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Review/Reseña

Mark Carey, *In the Shadow of Melting Glaciers: Climate Change and Andean Society*. New York: Oxford University Press, 2010.

Historicizing Climate Change and Unnatural Disasters in the Andes

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Climate change is among today's foremost environmental concerns but it sits in a paradoxical academic space. It is not a new phenomenon yet it has scarcely received the attention it merits from historians. What historians have written for the region of Latin America is largely relegated to price histories, examinations of droughts and famines, and studies of demographic changes of the early modern world. Mark Carey rectifies this situation with a rigorous, meticulous, and engaging study set in the remote Andean peaks and valleys of northern Peru in the latter half of the

twentieth century. The book takes a timely topic and historicizes it in unexpected and gratifying ways, namely through the examination of a series of glacier melt-triggered disasters resulting in the loss of tens of thousands of human lives and massive amounts of property including entire towns. As Carey convincingly shows, the historical effects of climate change in the Andes since the 1940s have provoked catastrophes (including floods, landslides, and avalanches) that account for the most destructive disasters in a region riddled with hazards. And even more telling, these are not obscure events with narrow significance; they provide vivid insight into the "perils and possibilities" of how science, technology, and local preference shaped state responses and modernization strategies.

Carey opens the study with a provocative and extensive set of questions that guide his interrogation of the Andes. How do diverse peoples think about climate change? How do they respond, feel, or grieve when glaciers vanish or when melting ice triggers floods? How have science and technology shaped certain places and how have local people influenced that evolution? Carey then posits that historical research on a human scale elicits trends that disappear from the longer geological time scales scientists use to discuss climate change. What he finds is that disasters allowed new groups to enter the Andes for the first time—especially experts—but strikingly, outsiders never succeeded in setting local preferences aside especially when it came to relocating settlements. Carey spends the rest of the introduction laying out the human and physical geography of the region under consideration and explaining his contention that glacier catastrophes opened up opportunities for "disaster economics" (12) that promoted new development schemes in response to these crises.

This approach invites the reader into a fascinating mode of inquiry and sets up a nuanced, many-sided study that treads through time with an inviting cadence. In the heart of the book, each chapter moves chronologically and analytically through shifts in glacial lake history with rich details. Chapter one retells the events surrounding the 1941 Huaraz flood in a suspenseful and precise fashion that immediately gives the reader a sense of how the events became the subject of national attention. Using personal testimonies and vivid description Carey makes clear how the

events reconfigured the landscape—destroying everything from the town jail to vacation "chalets"—and simultaneously reshaped the relationship between Lima and the highlands yet again. The wealthier urban residents living in the valley along the Santa River were the most affected (not rural or indigenous communities at higher elevations). These sufferers also proved the most resistant to disaster zoning, which meant relocation. Chapter two contextualizes such events more deeply by looking at the ways outburst floods blurred conventional social distinctions and led to the creation of the Lakes Commission which would become a guiding institution for applying science and engineering to the issues of flooding. With attention to the symbolism behind destruction, Carey examines stories and metaphors used by locals to explain the disaster and here produces nicely textured insight into cultural production around environmental events. Chapters three and four focus on the accomplishments of the Lakes Commission (including a glacial lake inventory and classification system) and the subsequent economic shifts that followed, including roads, hydropower, and tourism. Disaster recovery and state-led modernization of the 1940s and 1950s went hand in hand with the new economic model of import substitution industrialization offered throughout Latin America. Carey makes plain that the geophysical attributes of the lakes kept changing and to keep up, so did the bureaucracy. Embedded in Chapter four's examination of economic shifts is a chronicle of national politics that reveals the complexities of state-society relations. What Carey offers that contributes mightily to much literature on high-modernism and state development is insight into how local people supported and benefited from these programs and how at the same time they rejected or evaded aspects they found unpalatable.

