

Applied Anthropology of Risk, Hazards, and Disasters

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This article provides a brief introduction to advancements in the anthropology of disasters as well as the historical antecedents and the intellectual collaborations that contributed to contemporary work in the field. It reviews the multiple directions, methodological approaches, and theoretical leanings that comprise today's diversified field of disaster anthropology and discusses how the monographs included in the special edition of *Human Organization* (74[4]) on the applied anthropology of risks, hazards, and disasters showcase the variety of topics and themes engaged by applied anthropologists who work on disaster-related issues.

Key words: risk, hazards, disaster, culture, displacement, climate change

Introduction

This special issue of *Human Organization* on the applied anthropology of risk, hazards, and disasters became possible as a result of the overwhelming number of submissions on the part of practitioners, researchers, and academics who responded to a call for papers on these topics for the 2013 Society for Applied Anthropology Annual meeting in Denver, Colorado. The motivation behind the call for papers originated from the Society for Applied Anthropology's presentation of the Malinowski Award, the association's most prestigious lifetime achievement award, to Anthony Oliver-Smith for his contributions to the anthropological study of human-environment relationships and the sociocultural dimensions of disaster vulnerability and impact. In the pages that follow, we provide a brief introduction to advancements in the field of disaster studies as well as the historical antecedents and the intellectual collaborations that contributed to contemporary

work in the field. Finally, we review the multiple directions, methodological approaches, and theoretical leanings that comprise today's diversified field of disaster anthropology and discuss how the monographs included in this edition of *Human Organization* showcase the variety of topics and themes engaged by applied anthropologists who work on disaster-related issues. We are mindful that a comprehensive history of the anthropology of disasters could scarcely be contained in one volume, let alone one introductory article. Instead, we point to some focusing events and research topics that led us to consider the problems and questions we find before us today.

Selected Roots of the Anthropology of Risk, Hazards, and Disasters

At 3:23 P.M. on the 31st of May, 1970, a 7.9 magnitude earthquake shook the Pacific Coast of Peru, its seismic waves reaching far into the Andes Mountains. Within a matter of seconds, the geological phenomenon came together with a 500-year history of human-environment relations, triggering the most devastating disaster on record to affect an area comprising coastal and highland regions of several departments (states) in north central Peru. Near the Andean town of Yungay, the shaking earth loosened a glacial formation, creating a massive 50 million cubic meter avalanche that destroyed the town and the neighboring village of Ranrahirca with brutal force. In total, approximately 6,000 people lost their lives in the avalanche (Evans et al. 2009), leaving only 300 survivors of a previous population of roughly 4,500 in Yungay, while the larger earthquake resulted in nearly 70,000 deaths (Oliver-Smith 1986a). In that same year, a novice anthropologist, Anthony Oliver-Smith, was making preparations to begin his dissertation research in Yungay on the political economy of markets. With the town's destruction, his plans to pursue his study of market life were thwarted by the disaster's disruption of every dimension of human experience in this corner of the Andes.

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At the time of the Yungay avalanche, disasters were not a major field of anthropological inquiry. Among the earliest studies, Cyril Belshaw (1951) and Felix Keesing (1952) had studied the 1951 eruption of Mount Lamington in Papua New Guinea, especially the social organization of the Orokaiva people and their adaptations to disaster impacts. These two works were predominantly descriptive, though they noted roles of culture, personality, and social organization in disaster adaptation and the incompatibility of Orokaiva sociopolitical institutions (primarily kinship and hamlet alignments) with large, concentrated resettlements. They also both observed evidence of what Elvin (1998) would later call “moral meteorology,” or the perception of disasters as supernatural punishment for human misdeeds.

