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# Introduction

## *Framing Catastrophes Archaeologically*

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### Summary for Stakeholders

Catastrophes are never natural; they occur when an extreme event—or a compound series of these—impacts an at-risk community. Communities are at risk when access to resources is limited or unevenly distributed or when political structures or cultural norms prevent effective and equitable responses. Such inequalities or inadequacies always have a history. They generate socially produced vulnerabilities. Hence, understanding vulnerability and its important counterpart resilience requires an attention to deep history. In many parts of the world, however, the actual written historical record is short and patchy and often only reflects the limited perspectives of literary and urban elites. In contrast, the archaeological record reflects the material conditions of past lives and livelihoods and can inform us about past vulnerability and resilience anywhere in the world. Many parts of the world are experiencing rising frequencies of disasters including extreme events of a nature or magnitude that have long recurrence intervals. In such cases, little or no local memories inform disaster responses. In other cases, traditional peoples maintained oral histories of disasters and salutary behavior to mitigate losses. Unfortunately, such oral history has often been lost when colonization occurred. This book catalogues a wide and diverse range of case studies of such disasters and human responses. This heritage of past disasters serves as inspiration for building culturally sensitive adaptations to present and future calamities to mitigate their impacts and facilitate recoveries.

## Catastrophes Past, Present, Future

Catastrophes are on the rise, as is their toll in lives and livelihoods. Climate change is increasing the energy in hurricanes, typhoons, torrential rains, tornadoes, and other phenomena. The increase in world population is putting ever more people at risk, often in the most hazardous locations. Furthermore, the inequalities of wealth and power often place the disenfranchised in greatest vulnerability. Finally, those with greater resources often benefit from the inequality, as the extreme event intensifies pre-existing disparities (Wisner et al. 2004; O’Keefe, Westgate, and Wisner 1976).

These trends lend a clear urgency to academic enquiry not only to attempt to better understand catastrophes per se, but also to reflect on how such understandings may inform contemporary practice. There is a substantial scholarship on the anthropology, history, and archaeology of catastrophes both in relation to specific hazards—there are major edited volumes on volcanic eruptions (Grattan and Torrence 2007; Riede 2015; Sheets and Grayson 1979; Boer and Sanders 2002; Oppenheimer 2011) and earthquakes (Ambraseys 2009; Boer and Sanders 2004), for instance—and more broadly in relation to extreme environmental events or catastrophes as an object of enquiry (Torrence and Grattan 2002; Hoffman and Oliver-Smith 1999; 2002; Cooper and Sheets 2012). In this tradition, the present volume presents a diversity of archaeological approaches to extreme events of various kinds and onset dynamics and their interactions with a wide variation of social constellations, as well as the immediate and long-term human/cultural responses. The volume also draws on the tradition of historical ecology (Crumley 1993), a school of thought and action that has been finding ways of making archaeological insights usable in the contemporary world (Stump 2013; Isendahl and Stump 2019; Armstrong et al. 2017).

Diversity is a deliberate element, and we feel a key strength, of the volume at hand. These chapters represent the full gamut of archaeological orientations—from the Paleolithic and paleoenvironmental to the contemporary and co-creative—and offer exciting and unexpected juxtapositions and pairings. We are pleased to present in this volume a range of phenomena spanning the breadth of scholarship from the natural sciences through the social sciences and including the humanities.<sup>1</sup>

The importance and urgency of better understanding disasters past, present, and future has not gone unnoticed in the social sciences and humanities. Scholars of literature, ethnographers, sociologists, and historians are grappling with the realization that extreme environmental events always were, are, and will be part of the fabric of human social lives (e.g.,

Dominey-Howes 2018; Rigby 2015; Barrios 2017; Bavel and Curtis 2016; Schenk 2015; Mauch and Pfister 2009); by the same token, it is becoming increasingly accepted among disaster risk reduction *practitioners* that *culture*—and with it prehistory, history, tangible and intangible heritage—needs to be taken seriously in reducing vulnerability (Mercer et al. 2012; K. Donovan 2010; A. R. Donovan 2017; Barclay et al. 2008; Migoń and Pijet-Migoń 2019). Sometimes a religious factor could predominate over an ecological one in people returning to their formerly devastated landscape. One could even picture the spirit of a deceased ancestor, buried prior to the disaster in the devastated zone, as a needed resource, as a resource for spiritual and emotional needs of the survivors. Therefore, access to the spirits of the deceased can function as an encouragement to reoccupy the abandoned area, perhaps even before environmental recovery is sufficiently complete for permanent reoccupation. The salient details of these entanglements among space, materials, and the environment vary from place to place, from time to time; the present volume offers an array of resources and templates for how they can be approached, understood, narrated, and made to work in the present and well into the future.

