

BOOK REVIEWS

The Geographical Dimension of Terrorism



SUSAN L. CUTTER, DOUGLAS B. RICHARDSON, AND THOMAS J. WILBANKS (EDITORS)

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PAGE 419

The events of September 11 ushered us all into a world in which our security and sense of invulnerability were savagely replaced by vulnerability and irrational fear. To the delight of our adversaries who planned these attacks, we often responded in ways that furthered their agenda by weakening the cultural colossus that we call home. Normally, terrorism is viewed as intense but localized violence. Seldom is terrorism viewed in its more expansive dimensions. It is burned into our collective memories as a collapsed building, a shattered bus, an incinerated nightclub, or facilities closed by a few anthrax-laced letters. However, terrorism must be studied in dimensions larger than the view from a news camera. This conclusion forms the intellectual basis for *The Geographical Dimension of Terrorism*.

This book gathers the nation's leading geographers together to define the potential role that geographers could play in dealing with international terrorism. The review considers the total scope of the threat, including bioterrorism, urban terrorisms, and attacks on commodity and resource infrastructure. The potential use of the tools of geographers to define and counter potential threats is carefully explored. Initially, the geographers seem to be struggling

to establish a role for their discipline in the war against terrorism. However, they collectively and successfully move the logic toward a construct in which terrorism is defined and evaluated in a geographical context.

In chapter 1, that context includes defining the role of geography in addressing the fundamental issues inherent in preventing terrorism. These issues include reducing threats and the causative factors that encourage and empower acts of terror as agents of change, detecting threats in the planning phase before they materialize, reducing the consequences of threats by eliminating or ameliorating vulnerabilities, and improving the response of societies to terrorist threats through consequence management and modeling. The hope was expressed that the contributions of geographical science could ultimately help to restore the sense of security that is so essential to the enjoyment and full realization of the benefits of modern societies. Once the contributors of this chapter established this foundational position, the other chapters fell in place.

The historical contributions of geographic technologies in responding to natural pandemics and other disasters are explored in the subsequent chapters. The analytic processes used to define vulnerabilities arising from non-anthropogenic threats can and should be used to bound individual acts of international terrorism. Because geographic techniques often involve very large-scale determinations, they could have particular application to dealing with international terrorism that is also characterized by large and often diffuse

geographic boundaries. Because the scale of geographical determinations are large, the tools of that discipline could be employed to explore and predict societal disruption caused by the use of weapons of mass destruction by terrorists. Similarly, the tools are proposed as means of ascertaining such widely disparate but important areas as geographical dependence of opiate production, which continues to be one of the primary funding sources of terrorism; geographical considerations as potential root causes of terrorism; and the use of geo-spatial systems, such as the Global Positioning Systems (GPS), to assist first responders and to identify and correct infrastructure vulnerabilities. Used singularly or together, the contributors successfully convince us that these tools do have much to offer. Much still needs to be accomplished to tailor these tools for the new challenge posed by international terrorism. The final chapters of the book lay out for the reader a plan of action by which this redirection could best be accomplished.

Considering the broad expanse of geographical science and the often-focused consequences of individual acts of terrorism, *The Geographical Dimension of Terrorism* more than succeeds in convincing the reader that the tool kit of the geographer can make significant contributions to winning the war against terrorism. More important, the contributors clearly define the role of geographical science in moving the world toward a brighter future in which technology makes terrorism less likely and of less consequence.

Even more important, this book moves us toward a world in which the underlying causes of terrorism are ameliorated, and terrorism as a means of accomplishing social change is eliminated.

—HOUSTON T. HAWKINS, Los Alamos National Laboratory, New Mex.

Paleoclimate, Global Change, and the Future



KEITH D. ALVERSON, RAYMOND S. BRADLEY, AND THOMAS F. PEDERSEN (EDITORS)

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PAGES 419, 420

Paleoclimate, Global Change, and the Future defines a new discipline that we might call, for lack of a better term, "paleo-environmentology." Borrowing from the mantra of the more restricted field of paleoclimatology, this volume embraces the viewpoint that documenting past environmental changes is the key to understanding present and future potential changes. The book is a collection of chapters organized into a volume under the auspices of the Past Global Changes (PAGES) project of the Inter-

national Geosphere Biosphere Program (IGBP), which is charged with investigating the Earth's past climate and environment. The volume documents the various ways in which both empirical paleoenvironmental information and modeling approaches can provide a perspective on modern changes taking place in our environment—in the dynamics and chemistry of the ocean, atmosphere, biosphere, and climate.

The three editors and numerous contributing authors do an admirable job of assessing the wealth of information and the range of interpretations of that information with regard to a wide variety of topics in a rapidly advancing field. The volume is organized into eight chapters, and each is co-authored by a different group of scientists with expertise in one of a variety of related topics. The opening chapter by Oldfield and Alverson nicely sets the stage for the ensuing chapters, providing a lucid explanation of the importance of paleo archives in placing modern environmental changes in an appropriate longer-term context. Subsequent chapters deal with the history of

trace gases and aerosols, late Quaternary climate variability and inferred dynamical mechanisms, long-term variations in the carbon cycle and biosphere, the climate of the last millennium, and anthropogenic influences on our modern chemical environment. A summary seeks to recap and synthesize the key lessons learned from the previous chapters.

The volume succeeds at the difficult task of spanning this disparate set of topics while maintaining a disciplined focus throughout in its effort to document modern environmental changes within the context of past variations. While there are several volumes that examine the paleoclimatic changes of past centuries and millennia, what I found particularly novel about this volume was a discussion of those changes in the broader context of discussion of changes in the carbon cycle, biosphere, and chemical environment on the same time-frames. The discussions at the beginning and end of the book nicely synthesized the changes across various spheres of our environment in discussing prospects for the future of our environment and civilization.

In a seminal book taking on such a grand task, it would be surprising if some minor complaints could not be made. Indeed, they can. I was disappointed not to find any discussion of the potential role of tropical forcing and its relationship with the northern and southern "annular modes" of extra-tropical atmospheric circulation in discussions of mechanisms of millennial climate variability. Also, the paradigm of changes in thermohaline circulation is somewhat overplayed, given recent work that makes a compelling case for such alternative mechanisms. The rather liberal citation of gray literature is sometimes frustrating; never more so than in one instance, wherein the case is made for an unusually high climate sensitivity based on a manuscript submitted in 2001 whose ultimate fate 2 years later is not at all apparent.

In places, greater coordination between authors of different contributions would have been helpful. Discussions about the behavior of ENSO in past centuries was somewhat redundant and, in places, seemingly in conflict in chapters 3 and 6. Discussion of insights from climate modeling studies was not as up-to-date as one would hope, but this is a rapidly developing field, and those interested in this topic should supplement their reading with other recent literature anyway.

The editors and authors have successfully taken on the daunting task of defining the emerging field of paleoenvironmentology. The book rigorously and meticulously places in an appropriate long-term context the various physical, chemical, and biotic changes presently taking place in our environment, and draws appropriate linkages among these changes.

The volume is an essential reference for any scientists actively involved in the study of past environmental changes. The volume is written in an accessible enough manner for non-specialists that it is equally appropriate for geoscientists interested in learning more about the lessons that can be drawn from studying past changes in our environment.

Those interested in using *Paleoclimate, Global Change, and the Future* for teaching purposes will find it quite useful that all of the figures in the book are also available electronically (<http://www.pages.unibe.ch/download/PAGES-Synthesis-Overheads/>).

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