observing how estimates of distribution parameters change when quadrat sizes are systematically varied. Hodder and Orton test this approach with data on three phases of early Neolithic settlement in Poland. For the two earlier phases, the data fit a true contagion model distinctly better than they fit the spurious contagion model, while for the third phase there is little to choose between the two models. There is, thus, some evidence for an initial stage of contagious growth leading to the expansion of clusters of settlement and finally to a more dispersed pattern of sites with local variation in density.

Hodder and Orton give a number of further examples of successful, or at least encouraging, results in their discussion of other techniques and other data sets. But in other examples they candidly conclude that, at least with the data and techniques available to them, the results are about equally compatible with two or more quite different spatial processes. The impact of this is not disheartening. Rather, it makes their successes all the more convincing and impressive. Their method stands in sharp contrast to the embarrassing tendency, shared by many "avant garde" as well as more traditional archeologists, to treat a fairly good fit (or sometimes even a fairly poor fit) of data to a single hypothesis as strong confirmation of the hypothesis, without considering the fit of the data to alternative hypotheses. I believe that Hodder and Orton are on the right track and that their strategies are a model of the approach we need for creative and solid advances in archeological method. We are still far from exhausting the possibilities for reliable inferences about ancient activities.

The book is not so strong on theory. The processes envisioned for testing have mostly been suggested by economic geography, economic anthropology, and ecology, but they seem to reflect a less rich set of ideas about human behavior than can be found in those disciplines. Some are downright simplistic, such as the suggestion that "objects of high value and/or low local demand might be expected to cover a wider area than objects which were of lesser value or which were used frequently" (p. 186). This is probably a consequence of the tendency for British archeologists to be trained without much emphasis on sociocultural anthropology or other social sciences. For the present book it is not a crippling defect, but it does mean that the value of the book is squarely in the domain of method. Users will mostly have to supply their own theory.

The discussions of the procedures seem technically sound, and a wide range of useful techniques are covered. The mathematics requires only high school algebra, but many sections will be hard going for readers without at least an introductory semester of statistics. No other book deals so comprehensively with archeological applications of formal methods of spatial analysis, and archeologists should find it extremely valuable. It will also be of interest to geographers, ecologists, geologists, and others concerned with spatial analysis.

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Analytic Techniques

High-Resolution Laser Spectroscopy. K. SHIMODA, Ed. Springer-Verlag, New York, 1976. xiv, 380 pp., illus. $39.80. Topics in Applied Physics, vol. 13.

Since the invention of the first ruby laser in 1960, a number of new techniques for high-resolution laser spectroscopy have been developed. The new methods were originally used only on a few atoms and molecules that happened to match the limited tuning range of the available lasers. However, in recent years rapid progress in the development of widely tunable lasers has opened up possibilities for widespread application of these techniques. Hence the publication of this book is timely.

The book consists of eight chapters by nine authors, including ones from Japan and the Soviet Union. Each author has been instrumental in developing the technique he discusses. Five experimental methods are covered in the book: atomic-beam laser spectroscopy, saturation spectroscopy, three-level laser spectroscopy, quantum-beat spectroscopy, and two-photon spectroscopy. These techniques often yield a spectral resolution of one part in 10^8 or better. Hence, the book has a discussion of the fine details of various line-broadening processes that might limit resolution or be of interest in themselves. These topics do not encompass all the recent advances in high-resolution spectroscopy, but, in my opinion, the editor has done a remarkable job of choosing the most important ones and the appropriate researchers to discuss them and of integrating the material into a coherent monograph. The lack of consistent notation between chapters is slightly disconcerting although in some places the authors have tried to compare their notations.

The book provides comprehensive information about the subject for both beginners and experts. The expert will find details that are not present in the many shorter publications on the subject and may also find ideas for new experiments. In addition, the perspective provided by the book may help a researcher decide on a technique to be used in a specific situation.

The presentations are sufficiently elementary and complete to enable the beginner to understand many of the details of the new techniques although he or she may want to have a general work on quantum electronics handy, as the derivations of theory are often sketched rather than rigorously developed.

Professors teaching courses in quantum electronics could also use this book. No adequate textbook for such courses exists, and supplementary material must be used. This book is the place to go for reference material on high-resolution spectroscopy. In particular, Shimoda's treatment of line broadening and narrowing effects is a good supplement to that in the standard textbooks, with information for students at all levels of expertise.

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