Anthony F.C. Wallace was probably the first anthropologist to call for sustained anthropological engagement with disasters. His interest in mental health and personality changes associated with stress and sociocultural change led him to the study of catastrophes, and he was the first anthropologist to formulate a general model of disaster. His model focused on plotting disaster processes along spatiotemporal dimensions he developed in the interest of systematic comparisons of assorted case studies (Wallace 1956). Wallace borrowed a rudimentary temporal scheme—pre-disaster (stasis), warning, threat, impact, inventory, rescue, remedy, recovery—from psychologists John Powell, Jeannette Rayner, and Jacob Finesinger (1953) (Wallace 1956). Part of this framework was a psycho-cultural model he called the “disaster syndrome,” in which disaster victims proceed through states of isolation, euphoria, altruism, criticism, and normality as events unfolded. This framework lacked a serious engagement with human-environment relations, was far too rooted in the particular American context, and placed too much emphasis on disasters as punctuated crises of homeostatic conditions to be of enduring theoretical value. Still, some disaster anthropologists (e.g., Hoffman 1999a; Oliver-Smith 1979a, 1986a) have revisited this model and revised some of its processual themes in an effort to develop comparative frameworks.

In addition to Wallace's pioneering work, the other most influential early anthropological study of disaster was Raymond Firth's (1959) *Social Change in Tikopia*. In this study of Tikopian responses to two cyclones and a subsequent famine, Firth described in great detail the ways in which Tikopians modified their ceremonial, quotidian, and relational exchange practices, but concluded that they had merely contracted in scale and not changed in substance. Firth hereby arrived at the late functionalist distinction between organization, or day-to-day relational activities, and structure, or the normative principles that frame social organization.

In the 1960s and 1970s, anthropological work on disasters grew modestly in comparison to other topics in the discipline (e.g., development, education, organizations, health, and medicine), but progress was steady (cf. Anderson 1968; Bode 1977; Lessa 1964; Oliver-Smith 1977, 1979a, 1979b). In his 1979 review of the still nascent subfield of disaster anthropology, William Torry expressed concern that,

although some important studies confronted hazards and disasters, these critical phenomena remained understudied and undertheorized in anthropology. In fact, defining what, precisely, constituted a disaster had been a particularly confounding issue for the early disaster researchers discussed above (Oliver-Smith 1999).

Returning to Oliver-Smith's predicament, instead of seeing his research plans foiled, the young anthropologist, on the advice of his mentor, Paul Doughty, pressed on with his dissertation fieldwork, shifting his research focus to the topic of disaster recovery. The ensuing study resulted in what to this day remains a key text in the field of disaster studies, *The Martyred City: Death and Rebirth in the Andes* (Oliver-Smith 1986a). Oliver-Smith's initial ethnographic effort focused on the mourning and recovery process following the Ancash avalanche, paying particular attention to the ways the people of Yungay dealt with the loss of friends and relatives; the dramatic transformation of their “natural,” built, and social environments; and the ways they rebuilt these latter dimensions of their lives. Oliver-Smith guest edited a special issue of the now defunct journal, *Studies in Third World Societies*, on the topic of disasters in 1986, where he and the contributors articulated an early version of the political ecology of disasters by integrating the study of rapid (e.g., earthquake, avalanche, etc.) and slow-onset (e.g., drought, famine) natural hazards and situating the unequal distribution of resources and risk and the politics of disasters at the center of analysis. This theoretical framework also benefitted from the insights of geographers (e.g., Hewitt 1983; O'Keefe, Westgate, and Wisner 1976) who argued that disasters were not “natural,” but instead the result of the interaction between hazards and human populations and development. The establishment of the Natural Hazards Center at the University of Colorado at Boulder by Gilbert White in 1976 furthered the cross-fertilization of geographic (then the focus of the NHC) and other social science approaches to the study of disaster.

As it turns out, the role of catastrophe in Oliver-Smith's professional development would become a recurring theme among subsequent generations of research efforts on the topic. Disasters like the 1985 Mexico City earthquake presented critical contexts where researchers, national government officials, and members of civil society came to see the merit of applying anthropology and other social sciences (sociology, geography, urban planning) to the task of mitigating disasters and their socioenvironmental effects. An emerging group of Latin American and Latin Americanist scholars proved particularly influential in this developing approach to disaster anthropology. Scholars belonging to an emerging network of “disasterologists” called *La Red de Estudios Sociales en Prevencion de Desastres en America Latina* (Social Studies Network for Disaster Prevention in Latin America, or La Red) like Virginia Garcia Acosta, Andrew Maskrey, Elizabeth Mansilla, Omar Darío Cardona, Allan Lavell, Jesus Manuel Macías, and Gustavo Wilches Chaux provided Oliver-Smith with a robust intellectual community (see Maskrey 1993). At the time, disaster research in the social sciences was largely

