

between the tribe members, those between the tribes of southern Sinai and those between the tribe members and all of Islam.

The Conclusion deals with the radical changes that occurred in Santa Katarina region, based on the author's short stay in the region in 2009. Marx found that the Bedouin villages in the area had become Santa Katarina City, the appointed mayor was an old man from the Jambalaya Bedouin tribe; the city had a government building and police station, telephone communication, small hospital, new shopping arcade, hotels, and numerous stores. The traders from al-'Arish had been displaced by local and mainland Egyptian suppliers and store-owners. Many Bedouin constructed permanent houses. Now (in 2009) most men remained at home, and were either employed locally or essentially unemployed. Women had lost much of their previous independence; they no longer controlled the purse strings, and spent less time working in the orchards. This change was reflected in the way they dressed: in public they still wore black dresses that enveloped their bodies, and hid the colorful dresses they wore underneath.

Tourism seemed to play a major role in the local economy. The Santa Katarina monastery had become a major international tourist site, visited by a daily average of a thousand persons from Middle East and Eastern Europe. The monks upgraded their guesthouse into a hotel, and local Bedouin had set up half a dozen guesthouses. Most of these enterprises were not flourishing. Furthermore, the drug trade had resumed in an earnest; hashish still appeared to be staple drug used by Egyptians, as well as by hotel guests in Sinai.

Marx's study is a valuable contribution to the ethnographic study on pastoral nomads, and is useful reference for universities, colleges, researchers, students and individuals interested in the Bedouin tribes in the Middle East, economy, sociology and anthropology.

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## SPATIAL QUESTIONS: CULTURAL TOPOLOGIES AND SOCIAL

SPATIALISATIONS, by Rob Shields. London: SAGE, 2013

I am advocating a topological sensibility against merely using topology as a physical geography reference, using it aphoristically, or as a metaphor. Topological approaches work to contextualize objects and states, including cultural objects. They set cultural understandings and social status into institutional context that become the 'neighborhoods' in which extremely complex totalities can be made sense of (p.155).

Topology is a branch of geometry and the mathematical study of shapes that treats space as pliable rather than rigidly Euclidian. It deals with the properties of shapes that remain unchanged even when the shape is bent, stretched, or otherwise distorted. Such properties include connectedness, continuity and boundary rather than actual size or length of distance.

Topological geometric thinking has established roots within human geography. It formed a basis for location theory and transport network analysis following the discipline's quantitative 'turn' of the 1960s. It also offered valuable qualitative conceptualisations for the transition from 'absolute' positivistic space to notions of relative and relational space that marked the cultural 'turn' of the late 1980s and 1990s when non-Euclidian 'social space' became an object of inquiry. More recently topology has been used to conceptualise the spatial reach of practices of power. Yet, as Allen (2011, 283) suggests, "Topology is one of those words that, since finding a place in the discipline's vocabulary, has hovered over debates rather than been central to them".

In *Spatial Questions: Cultural Topologies and Social Spatialisation* Shields sets out to address this by offering a "non-algebraic introduction to topology in plain English" (p.13), covering both the historical development of the term and its contribution for understanding the way 'social space' is formed and transformed. The book however, as stated by the author, aims to go beyond the descriptive level of the term. It calls for a 'topological turn' in human geography that breaks away from the paradigm of an apparently self-evident grand spatiality to reveal multiple spatialisations and different time-space orderings that relate and collapse into each other, distorting and reshaping everyday life and experiences.

Let me suggest that such strong challenge to our understandings of time-space is an important contribution of this book. Topology provides a means to broaden our spatial imagination and view social time-spaces as plural and qualitatively heterogeneous. These temporalisations and spatialisations or cultural constructs connect and intersect creating differential topologies or 'diagrams'; each having its unique set of coordinates, each a context for behavior and action, social interactions and institutional relationships. Topological sensibility aligns well particularly with those who are interested in expanded accounts of the circuits of the production of time and space beyond state-centred accounts, which often suffer from an over emphasis on macro scale geopolitical debates and neglect the micro understanding of spatialisation processes.

