testation of Muslim identities, and this volume provides ample evidence through numerous examples, specifically located in time and place. As such, they clearly achieved their primary aim of exploring the diversity, geographical specificity, and variation of Muslim identities. They also succeeded to probe many of the ways in which Muslim identities and geographies interacted with and influenced other markers of identity, such as gender, race and class. Clearly, there is much work yet to be done in this area, and what one perhaps does not get enough of in this collection is the voice of Muslim scholars, and the unique insights they would be able to bring to framing these same questions and interpreting the myriad of responses that have emerged in specific times and places. Interestingly, the identities and geographies of the contributors are not made explicit beyond the academic level of position and post, which tells too little, particularly for a volume focused upon the importance of geography to identity. The contributors who frame the issue of 'Muslim geographies and identities' are also located in time and space. One gets the sense that the identities and geographies of most of the contributors are non-Muslims of European/European descent, as are most of those whose research and theories they cite and rely upon for framing the issues and interpreting the complexities of Muslim identities and geographies. This shapes the breadth and the depth, as well as the boundaries, of the discourse, and as such, needs to be taken into account. This does not, however, take away from the great progress Aitchison, Hopkins and Kwan's volume makes in dispelling the notion that 'Muslim geography' and 'Muslim identity' can be considered as singular, homogeneous, or static constructions.

Kathleen Abu-Saad
Ben-Gurion University of the Negev

GEOSIMULATION–AUTOMATA-BASED MODELING OF URBAN PHENOMENA by Itzhak Benenson and Paul M. Torrens. New York: John Wiley and Sons, 2004.

One of the most significant features of human geography in recent decades has been an increasing engagement with modeling and simulation. While some research is conducted under the rubric of urban geography, the broader trend involved an exploration of the interface of urban geography with the field of simulation and automata modeling. This is the first book which presents a new approach to simulation as a whole system. But what do the authors, Izhak Benenson from Tel Aviv University and Paul M. Torrens from University of Utah mean by geosimulation? Geosimulation is a catch-all title that can be used to represent a very recent wave of research in geography, as the authors of this book indicate in their introduction. In a broad sense, the field of geosimulation is concerned with the design and construction of object-based high-resolution spatial models, using these models to

explore ideas and hypotheses about how spatial systems operate, developing simulation software and tools to support object-based simulation, and applying simulation to solving real problems in geographic contexts.

The first aspect of geosimulation regards the characterization of spatial entities that form the building blocks of a simulation model. Models designed according to the geosimulation approach are oriented toward spatially non-modifiable objects such as homes, households, and vehicles. The second aspect of geosimulation relates to the portrayal of spatial relationships in models. They consider intersections as an outcome of the behavior of elementary objects. In this way, geosimulation models have the potential of representing spatial interaction of a much wider spectrum of forms, including traditional and far-distance migration. Interactions revealed at higher levels of spatial organization are considered in geosimulation models as the outcomes of collective behavior of urban objects at lower-level geographies. The third distinguishing characteristic relates to the treatment of time in models. They treat time through intuitively justified units such as housing search cycles. The temporal behavior of objects can be considered as either synchronous, when all objects change simultaneously, or asynchronous, when they change in turn, with each observing the urban reality as left by the previous one.

Geosimulation differs from conventional urban simulation in its constituent elements. Geosimulation models operate with human individuals and infrastructure entities, represented at spatially non-modifiable scales such as households, homes, or vehicles. In geosimulation models these objects behave. Many of these objects are animated visually and dynamically, and this animation drives the behavior of inanimate objects in a simulation. Geosimulaton models are commonly generative in nature; entities at higher levels of geographic representation such as census groupings are mostly derived from the bottom up, as the product of the interactive dynamics of collectives of animate and inanimate objects are observed as elementary scales of spatial representation. These models are often developed to represent phenomena that occur in urban systems which are usually complex, adaptive, and dynamic, and in a highly realistic manner. When used to model urban systems, geosimulation models focus on representing the elementary units that comprise a system and the interactions that take place between them.

The description of objects' behavior in the geosimulation framework is based on the data of automata. Automation is a processing mechanism with characteristics that change over time based on rules of its internal characteristics, and external input. Automata are used to process information that is an input to them from their surroundings and their characteristics are altered according to rules that govern their reaction to those inputs.

What is included in this book? Chapter one explores in more detail topics such as cellular automata, multi-agent systems infrastructure of GIS, remote sensing, the origins of support for geosimulation and others. The second chapter focuses on the specification of spatially-enabled automata or geographic automata and explores

ways in which these geographic automata may be united as a geographic automata system of spatially animate and non-animate urban entities. Some attention is devoted in this chapter also to elucidating the relationship between geographic automata systems and general concepts in geographic information science and systems. Chapter three focuses on the treatment of urban environments as systems. It includes a discussion of the early evolution of ideas about systems dynamics and their relationship to social science and geography. Systems, and the ideas about the evolution of systems, provide much of the background for contemporary development of automata principles, as well as understanding about the dynamics of urban environments. The fourth chapter focuses squarely on cellular automata. The development of cellular automata is traced from the early pioneering days in mathematics through its introduction to social science, geography, and urban studies. Chapter five turns the reader's attention to multi-agent systems, their origin, development and recent popularity, as well as their introduction to urban simulation. In the last chapter geosimulation is considered somewhat synoptically, within concepts of a potential paradigm shift, a revolution as the authors suppose, in geography and urban studies. They argue in this chapter that the use of geosimulation is more than simple tool-smithing. It represents a fundamental shift in the way they conceptualize models and think about the environment. In addition to illustrating and clearly explaining the theoretical and practical framework of geosimulation, this book sheds light on contemporary urban geography. The book is highly recommended for upper-level courses and seminars and will leave the reader with a sense that he or she has become a better scholar in this field.

Elisha Efrat
Tel Aviv University

EMOTIONAL GEOGRAPHIES, edited by Joyce Davidson, Liz Bondy and Mick Smith. Hamphshire UK: Ashgate Publishing Limited, 2005.

As suggested by humanistic-phenomenological geographers, emotions are key to the fundamental process of constructing space and place as illuminated by human geography. Considering this, any attempts at comprehensive understanding of human spatiality without listening carefully to its emotional dimensions is doomed to fail. This insight was primary in the cultural-humanistic turn which has been changing the geographical epistemology since the 1970s. Still only few works to date indeed focus exclusively on the role of emotions in peoples' spatial experience.

It is precisely within this gap that *Emotional Geographies* is penetrating. Focusing on the emotional complexity in the geography, the editors assemble in this volume more then twenty British humanistic scholars to present an abundance of work in this field. They exhibit a fascinating geographical mosaic composed of sixteen