dominated by sociologists, galvanized by the establishment of the Disaster Research Center at Ohio State University (now at the University of Delaware) and primarily focused on individual and organizational responses to disaster in Western contexts. Yet, sociological findings that people exhibited low levels of awareness of natural hazards were heavily contradicted by anthropological studies in Latin America and throughout the global south that revealed often sophisticated traditional environmental knowledge and conscious cultural adaptations to chronic hazards and acute disaster events (Oliver-Smith 1986b). Other sociological work, especially Frederick Bates' (1982) longitudinal study of the 1976 Guatemalan earthquake, helped bridge the gap between sociological and anthropological approaches (see also Perry and Quarantelli 2005).

Susanna Hoffman is another anthropologist whose career as a disaster specialist was primarily steered by inadvertent (and very personal) experience with catastrophe. Hoffman had spent more than twenty years writing and producing films (1976's award-winning *Kypseli*) based on her ethnographic studies of the Greek island of Santorini when she lost her home and material possessions during the 1991 firestorm in Oakland, California (Hoffman 1999a). At the time, Hoffman (personal communication) has noted, "Everything I knew about anthropology was happening before my eyes—the emergence of new leaders, new relations, and new symbols" and this became, for her, a sort of "ideal laboratory" for anthropological inquiry. Consequently, she set out to interpret her experiences and observations of the firestorm in a series of manuscripts, including *Up from the Embers: A Disaster Survivor's Story* (Hoffman 1994) and *Eve and Adam among the Embers: Gender Patterns after the Oakland Berkeley Firestorm* (Hoffman 1998). Her analyses not only reflected her personal experience but also the Levi-Straussian structuralism that influenced her earlier work in Greece, with her emphasis on social structure, symbolism, culture and personality, gender, affect, ideology, and cognition. She soon also came to reconsider her past research in light of the ways in which the island of Santorini was historically shaped by disasters like massive eruptions in 1623 BCE and 1956 (Hoffman 1999b).

Nearly one year after the Oakland firestorm, Hoffman attended the 1992 annual meeting of the American Anthropological Association in San Francisco, where she sought others working on the topic of disasters. It was here that she met Anthony Oliver-Smith, and they began discussing collaborations (Susanna Hoffman, personal communication). The first collaborative project was *The Angry Earth: Disaster in Anthropological Perspective* (Oliver-Smith and Hoffman 1999), a landmark book in which anthropology's various sub-disciplines analyzed human vulnerabilities to natural and technological (oil spills in Great Britain, the Bhopal gas leak) hazards across Europe, Latin America, North America, and Asia. This innovative publication was influential upon its release, as it was the first volume to synthesize the various approaches—archaeological, as well as cultural—in the then nascent field of disaster anthropology, and it remains influential today. Their second collaboration, *Catastrophe*

and Culture: The Anthropology of Disaster (2002), came just three years later with support from the School for Advanced Research. This edited volume continued the impressive coverage of issues and synthesis of approaches that made *The Angry Earth* so remarkable, while offering a number of important theoretical models and concepts.

One of the challenges Oliver-Smith and others confronted in the early 1970s was that, over the course of the 20th century, disasters came to be seen as predominantly "natural" phenomena that were by and large unpredictable and inmitigable, leaving broader interdisciplinary efforts to focus primarily on disaster management and response rather than prevention (Oliver-Smith 1999). Oliver-Smith's roots as a Latin Americanist and the theoretical strains explored by other researchers (including geographers and sociologists) working in Latin America and the global south influenced his development of a political ecological approach to the anthropology of disasters. This approach emphasized understanding disasters as long-unfolding historical processes involving co-constitutive interactions between people (with their culturally contingent values, political systems, technologies, and practices) and their material environments. The power of this approach lay in the recognition that disasters were by no means natural or unavoidable events that could only be engaged through emergency management practices. Instead, *The Angry Earth* made a clear statement—now a mantra throughout the social sciences—that disasters are not natural and that human actions and policies enhance the materially destructive and socially disruptive capacities of geophysical phenomena. Moreover, once identified through ethnographic, geographic, historical, and sociological methodologies, these practices could be subject to reflection, critique, and change, potentially leading to effective mitigation of disasters and a changing climate before a catastrophic event manifests. Finally, political ecological approaches remain well complemented by the perennial concerns of classical cultural anthropology, focusing on core interpretive aspects of human encounters with catastrophe, such as perception, symbolism, social structure, cognition, affect, and ideology, in the search for shared patterns of human experience.