The great diversity of contributions collected together here also presents challenges. We have thought and communicated a great deal about defining some of the key concepts that pervade our thinking and writing. Considering the wide variety of already published definitions, one could and perhaps ought to define the concepts of “resilience” and “vulnerability.” Attempts at providing exhaustive exegeses of these terms have been mounted (cf. Wolf et al. 2013; Alexander 2013; Lorenz 2013; Miller et al. 2010; J. Walker and Cooper 2011), but these inevitably proffer only disciplinarily narrow perspectives and often little practical outcome. Similarly, we feel that any attempts of this kind on our behalf would merely add to already long lists of bespoke definitions; in fact, using these seemingly innocuous vernaculars may create more confusion and frustration given the evident multiplicity of meanings that hide under the thin veneer of terminological identity. We did not want to prescribe specific theoretical or conceptual approaches to our contributors, so where they occur in the chapters that make up this book they are defined within and for those chapters’ operationalizations.

That said, the traditional concept of resilience, it has been pointed out, focuses on a return to pre-existing conditions, inspired by systems-ecological thinking that operated with the notion of equilibrium. Yet, even for faunal and floral communities, such equilibrium states have been questioned (e.g., Svenning and Sandel 2013). With regard to human communities, post-disaster societal trajectories are rarely if ever identical to their pre-disaster counterparts. And in most cases, they should not be identical.

The efforts to rebuild the same community in place after a disaster, which so often occurs in the United States, may be satisfactory only until the next disaster strikes. Processes, changes, adjustments, and innovations by people, households, or societies under stress or released from societal strictures within the “eventful” fluidity of a catastrophe (Sewell 2005) deserve more attention than any preserved return to stability or even to prior conditions. In fact, the power of archaeological analysis of past disasters offers the possibility of explicating causal pathways from pre-existing conditions to whatever follows. Catastrophic events serve as analytical tools—as methodological and narrative caesura, just as in the original definition of the term in the context of stage play—rather than as sole drivers or dramatic distractions deployed to tell and sell our particular “stories.” This acute attention to the structure and power of catastrophic narrative does not equate to doubting the relevance of the environment for human affairs, as it appears to have led some to do (e.g., Middleton 2017). We argue here that we need to seek a middle ground where narrative and evidence go hand in hand; where archaeology aligns itself with recent studies in the environmental humanities that accept the saliency, capriciousness, and relevance of the environment but also point at the cultural specificity of how these are perceived and handled (e.g., Rigby 2015; Berghthaller et al. 2014; Riede 2019). Hulme (2008, 5) reminds us:

We are living in a climate of fear about our future climate. The language of the public discourse around global warming routinely uses a repertoire which includes words such as “catastrophe,” “terror,” “danger,” “extinction,” and “collapse.” To help make sense of this phenomenon the story of the complex relationships between climates and cultures in different times and in different places is in urgent need of telling. If we can understand from the past something of this complex interweaving of our ideas of climate with their physical and cultural settings we may be better placed to prepare for different configurations of this relationship in the future.

Just as a disease can inform the doctor of the internal functioning of a body in stress, so can a disaster reveal much about a society during the impact, the initial devastation, the nature of recovery—none, partial, complete—and the knowledge gained and innovations emplaced to mitigate future impacts. Archaeology can tell these stories.

## Resilience, Cyclicity, and History

Ever since Redman’s (2005) important review, archaeological studies have been focusing increasingly on resilience (e.g., Gronenborn 2006; Bradt-möller, Grimm, and Riel-Salvatore 2017; Barton et al. 2018; Gerrard and Pet-

ley 2013). Most commonly, these approaches trace their roots to Holling's (1973) original view of resilience as a system successfully returning to its condition prior to a given perturbation—for instance, an extreme event. Cyclical models such as the traditional resilience model and its derivative tend to frame impact-and-recovery processes according to a uniform processual scheme. While this may serve as a useful first-pass heuristic, we see such models as fundamentally ahistorical and hence as detracting from the explanatory power inherent in the interpreted archaeological record. This power lies in charting how historically specific constellations structure eventual outcomes, in a path-dependent manner.