In the first chapter, "Overtures" Shields introduces a number of historical texts among them the Chinese Shan Hai Jing (The Guide to the Ways through Mountains and Seas, ~4th century BCE) and the Sicilian Kitab Nuzhat al-Mushtaq (A Diversion for the Man Longing to Travel to Far-Off Places, 12th century CE), to illustrate the diversity of 'social spatialisations' (or geographical representations) and their embeddedness in cultural and political contexts. This leads to the second, third and fourth chapters "Spatialisations", "Histories of Space" and "The Socialness

of Space” that offer a review of classical concepts on the nature of space and the history of theories and representations of space. Readers will find in this historiographical section the mapping of innovation in spatial thinking across the ages with references to key figures ranging from the Greek and Mediterranean philosophers and mathematicians (e.g. Pythagoras, Aristotle, and Euclid) to Northern European Enlightenment philosophers (e.g. Newton, Leibniz and Kant) to more recent thinkers such as Marx and Engels, Simmel, Durkheim, Lefebvre, Foucault, Castells, and Deleuze and Guattari.

Given human geography’s current proliferation of research objects, conceptualisations and methodologies, Shields’ orienting theoretical review is a welcome addition to other works in the genre such as Gregory’s (1994) *Geographical Imaginations*, Peet’s (1998) *Modern Geographical Thought* or Crang and Thrift’s (2000) *Thinking Space*. Yet, Shields’ rigorous analysis of the (predominantly Western) development of spatial thinking is also a way to build his case for a compelling critic towards theories on space. He proposes that thus far, theories on space did not escape the trappings of spatialisations from which they had emanated; “They are literally discourses of that space, spaces of representation or frameworks that ordain a specific stance and engagement with the world” (p.100). Hence his turn to topology and advocacy for a ‘topological turn’ as a way forward in conceptualising ‘space’.

Chapter Five, “Topologies”, outlines the history of topology as developed in mathematics and geometry. To illustrate the fundamental principles of the field, Shields helpfully visits Euler’s famous topological solution for the Seven Bridges of Königsberg (1736) problem, and conjures Escher’s paintings of warped non-Euclidean topological spaces (e.g. the Möbius Strip II, 1963). These and other references reveal the multi-dimensionalities and spatialities that exist alongside our taken-for-granted absolute three-dimensional space and the way these interact to produce time-space dynamics. Readers novice to topology will find in this chapter a range of new terms such as ‘homeomorphism’, ‘neighbourhood’, ‘manifold’, ‘knots’, ‘catastrophe’ and ‘folds’ many of which are concisely defined in the glossary appendix, but may require further clarification through outside sources.

In the sixth and closing chapter of *Spatial Questions*, “Cultural Topology”, Shields turns to examples of applied topology in social science thinking. Covering the ‘diagrams’ of Foucault and Deleuze, the coalescence of multiple scales debate, types of topologies and actor-network analysis, the power of topology is masterfully brought out to reorient the way we think, approach and analyze social questions.

*Spatial Questions: Cultural Topologies and Social Spatialisation* provides an important contribution to the study of topology at large and to those who engage with human geography in particular, coinciding with recent topological discussions in such journals as *Progress in Human Geography* (2014), *Theory, Culture & Society* (2012) and *Dialogues in Human Geography* (2011). As in his previous writings, Shields’ provides a vivid and clear discussion, accessible to a wide range of readers from various

disciplines. These undoubtedly will find the call for a 'topological turn' valuable and thought provoking.

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METHODS OF SUSTAINABILITY RESEARCH IN SOCIAL SCIENCES,  
edited by Frances Fahy & Henrike Rau. London: Sage, 2013

Sustainability is a key concept when dealing with interactions between human society and the environment. This book is written from a social sciences' perspective and includes a comprehensive review of approaches and methodologies in the study of the sustainability concept. The editors highlight the challenges of sustainability research in the social sciences. The main question they ask is in which ways different research methodologies can lead to a significant integration of the sustainability issue in the social science. To achieve this goal, both interdisciplinary and trans-disciplinary studies are needed. Therefore, the studies presented in this book are characterized by this approach.

Each chapter contains a theoretical background as well as case study material and practical advice to enable readers plan and pursue their own interdisciplinary research. All book chapters contain three core themes: (1) The fact that views and actions of all individuals are both shaped by and reflected in their social, political and infrastructural context; (2) the need to connect the study of human social life to the assessments of its material foundations and impacts; and (3) drawing attention to features of the human behavior that have significant implications on the environment.