The Anthropology of Disasters in the New Millennium

Gone are the pioneering days of the single anthropologist working tirelessly to legitimize disasters as a subject of anthropological interest and to demonstrate the potential of disaster research for advancing anthropological knowledge in general. In the time that had passed since the groundbreaking work of Wallace, Firth, Torry, Oliver-Smith, and Hoffman's earliest efforts (to name just a few), disaster research diversified, featuring the application of a variety of theoretical and methodological approaches to understanding why disasters occur and why their effects are so often perpetuated through disaster reconstruction processes. When, nearly twenty years after Torry's (1979) review of the anthropology of disasters,

Oliver-Smith (1996) reviewed the field again, it had matured and expanded to become so vast that it was challenging to cover effectively in one review article. In recent years, Oliver-Smith (personal communication) has declined invitations to write another review of the field on the grounds that it would be far too extensive and seemingly boundless to summarize and synthesize in one article-length treatment. He says that it is difficult to survey where disaster anthropology begins and ends due to the fact that anthropologists now draw connections between disasters and development, are increasingly aware that the societies they study have been shaped by disaster (e.g., Hoffman 1999b), and often work in interdisciplinary contexts.

From the very earliest anthropological studies of disasters, research in contexts of crisis and change—always present in disasters—has enabled scholars to interrogate the structures of culture, state, and society as they are exposed under these conditions. In these contexts, we find forms of human agency contesting social structures and revealing important aspects of societies, cultures, political economies, and human-environment relations that might otherwise be obscured and which provide special opportunities for evaluating and developing social theory. In these contexts, relations of unequal power are thrown into relief in a sort of revelatory crisis (Sahlins 1972) that can expose social and political economic inequities. The fact that human practices can enhance the destructive capacities of geophysical phenomena and unevenly distribute the impacts of catastrophes along lines of socially produced gender, race, class, and ethnic distinctions has opened up a wide field for investigating and theorizing sustainability and environmental justice. As many working in disasters are well aware, we often observe combinations of persistence of human behavior and relationships alongside rapid changes in these phenomena as crises unfold. These processes often reveal a great deal about the societies and groups affected by disaster. Furthermore, disasters in the 21st century invariably occur within the boundaries of what Michel Foucault (1980) once called biopolitical nation states, and their destruction of lives and built environments demand attention from a collection of state and non-profit institutions that must make or negotiate decisions about what to rebuild and how to rebuild it. Furthermore, disaster anthropologists have shown that policy decisions about what to rebuild and how to build articulate fundamental assumptions about the nature of people, social well-being, and development that have unique cultural histories, and that these histories may or may not be conducive to recovery in disaster-affected sites.

The Special Issue

When Eric Wolf (1980) surveyed the accumulative subdivision of anthropology into specialized areas more than thirty years ago, he advised fellow anthropologists to continue engaging with the broader field in order to enrich the discipline and avert a fission into disconnected bodies.

While the growing array of disaster anthropologists have taken to publishing in multidisciplinary journals focusing on disasters (e.g., *Disasters*, *International Journal of Mass Emergencies and Disasters*), there has been a revival of sorts in disaster anthropologists' organizational efforts within the American Anthropological Association and, most notably, the Society for Applied Anthropology (SfAA). On the occasion of Oliver-Smith being awarded the Malinowski Award, the SfAA's most prestigious career achievement award, at the Annual Meeting in 2013, Susanna Hoffman and a number of junior scholars organized more than one hundred papers on the topic of risk, hazards, and disasters. Immediately following the meeting, those involved in the sessions organized to form the Risk and Disasters Topical Interest Group (TIG) within the SfAA. The following year, the TIG organized eighteen panels and another twenty-two in 2015 (for a brief history of the TIG, see Faas and Kulstad 2015). In the interest of application, the TIG facilitated a partnership between the SfAA and the United States Department of Interior Strategic Sciences Group to contribute to rapid deployments of multidisciplinary teams to advise practitioners and policymakers in ongoing environmental crises (see Faas and Trivedi 2015). These efforts are indicative of a new generation of disaster anthropologists who are as markedly engaged with the discipline of anthropology as they are with interdisciplinary conversations, policy, and practice.