The insistence on empirical specificity should not, however, be understood as an argument in favor of particularism. There are similar and comparable processes and mechanisms at work; they just do not always lead to the same outcomes. Many of the chapters in this volume take their starting point in a particular case; others are inherently comparative. Collectively, however, this volume is, we believe, an important step toward a lateral and cross-temporal transfer of insights and inspirations—and analytical hinges—among and between case studies (Howe and Boyer 2015; Pedersen and Nielsen 2013; Nielsen, Sørensen, and Riede, 2020) and, eventually, perhaps even toward a formal comparison across cases (Diamond and Robinson 2010; Riede 2014). The temporal depth and spatial breadth of the global archaeological record presents us, in principle, with a substantial database of completed natural experiments. Indeed, some of these experiments are still running. If, for instance, prolonged mega-droughts characterized the latest subdivision of the Holocene, the so-called Meghalayan (M. J. C. Walker et al. 2012), perhaps they also characterize the onset of the Anthropocene. Quibbles about geological subdivisions aside, the widespread droughts of around 4200 BCE were likely associated with substantial societal change (e.g., Weiss and Bradley 2001), and perhaps we are witnessing—as documented by, for instance, Nick Shepherd in painful real time for the Cape Town water crisis in this volume—similar impacts and transitions in our time. While archaeological in its perspective, this volume takes us to the brink of the present, the brink of the societal collapse that may yet come to characterize our own near future.

The occurrence of major societal changes linked to and in part driven by environmental events is not cyclical in any meaningful sense then, but it is a recurring feature of the human career. The aim of our volume is to also speak also to practitioners and policy makers for whom a consideration of the anthropological perspective on resilience (e.g., Barrios 2017) should be instructive. As scholars, such as those in this volume, study societies in detail prior to, during, and after disasters, they often discover that novel understandings, practices, and religious elements were innovated

by people under conditions of structural fluidity. This notion gels with conceptions of historical change promoted by Sewell (2005), who argues that “events” loosen otherwise rigid social structures and amplify agency to form new societal constellations. While there are usually winners and losers in any disaster (cf. Scanlon 1988), the resulting social change can be positive—opportunities for reform, for change, and for the creation of better societies do arise in these contexts (Birkmann et al. 2010; Solnit 2010). As hazard awareness increased, societies generally mitigated their risks from future extreme events and thus did not simply revert to prior conditions. Further, looking within societies, particularly nonegalitarian societies, there often were losers and winners, as the stress differentially impacted people. People with greater economic resources or political power often took advantage of those less fortunate, therefore intensifying pre-existing inequalities.

Many of the cases presented showed that the disaster stress served as an *intensifier* of pre-existing conditions of inequality or other factors, an insight that as such is hardly novel (Barrios 2017; García-Acosta 2002; Hoffman 1999). This intensification can be seen in many chapters, and they form a means of integration of the book, by creating linkages between chapters that go beyond a given primary disaster. The heterogeneity of responses to extreme events is reflected in the written chapters. The chapters have been divided into elemental categories of “fire” and “water” interactions and placed adjacent to each other so that salient linkages—often the hazard type—and obvious differences—the type of community under consideration, the theoretical or analytical angle—provide strong interpretative handles. This division by element is not perfect, but we wanted to break with traditional structures of chronology or geography. The comparative approach that binds the volume together follows a different logic, one that aims to uncover surprising and important patterns of socio-ecological vulnerability and resilience that are thickly contextualized that can also enter into dialogue across these contexts and suggest policy implications.

In some cases, elites benefit in the wake of a disaster, while others in the same society with meager resources suffer. In other cases, it is precisely the collapse of elite power—that is, collapse as traditionally understood—that ensues in the wake of a calamity. In fact, what seems important is to unpack notions of impact, response, and gains and losses according to meaningful social differentiators such as class, status, age, gender, and belief. In all societies, we claim, catastrophes and related processes of societal collapse are causally enmeshed in a political economy/ecology that *always* needs to include environmental and societal dimensions (Oliver-Smith 2004). Scale is important here, as large-scale comparative

studies are unlikely to capture such heterogeneity. In contrast, small-scale particularist work does not allow generalizations and, hence, fails to produce anything other than cautionary and ultimately impotent tales from times gone by. The diversity of cases and the potential for meaningful and productive *dialogue* among them is important.

## **Can the Archaeology of Past Disasters Contribute to Risk Reduction?**

All chapter authors were required to write a section of policy implications and/or practice suggestions to stakeholders, be they planners, first responders, politicians, other academics interested in impactful writing, or, as Holmberg reminds us in chapter 2, everyone. Our objective is to reach a reading audience beyond our discipline or subdiscipline. Putting it bluntly, authors were requested to do their best answering the question: So what? Authors were encouraged to think of knowledge gained, how ideas can be put into practice, and policy implications, either very specific or very general in nature. Occasionally, the archaeological record can recover sustainable practices of the past (Guttman-Bond 2010; chapters in Isendahl and Stump 2019 and Cooper and Sheets 2012), but we remain cautious with regard to overly grandiose claims to useful knowledge.