Following the shift in political management and in environmental challenges, the next three chapters take up glacier avalanches (rather than glacial outburst floods) that became increasingly problematic in 1962 and 1970. The sporadic and unpredictable occurrence of avalanches led to greater recommendations for hazard zoning, a mitigation strategy unpopular with local residents. Carey contends—and demonstrates in Chapter five—that local objections to zoning made these communities even

more dependent on the government to drain and monitor glacial lakes. People's rejection of relocation despite the risks demonstrates that loss of social status or wealth took precedence over apparent environmental risks. An important but understated conclusion in this chapter maintains that authoritarian national governments "responded to catastrophes more quickly and energetically" than did democratic ones (128). Chapter six takes up the expansion of the state hydroelectric company (which appropriated disaster prevention and glacier research) first through a series of counterfactual questions about competing narratives that might have emerged. Then, Carey traces the socio-cultural shift in glacier meaning towards a notion of "vanishing water towers" that enabled the company greater control over water in the region. Without a declensionist teleology, Chapter seven takes up the neoliberal privatization of programs and processes that had been thus far the purview of the state. This attention to transnational capital shifts and global stakeholders puts residents' vulnerability in an even broader perspective and places the state's assumed responsibility to monitor and mitigate glacier hazards in a political and economic context befitting contemporary pressures. While Duke Energy bought access to the water, it did not inherit the responsibility to protect the public good or the safety of populations in the region.

Carey concludes with an analysis of projections of water loss that now estimate a price on Andean ice. This historical transformation is part of the decades-long struggle to manage and adapt to the challenges of disasters tied to glaciers. The resulting story, which Carey admits may only be partway through, is a highly empathetic—not predictive—history that navigates popular ideas and complex historical processes through social, state, and scientific views on nature. The book comes equipped with lavish accoutrements (helpful maps, abundant photos, practical appendices, expansive notes, and a comprehensive bibliography) that deepen the story's effectiveness. The end result of these carefully coordinated chapters and skillfully blended arguments provides a lasting contribution to literature on Latin America's past and several subfields including environmental history.

This book accomplishes several things that showcase the best of what environmental history has to offer. First, it provides a glimpse into

common strands of analysis in a wholly new fashion. We gain fresh insight into the process of state formation, for instance, when Carey examines how disasters provided a platform for governments to implement new agendas and paved the way for a tighter relationship between catastrophe and economic development interests (either state-owned or private). As much as this is a history of climate change it is also a history of social power. Second, it makes the case that environmental lenses on the past are not separate from people's daily lives and lived experiences. By using a range of sources from maps and photographs to letters, legends, and interviews, Carey illustrates that responses to climate change occurred in a range of communities and social groups and on a deeply human scale. Third, Carey skillfully erases the assumed tendency towards environmental declension (and rigid binaries like nature and culture, local or foreign, expert and traditional) by embracing the contingencies of people's responses to the challenges of an ever-changing landscape. And fourth, Carey situates a remote Andean region at the crosshairs of most major environmental questions including climate change, (un)natural disasters, national and local economic development, scientific understanding and application, road construction and tourism, and landscape transformation. In telling this history, Carey points out what should be—but too often is not—obvious: that there is more to climate change than science. This is accomplished while providing a highly readable text and an impeccable work of scholarship.

My one trivial objection with this text is minor. Despite staggering death tolls that appear to me to be over 80,000 in the region's modern disaster events, Carey is cautious with a comprehensive tally of human loss and perhaps too carefully distinguishes the various sorts of glacier-triggered disasters from related catastrophes like earthquakes. This obscured quantitative story is easily overlooked because it proves less fitting to the story at hand than the richly qualitative human tale.

If the characteristics of first-rate historical scholarship are solid primary research, rigorous analysis, and masterful narrative, Carey has supplied them all in buckets. This is a book that should be required reading for anyone interested in environmental history or the history of science and

technology in Latin America and beyond but it will also prove accessible to upper level undergraduate and graduate courses on Modern Latin America in general. The contemporary resonance of the topic of climate change has met with a formidable scholar to deliver a work that deserves and will certainly earn a wide audience.