In light of the diversity of panels focusing on disasters in the recent SfAA Annual Meetings and the widespread interest, engagement, and participation of applied anthropologists in risk, hazards, and disasters, we organized the present special issue of *Human Organization* to showcase the diversity of hazards, processes, topics, theoretical perspectives, and geographic and institutional sites that currently concern disaster anthropologists and anthropologically-informed social scientists. The manuscripts in this issue are guided by anthropological theory and data, discuss important contemporary issues of broad appeal in the discipline, and reflect a large and growing constituency of scholars within applied anthropology and beyond. This combination of disciplinary concern and relevance makes this issue of *Human Organization* particularly timely and appropriate.

Globally, disasters affect nearly a quarter of the world's population each year, among whom tens of millions are displaced and resettled (Guha-Sapir, Hoyois, and Below 2014). These phenomena destroy livelihoods and well-being and compel affected people to adapt to new environments, lifeways, and subsistence strategies. Because the threat of catastrophe looms over many of the communities where social scientists work, we continue to develop ways to better prepare and assist research and practitioner communities for work in disaster contexts, which is one objective of the present publication. As we write, the people of Nepal are facing devastation from the massive 7.9 magnitude earthquake, much of Texas is reeling from immense flooding throughout the state, California is suffering an extreme and protracted drought, the island nation of Vanuatu is struggling to rebuild

in the wake of Cyclone Pam, and social scientists are working with affected people, practitioners, and policymakers in these regions to make sense of all that is unfolding and find ways to contribute. We hope this special issue will provide an orientation to those in the field who may be encountering the study of risk, hazard, and disaster issues for the first time.

The issue editors and an editorial board of five senior disaster anthropologists selected the manuscripts that comprise this special issue from a pool of nearly sixty proposals received in response to our call for papers in 2014. Papers were carefully selected to cover a range of theoretical, geographic, and methodological foci, showcasing the complexity and diversity of contemporary disaster anthropology. Articles in this issue engage the analysis of disasters' root causes and their unfolding aftereffects and prove that applied disaster anthropology is not merely a site for the reiteration of ready-made theory but is also a site of theoretical innovation.

Sarah Taylor's article takes us to the prehistoric Zarumilla River Valley along the contemporary Peru-Ecuador border. She presents archaeological evidence of the emergence of inequality as part of changes in a suite of exchange practices and settlement patterns in response to severe El Niño events. Her findings indicate that broad cultural adaptations—in the form of exclusive exchange relations and wealth accumulation—to chronic and acute natural hazards increased vulnerability for some while reducing it for the emergent elite. These findings have implications for how we think of concepts such as resilience today, as we search for ways to foster sustainable development that is both robust and inclusive.

Minna Hsu, Richard Howitt, and Fiona Miller's study of the Indigenous Rukai communities in southern Taiwan during post-Typhoon Morakot recovery and reconstruction in 2009 points to the ways in which firmly established anti-Indigenous prejudices and patterns of injustice and disadvantage were reified by post-disaster interventions of the state, NGOs, and donors. In addition to the hazards and disaster events faced by the Rukai, the authors identify procedural vulnerabilities that are part of the risk landscape for Indigenous peoples in Taiwan. Their findings call attention to the ways in which humanitarian interventions that lack cultural sensitivity and historical perspective are implicated in the (re)production of vulnerability. Their discussion and conclusion call for greater attention to Indigenous values and experiences in disaster recovery in ways that will reduce vulnerability "to the extraordinary *and* the everyday disasters communities confront."

