

have escaped the editor's eye, as one may suspect that the "Fort Meyers" (Florida) on page 110 is really "Fort Myers."

Overall, and the minor criticisms aside, this is a useful book. It fills a void in the regional planning literature in that few other books examine regional planning across such consistent scales and issues. Regional planning enthusiasts will find this book appropriate for the contents of each of its chapters. It provides those of us who teach (and preach) such planning with a useful and substantive background to the well-known and often-cited examples of regional planning in the Pinelands, Adirondacks, and Lake Tahoe. *Key Words: critical areas, regional planning, rural, land use.*

Cartographies of Disease: Maps, Mapping, and Medicine. Tom Koch. Redlands, CA: ESRI Press, 2005. xix and 389 pp., maps, diagrams, refs., appendices, and index. \$44.95 paper (ISBN 1-58948-120-8).

Reviewed by Daniel Johnson, Department of Urban Affairs and Geography, Wright State University, Dayton, OH.

Medical geography has long been in need of a text that provides a solid background to the cartographic foundations within the discipline. Tom Koch's contribution, *Cartographies of Disease: Maps, Mapping, and Medicine*, fills such a need. Dr. Koch takes the reader on a journey through the history of cartography as it relates to disease ecology, environmental health, and healthcare distribution. The geographic foundations of these fields cannot be overstated, and this text provides a base model on which spatial reasoning can be effectively utilized in such endeavors.

The text is organized into twelve chapters that range from the principles of cartography as a communication medium to the complex modeling of disease diffusion. It is appropriate for an introductory course in medical geography or as a supplement to spatial epidemiology courses. From a geographic perspective this text should be well received by geography students in comparison with the texts of Lawson and company (Lawson and Williams 2001; Lawson et al. 2003). Although many geography students and professional geographers consider disease map-

ping in this realm to be strictly cartographic communication, Koch's book potentially provides a bridge between the principles of cartography and the statistics-laden concepts of disease mapping. In chapter 3, "Mapping and Statistics," and chapter 10, "Complex Processes: Diffusion and Structure," he demonstrates the numerous foundational principles that could achieve this.

Many are often quick to credit John Snow as one of the founders of environmental health and point to his cholera maps as the first example of the cartographic medium in human health studies. Dr. Koch shows that geographic reasoning in relation to disease was well established before that infamous London cholera epidemic in 1849. Additionally he goes to lengths to demonstrate the tenability of John Snow's legacy.

Of interest to public health professionals as well as geographers is the section on disease ecologies, which provides a solid discussion on how cartography has been used to show the spatial extent of disease of known etiology. The challenge today is to use cartography as more than a tool of static depiction and use the tools to discover the trends within diseases of unknown etiology, which may have an environmental or further spatial component. Koch touches on this through discussions on the uses of GAM, cellular automata, and neural networks in disease diffusion studies. Citing Openshaw, Charlton, and Craft's (1988) study of leukemia studies in England, he shows that geographic processes through clustering and surface analysis are quite relevant to the study of medical geography.

Detailing Verghese, Berk, and Sarubbi's (1989) study in rural Tennessee concerning HIV infection, Koch provides a dynamic story about this infamous infectious process. Verghese, Berk, and Sarubbi used a spatial and arguably social epidemiological approach to the infected population, underscoring Koch's emphasis on spatial reasoning or map thinking. This approach, promoted by Koch, ideally is targeted at public health officials working outside the sphere of medical geographers, as many of the latter already use such approaches to medical problems of significance. As Koch states "Maps are the battlefields on which health scientists have contested," and it is demonstrated throughout his text that health scientists have

lost the spatial component of their investigations. Reasoning in a spatial manner is almost a lost art not only in medical science but in many knowledge seeking activities. Spatially modeling disease outbreaks was common practice before the development of germ theory, after which it seemed most disease phenomena were explained via the impact of germs on human health. At present it seems most appropriate that medical conditions need to be understood from the spatial perspective. This trend can be identified with a quick look at public health journals in which many articles call for GIS investigation. Koch clearly understands this call and his text addresses the need.

In an era in which many components of geography are being redefined (e.g., medical and urban geography) and where a multidisciplinary dynamic of research is being promulgated, spatial investigations are many times paramount. Koch's text provides the historical perspective needed to understand the foundations of medical geographic inquiry. He also demonstrates how computational geographic approaches and phylogeography (among others) will relate to the future. These perspectives on medical geography are fascinating extrapolations beyond current GIS practice. Unfortunately, Koch does not go into great detail regarding remote sensing's role in the future of medical geographic research—a component that clearly could have taken at least one chapter. The concatenation of GIS, remote sensing, and cartography is an important component in geography in general. Perhaps Koch intends to provide us with a future text regarding these applications and relationship to medical geography. One can hope, if such is the case, that the text is as organized and as well presented as this edition. Key Words: *cholera, disease mapping, epidemiology, map thinking, medical geography.*

References

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Cities and Complexity: Understanding Cities with Cellular Automata, Agent-Based Models, and Fractals. Michael Batty. Cambridge, MA: MIT Press, 2005. xxi and 565 pp., figs., tables, refs., and indices. \$60.00 cloth (ISBN 0-262-02583-3).

Reviewed by J. Scott Spiker, Department of Geography, University of Wisconsin–Parkside, Kenosha, WI.

Michael Batty, the director of the Center for Advanced Spatial Analysis (CASA) at University College London, has long been at the forefront of research aimed at examining the complex dynamics that combine to create urban spatial form. In his latest book, *Cities and Complexity*, Batty presents a wide variety of cellular automata-based and agent-based models (ABM) that provide insight into the dynamic nature of urban structure using the complex spatial patterns that arise from these models. The self-similarity and scalability exhibited by these models, the very heart of fractal geometry, also play important roles in this work.

The book is divided into eleven chapters as well as an introductory statement and a few brief concluding remarks. Despite not being formally divided into sections covering each of the main topics, cellular automata-based models are primarily explored in chapters 1 through 4 and again in chapter 9. Chapters 5 through 8 are generally focused on understanding the concept of agents and agent-based models. Although the fractal nature of the models is referenced throughout much of the text, chapters 10 and 11 address this issue in more detail.

In the first chapter, Batty argues that to better understand the dynamic processes through which urban form is produced, we first need to change our mindset from the static, monocentric model that has traditionally been the basis of urban planning. This change is predicated on the notion that although the traditional model assumes spatial structure to be of primary concern, evidence has clearly shown that we