data for the older periods is also reflected in the clear emphasis on the later periods of English history. Although ostensibly beginning with the Stone Age, landscape history prior to Roman times, as reflected in Aston's study, is patchy at best. The characterization of the Neolithic-Bronze Age landscape as 'ritual' (p. 150) seems more indicative of the preservation of ritual structures and the archaeological attention they received, than the ancient landscape as it functioned with respect to human populations.

The focus of this study is exclusively England, a restriction not evident in either title nor chapter headings. It thus serves more as a specific case study of the theoretical approach, than a general synthesis. For the reader less acquainted with English history and geography, the details are more difficult to assimilate. The same is true for the bibliography which is limited to studies focusing on England.

The only theoretical shortcoming to *Interpreting the Landscape* is the short shrift given to environmental and especially climatic change as factors in landscape evolution. H.H. Lamb has clearly demonstrated the effects of climatic change on land use in Britain, for example in the effects of the Little Ice Age on agricultural production. Such changes are barely considered in Aston's study.

All in all, this is an excellent introduction to an important realm of study. Not all the methods or subjects reviewed for England will be appropriate for other regions, but the general approach to landscape history is valuable for all regions and periods.

Steven A. Rosen
Ben-Gurion University of the Negev

NEURAL NETS: APPLICATIONS IN GEOGRAPHY by Bruce C. Hewitson and Robert G. Crane (eds.). Dordrecht, Boston and London: Kluwer Academic Publishers, 1994.

Neural network analysis is a powerful addition to the array of statistical methodologies available for geographical prediction and, to a lesser extent, explanation. Neural network theory emerged out of the field of Artificial Intelligence, and its application has been widely used in such areas as cognitive modeling, image compression and recognition, expert systems, and natural language and handwriting recognition. Its use in Geography, Planning and the Social Sciences in general is still in its infancy. This volume could be an important stimulus to its broader adoption in these fields.

Neural network theory stems from the attempts of researchers to program computers to mimic the brain's abilities, albeit to a limited degree. The premise is that, if a computer is to function like a person it must be programmed like a brain, which distributes information across a vast, interconnected web of nerve cells, or neurons.

A neural network learns to solve problems by being given data, examples of the problem and its solution. Such networks are highly relevant to problems requiring large-scale, multi-dimensional data analysis, including those of a spatial-temporal nature. The advantage of neural networking over statistical methodologies now commonly used by geographers in that it provides a data analysis tool for modeling intuition without the complications of having to formalize all the complex causal variables and relationships which other statistical models require. As the editors of the volume, Bruce Hewitson and Robert Crane point out, neural networks are not a panacea for all geographical research problems. They do, however, offer a new strategy with enormous potential for improving prediction as well as for providing greater explanatory insights in certain situations.

This volume consists of a well-conceived and edited series of cases that demonstrate the application of neural networking methodology in a wide spectrum of spatial-temporal relationships: census analysis, prediction of AIDS spread, description of synoptic controls on mountain snowfall, examination of atmospheric circulation and tropical rainfall relations, and remote sensing of polar cloud and sea ice characteristics. The various contributors demonstrate that applying neural network methodologies to their cases yields performances that are equal or better than more traditional methodologies such as multiple-regression analysis, cluster analysis and maximum-likelihood classification.