Sunday Moulton's work focuses on the various roles of memory in the wake of the 2011 tornado in Joplin, Missouri. She takes us beyond the massive material losses and reconstruction faced by the survivors to the ways in which personal and social identities are (re)constructed in interpersonal retellings and public memorials. Importantly, she suggests that these memorial activities not only facilitate post-disaster community-building but may also help address both clinically detected and undetected symptoms of post-traumatic stress disorder.

While scholars commonly distinguish between voluntary migration and involuntary displacement and resettlement, Beth Marino and Heather Lazrus take us to Shishmaref, Alaska, and Nanumea, Tuvalu, where these distinctions are less salient in the experience of "climate refugees." Responding to floods, climate change, and a general erosion of viable rural livelihoods, residents of these two communities have alternatively engaged in cyclical migration and planned resettlements while retaining important attachments to their homelands. Marino and Lazrus point to the difficulty in distinguishing migration as a locally preferred means of adaptation to climate change hazards from political and environmental resettlement pressures that seem to provide little alternative. They call attention to the ways in which these issues might be addressed in climate change adaptation and disaster mitigation strategies.

In their study of social networks in response and recovery from extensive flooding in western Illinois in 2008, David Casagrande, Heather McIlvaine-Newsad, and Eric Jones find that instances of support from kin far outnumber support from all other sources (neighbor, friend, professional, elected officials, volunteers) in the *vital* phase (securing physical safety) of disaster. Their findings suggest a processual model of support networks with *relative* spatiotemporal dimensions that are decidedly social in their construction.

Susan Charnley and colleagues likewise identify social processes and socioculturally embedded policy practices through which hazards of wildfire fuels are allowed to proliferate and produce conditions that increase the likelihood of devastating wildfires. They point to processes in which gaps between knowledge, policy, and practice frustrate their interlocutors in the USDA Forest Service who must deal with budgeting constraints and low social acceptance of proven fuels reduction strategies while attempting to mitigate serious wildfire risk.

Finally, Victor Marchezini examines the ways in which flood survivors in São Luiz do Paraitinga, Brazil, become objects of intervention and control in the biopolitical practices and discourses of state agencies. During the floods, emergency responders largely ignored local response capabilities while trumpeting their own paramilitary lifesaving operations, creating the impression that state efforts were heroic and well-coordinated. In the wake of the flood, state agencies shifted their practices and discourses in ways that devalued the social and cultural lives of those whose biological lives were so seemingly valued in emergency operations. Marchezini effectively demonstrates how state-driven disaster recovery efforts can increase the marginalization of the most vulnerable and create real impediments to their recovery.

The selected monographs demonstrate that disaster research has the potential to contribute to broader anthropological topics of power, culture change, identity, social networks, development, political ecology, and the tensions between practice and representation. Disasters and disaster reconstruction involve varying degrees of change in patterns of individual and group access to resources, institutions,

and services. Research on these topics provides an opportunity to explore how social, cultural, political, and economic practices change or find new expressions in novel contexts. Manuscripts in this issue point to diverse experiences within and between groups and the extent to which disaster relief efforts are riddled with contradictions—promoting recovery, cooperation, and development in some contexts, while creating dependency, empowering social and economic elites, reifying gendered hierarchies, manipulating allegiances, and engendering social conflict in others.

The discourses and expert practices (e.g., neoliberalism, modernization, biopolitical governance, hegemonic national identity, and state formation) that animate disaster contexts are as substantial and important as foci of anthropological inquiry as are the damages and casualties that commonly become objects of reportage, study, and intervention. These are the means by which policies and practices are derived and by which they are contested by people who assert their subjectivity and subaltern ways of responding to and recovering from disaster. Informal relations and social networks—pre-existing and emergent—play important roles in the politics, economy, and ecology of disasters and displacement and resettlement as well. Scholarship is also challenged to interpret and explain relationships between disaster-affected populations and institutions big and small, by critically examining the ways in which these relations are negotiated, contested, and transformed over time and space. The articles in this special issue not only cover these complex dynamics but also focus on doing so in ways that are amenable to both theory and practice.