The case studies collected together here can serve as effective modern-day parables, but what else can they do, given the radically different demographic and technological conditions of many cases to the present? One potential way to solve this apparent disjunction between the pre-modern and modern world is to think of social structures and interactions as not so much radically different, but as nested within each other, such as when considering neighborhoods or social networks within a complex society. The foundational disaster scholar Gilbert White (1974) suggested a long time ago that truly resilient communities would combine the best of traditional ways of handling calamities with technological acumen and infrastructure. White's distinction was insightful, simplistic, and evidence-free; he did not elaborate on his notion of preindustrial societies, nor did he follow up on this prescient suggestion. Perhaps we stand something to learn from how smaller-scale societies managed hazards for designing community resilience also within contemporary state societies. Perhaps we also stand something to gain by bringing relatively simple approaches to our cases such as, for instance, the schematic risk-management heuristic of Halstead and O'Shea (1989) that parcels response options out into five domains: physical storage, social networks, economic intensification and diversification, as well as mobility. These dimensions

in fact articulate, albeit coarsely, with contemporary means of measuring socio-ecological vulnerability and may help in identifying patterns across case studies. Importantly, we may conclude in highlighting residential mobility—in other words, habitat tracking or disaster refugee behavior, depending on your preferred terminology—as a key response mechanism across many hazard types, communities, and periods. The net result of this mobility, migration, is then framed as an adaptive response, yet projected into the present, it carries with it numerous important and thorny corollaries (Black et al. 2011; Oliver-Smith 2009).

Archaeology is not ethnography, nor is it sociology. Our insights differ from those offered by these disciplines, and the pathways for our work to have impact on policies or on the livelihoods of at-risk communities are different. We have the advantage of a great sweep of time, especially before and after the perturbation. But we have trouble dealing with individuals or specific households in most cases. This volume attempts to emphasize the many strengths of the many archaeological perspectives on disaster. It is making a scholarly contribution, but the volume is also motivated by an anxiety that is as nagging as it is existential. The archaeological record offers arguably clear cases of impressively widespread climatic changes around the world and on a continental scale during, for instance, the late thirteenth-century drought and mid-sixth-century climatic disaster. Individuals, households, communities, and societies were affected. Networks were critical for robust responses but also conditioned the teleconnections that made some more vulnerable than others. There are powerful implications for our times of a rapidly warming planet. Indeed, if one can point at a single major conclusion of this volume, it is that social inequality is at the root of most if not all disasters. Egalitarian villagers, exemplified by the ancient Costa Ricans, showed both efficient disaster responses and no post-disaster increase in inequality, even after multiple disasters from Arenal Volcano's explosive eruptions (Sheets 1999, 2001). Perhaps future efforts of adaptation and mitigation should focus less on technological fixes and more on new forms of governance and of community life that attempt to integrate notions of equality *within* our so strongly stratified contemporary societies.

The looming catastrophe of our time is encapsulated in the notion of the Anthropocene. The Anthropocene narrative traces its roots into the deep past (Malm and Hornborg 2014) despite the fact that the most recent official suggestions of its starting age would let it coincide with the onset of modernity (Zalasiewicz et al. 2015, 2017) and overlap almost fully with a period of, at least in the West, unusually few major extreme events—what environmental historian Christian Pfister (2009, 239) has termed the



“disaster gap.” The coincidence of the rise of modern world systems and the relative quiescence vis-à-vis major disasters has blinded us, we feel, to the severity of the looming threat. Yet, ironically, this temporal separation of our present state from anything traditionally considered archaeological would boost the role of archaeology in contemporary discourse. This “mandate of the Anthropocene” makes it inevitable and unavoidable—even if uncomfortable—that our work is political (Riede, Andersen, and Price 2016). In this volume, we openly raise the question of the political involvement of an archaeology of catastrophe, climate change, and societal collapse. It is undeniable that our work relates to present quandaries—it draws its *raison d’être*, its fascination, and its finance from it, after all—but where do we draw the boundary between academia and activism? How are we to reconcile this evident bias with demands for scientific rigor and the validity of our conclusions as evidence-based? This volume makes one attempt to do so.

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## Note

1. The placement of archaeology into the natural sciences, social sciences, or humanities is highly arbitrary. While archaeology in the United States on the whole is seen as part of the anthropological projects and placed in the social sciences, its European counterpart can generally be found in humanities faculties. Elsewhere (i.e., in East Asia), archaeology departments can also be found in the natural sciences.

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