

***Legacies and Change in Polar Sciences: Historical, Legal and Political Reflections on the International Polar Year.* Edited by Jessica M. Shadian and Monica Tennberg. Farnham, UK: Ashgate, 2009. xviii + 232 pp.**

The International Polar Year (IPY) of 2007-08 found social and natural scientists turning to the poles with special interest and renewed concentration. As always, their work was embedded in multiple contexts—historical, geographical, geopolitical, economic, legal, and others. *Legacies and Change in Polar Sciences: Historical, Legal and Political Reflections on the International Polar Year* seeks to situate polar research in these contexts using the IPY as a touchstone. It is a rich source of ideas and a useful book.

Edited by Jessica M. Shadian (High North Center for Business and Governance, Bodø Graduate School for Business, Norway) and Monica Tennberg (University of Lapland, Finland), this book gathers together an eclectic group of insightful, interdisciplinary scholars who have examined myriad aspects of Arctic and Antarctic science. The collection includes scholarship from the fields of history, international relations, law, and political science. As such, it situates scientific research in the polar regions in relation to the diverse political influences that have shaped it. Bringing these political dynamics to light is a signal contribution of the volume.

Legacies and Change is divided into two parts: Part I, “Whose Arctic? Constructing Arctic Politics through Claims of Knowledge,” and Part II, “Whose Environment? Science and Politics in Antarctica.” Collectively, the authors explore the first IPY (1882–83), the second IPY (1932–33), the International Geophysical Year (1957–58), and the most recent IPY, as well as related developments. (To tailor this review to the interests of *The Northern Review’s* audience, comments here focus on Part I. The second part of the book includes essays on the functioning of the Antarctic Treaty and how it influences scientific research, political factors shaping Chile’s relationship with Antarctic science, and the political and economic issues surrounding bio-prospecting in waters off Antarctica.)

As the editors of *Legacies and Change* explain in their introduction, the evolution of serious attention to the polar regions has been characterized by shifting emphases that reflect varying global scientific and political agendas. For instance, more than a century ago, national territorial priorities shaped IPY efforts, whereas global environmental deterioration has often driven more recent research efforts. Through it all, sometimes cooperation prevailed, while at other times competition predominated. Another important trend characterizing the most recent IPY involves the inclusion of social scientific work and the important role played by Indigenous communities. A main

premise underlying the volume is that scientific research is a human endeavour shaped by historical processes and bound up with political, legal, and cultural agendas.

Focusing on political influences shaping the practice of climate science during the IPYs, Annika E. Nilsson traces how efforts shaped by national (and colonial) ambitions gradually gave way to a much greater emphasis on global interdependence in coordinating scientific observation and research. Her essay, "A Changing Arctic Climate: More than Just Weather," demonstrates that "states are no longer the only legitimate actors" in the field and highlights how NGOs, Indigenous peoples, and other actors have increasingly become involved in climate studies (9). Her essay also demonstrates how the slow route to internationalism focused first on ice age research, before later centring on global efforts to coordinate weather investigations, the militarization of Arctic science during the Cold War, and, more recently, cooperative efforts to understand climate change. The essay sets the book up well with its clear depiction of intersecting social, political, and scientific questions.

Jessica M. Shadian builds on Nilsson's themes by examining non-state actors in global governance. In "Revisiting Politics and Science in the Poles: IPY and the Governance of Science in Post-Westphalia," Shadian highlights the inroads Indigenous peoples and knowledge have made in the fourth IPY's research agenda and in the arena of global governance. Her essay argues that "the fourth IPY exemplifies the increased power and formal role of not only private industry but a broad range of new non-state actors to define what constitutes appropriate science and the ways in which science is carried out" (55). Critically, it demonstrates how the history of the IPYs is characterized by a gradual decline in the influence of traditional nation-state politics on scientific practice in the Arctic and how new knowledge and political structures have influenced and emerged during the fourth IPY. In this way, the essay is a synecdoche for the book as a whole.

In "Science, Cooperation and Conflict in the Arctic Region," Rob Huebert examines whether the assumption that science promotes cooperation, especially among nations, is actually borne out by the evidence. The conclusion he provides, not surprisingly, is that it depends. In the 1980s, with concerns about persistent organic pollutants (POPs) and chlorofluorocarbons (CFCs) in the Arctic rising, scientists helped bring nations together to devise cooperative solutions to the problem. As more recent concerns over climate change have grown, however, the response has not been the same, as nations have geared up for unilateral action, especially in defense of economic

interests. The expectation of economic payoffs has meant that international cooperation has declined.

In the Arctic section's final essay, "IPY Field Stations: Functions and Meanings," Urban Wråkberg explores these locales as sites "laden with cultural values" (74). Polar stations furnished an environment relatively stable and safe for housing scientific instruments. They also functioned in material and symbolic ways. Wråkberg convincingly shows how "polar research is a strategic political instrument, of which the scientific field station remains an important component, with the added political value of being a signifier of commitment, territorial interest and local competence" (92). In short, Wråkberg demonstrates how Arctic field stations operated as both symbolic sites of political power and practical places of scientific practice.

In the book's final essay, Monica Tennberg attempts to synthesize the diverse themes of the collection by using insights from theorist Michel Foucault about knowledge/power. The effort is needed because the book—for all its strengths and important insights—is not coherent. Yet, Tennberg admirably frames the key issues that occupy the authors. Categorizing these issues into "Three Spirals of Power/Knowledge," she identifies sovereignty and knowledge, discipline and knowledge, and governmentality and knowledge as the critical factors that have threaded through polar scientific history (Ch. 9, especially 197–99). In the process, she demonstrates how power vis-à-vis knowledge has evolved and transformed issues relating to polar scientific observations and state sovereignty, governance, and economics in the Arctic.

This book is not intended for general readers, and such a reader will probably not find much of interest or use here. However, academic specialists in many fields will find much that is provocative. In particular, the various disciplinary and interdisciplinary perspectives on display will almost certainly open up new insights for specialists who have grown too comfortable in their disciplinary traditions. As part of Ashgate's Global Interdisciplinary Studies Series, the book meets the series' goal of transcending "disciplinary boundaries in seeking to better understand a globalizing world" (front matter). In addition, *Legacies and Change* is very effective in framing critical and developing issues in polar science. Scholars interested in historical, legal, and political factors that have shaped natural and social scientific research in the polar regions will be well rewarded by considering the case studies it offers.

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