Anthropology of Risk, Hazards, and Disasters

As in other areas of applied anthropology, disaster anthropology seemingly inexorably arrives at the all-too-common problem of “policies and practices need to consider local culture.” While one could easily argue that social scientists should repeat this refrain as frequently and fervently as it remains a serious issue, it is becoming increasingly difficult to constantly arrive at this point if it remains ill-served or ill-conceived by policymakers and practitioners. Repeatedly, we see that local cultures are alternatively subjected to malign neglect, coopted, or scapegoated in efforts of disaster risk reduction, prevention, mitigation, response, and recovery. This leads us to wonder how we can theorize beyond this point to better interpret and explain the persistent issue of “cultural insensitivity” and how to better take culture into account in disaster contexts.

One core issue with early definitions of the culture concept was the assumption—not uncommon outside the discipline today—of the phenomenon as a coherent unchanging whole that manifests equally among all its practitioners. Disasters, with their dramatic disruption of every aspect of social life and the engagement of state and aid agencies with affected populations present a unique context to simultaneously apply, test, and develop enhanced theorizations of the culture concept. The ethnographic record compiled over the course of the 20th

century required us to recognize the internal heterogeneity and multiple levels of subalternity within purportedly bounded cultures (Ortner 1996); the porosity of the imaginary boundaries that supposedly contain cultures (Gupta and Ferguson 1992); the impacts of colonialism and processes of state formation in allegedly traditional cultures; the emergent and ecologically relational quality of culturally distinct practices, meanings, and values (Biersack 1999; Ingold 2000); the embodied and affective experience of culture (Low 2011); and the interpretive and reconfigured dimensions of culture as people, discourses, institutions, values, technologies, media, and material culture travel in an increasingly interconnected world (Appadurai 1996; Brightman 1995). Certainly, everything people do from the most basic bodily functions to the most symbolic ritualized action is done in a contingent, emergent, nuanced, meaning-laden, and affectively experienced way that is by no means biologically determined. Yet, in disaster contexts, as elsewhere, understanding the complexity, particularity, and historicity of these practices remains much more challenging than may initially seem.

In the case studies that comprise this special issue, we see instances that challenge the idea of homogenized national cultures, as is demonstrated in Hsu, Howitt, and Miller’s study of Taiwan following typhoon Morakot, where the disaster context is one that highlights tensions and contestations between hegemonic and subaltern actors and communities. Marino and Lazrus’ case of the displacement of communities threatened by climate change-related flooding shows that the collection of values, practices, sentiments, and social organizations we attempt to apprehend through the culture concept are not merely in people’s heads, as Geertzian definitions of culture might have us think, but manifest in an emergent and relational form in the ways people establish tangible yet also meaning- and affect-laden relationships with their surrounding social, built, and biophysical environments. The same can be said about Taylor’s archaeological exploration of the unfolding and co-constituting relationships between political systems, agricultural practices, and the environment’s material agency in pre-Columbian South America.

Casagrande, McIlvaine-Newsad, and Jones eschew standardized spatiotemporal phases of disaster often uncritically reproduced by media and policymakers while pointing instead to relationally contingent phases of disaster preparation, response, and recovery. In doing so, they provide insight into how phases of disaster are experienced by those involved through relational processes—articulations between social and institutional connections. Charnley and colleagues likewise provide an anti-essentialist rendering of the production of ostensibly “natural” hazards through social processes and policy practice. The case of the floods in São Luiz do Paraitinga documented by Marchezini illuminates the contingency and historicity of governance practices that are often represented as rational and common sense and the way the uncritical and unreflexive application of these practices can exacerbate the social impacts of disasters. Moulton’s case study of collective memory making also shows us the

emergent quality of “culture” as well as the ways people and disasters become entangled in its formation.

The issue of disjuncture and (in)coherence between anthropological knowledge and the policies and state/NGO practices that address risk and disasters does not only pertain to culture. Repeatedly, we find social disarticulations, with groups and networks fragmented and factionalized in disaster contexts (Faas 2015; Taylor *this issue*); misarticulated features of space, place, and design (Barrios 2011; Marino and Lazrus *this issue*); temporal imbalances between the urgency of immediate concerns and the need for better long-term planning (Marino and Lazrus, *this issue*); and sociotechnical systems where scientific instruments and the social and administrative milieus in which they are deployed are ill suited to the social, cultural, and biophysical contexts to which they are applied (Hsu, Howitt, and Miller, *this issue*; Marchezini, *this issue*; Charnley et al., *this issue*). Of course, there are coherences as well, where policy, practice, culture, sociotechnical systems, livelihoods, and well-being are in sync, but these cases are so few and far between that we must continue to strive for the elusive goal of articulation between these factors. How, then, do we theorize beyond this point to better interpret and explain persistent misalignments in disaster-related policy and practice? How can we develop more useful and successful prescriptions for developing more effective coherence between policy and practice?

As we see it, one step is to begin identifying barriers to articulation, something contributors to this volume do quite effectively. Hsu, Howitt, and Miller tell us how reflection on and transformation of post-colonial national identity politics needs to be a key element of disaster recovery. Marchezini sheds light on the shortcomings of biopolitical choreographies of governance and the need to facilitate engagements between state agencies and subaltern populations confronting multiple forms of vulnerability (i.e., economic, hazard, heritage) in order to help those most vulnerable to disasters’ effects actually recover. Moulton explores how certain cultural practices of memory making may help counteract post-traumatic stress in the aftermath of a devastating tornado. Charnley and colleagues show us that, despite existing knowledge about how to mitigate forest fires, specific territory/space-making practices (e.g., urbanization downwind from forest areas) and sensibilities (dislike of smoke) complicate the fire engagement practices of United States Forest Service personnel. Marino and Lazrus demonstrate how, despite calls for flood-vulnerable communities to relocate in the face of climate change and rising sea levels, actual state support for relocations that make sense and are viable for at-risk populations is non-existent. Most importantly, these specific observations and their related policy/practice recommendations became possible only through ethnographic processes that, on the one hand, allowed these social scientists to bring existing anthropological theory and method to bear on the problems of disaster mitigation, and on the other, featured the emergence of data and conclusions that pushed the knowledge and theory of disaster anthropology forward.

Future Directions

Perhaps the most pressing dissonance involves climate change and the environmental degradation engendered by the existing global network of people, environments, policies, and practices involved in commodity and capital production (Gordillo 2014; Tsing 2005; Wolf et al. 2013). Disaster scholars have warned that the increasing moisture present in the atmosphere, sea level rise, and warmer average global temperature will increase the frequency and severity of hydrometeorologically-triggered disasters as well as slower onset disasters, such as drought and famine (IPCC 2012). In point of fact, many, if not most, climate change effects will manifest as disasters. Despite the clear relationship between specific development practices (industrialization, poorly regulated CO² emissions, etc.), there remains significant political resistance to either accept the anthropogenic nature of climate change (as in the case of the United States), or drastically reduce greenhouse emissions (as in the case of the United States and India) to a level that might mitigate this slow onset disaster (Davenport 2014).

At the heart of our interest in climate change-related disarticulations is a way of thinking about human history as a process of development and modernization whose desirability is unquestionable and a way for relating to the material environment as natural resources to be privatized and exploited for the sake of capital replication. As the work of anthropologists like Arturo Escobar (1995), James Ferguson (1999), Elizabeth Povinelli (1995), and Johannes Fabian (1983) has us think, this quite tangible climate change trend is quite naturally interwoven with the epistemic and semiotic dimensions of culture and the material aspects of the human experience. The problem of climate change is a problem of culturally contingent desires for capital replication and commodity consumption that affect the ways people relate to one another, other species, and the landscapes that surround them. The crisis of climate change, which may very well threaten human life on the planet as we know it (perhaps not in the sense of mass extinction but certainly in the sense of existing human-environment arrangements), is one that desperately requires the contributions of anthropologists who may help us reflect on the kinds of affect-laden relationalities (what we need, what we desire, what we are capable of living without) that will make for a more sustainable and just world.

Together, the issue’s articles demonstrate the complexity and particularity of human practice, values, and meanings we try to grasp through the culture concept. This is by no means easily captured, known, or described, requiring “culturally sensitive recovery and mitigation” to bring to bear over nearly a century of anthropological knowledge in the engagement of disaster affected or “at-risk” communities. Disasters, then, clearly illustrate the tangible implications of both applying and further developing anthropological theory.

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