Introduction

Hydrohumanities

Kim De Wolff and Rina C. Faletti

In the twenty-first century, a new water discourse is emerging, carried by the humanities. It focuses on cultural changes, such as an emphasis on gender and race differentiations in water relations, ways water features in urban design, and decolonial analyses of water practices. It is deeply informed by new materialist and posthumanist attention to the active role of water in its multiple materialities. It is interdisciplinary, engaging with the geosciences as easily as with the arts in working toward transforming water futures. We call this emerging discourse surrounding water-human-power relationships the *hydrohumanities*.

Water in the modern era has been the domain of engineers, hydrologists, and economists. In the nineteenth and twentieth centuries, large-scale infrastructure projects dominated the water landscape and its discourse of expertise. Many discussions continue to privilege scientific and engineering studies centered on ecosystems management, or a governance and policy focus that attends to water rights and justice (Reuss 2004; Swyngedouw 2004). These existing discussions operate under the assumption that water—in the singular—is a resource to be managed or commodified, whether equitably or otherwise. The late twentieth century saw a shift towards an awareness of the environmental and social consequences of focusing on water as a commodity. This shift was largely instigated by widespread resistance to the corporate enclosure of formerly public waters, whether through the mass production of single-serving plastic bottles by multinational conglomerates such as Nestlé, or via the commodification of the very rain itself, with schemes like the World Bank–mandated privatization of all water in Bolivia (Barlow and Clarke 2002; Olivera and Lewis 2004). From drought to deluge, climate extremes are mobilizing humanities scholars to think about water with a new sense of urgency.

This book emerges from a two-year thematic focus on water and the humanities at the University of California, Merced, which included a biweekly seminar, numerous public events, and two conferences. Together, the contributors to this

book demonstrate how interdisciplinary cultural approaches grounded in the humanities can transform water conversations that address intensified environmental crises, by promoting interchanges that are far more inclusive than those dominated by techno-economic and policy concerns. In turn, each of the nine chapters, along with this introduction, responds to a central question: how can humanities thinkers lead diverse scholars and publics into uncertain environmental futures through explorations of water?

WATER AND THE HUMANITIES

We define the humanities as approaches to studying human (and more-than-human) experiences with nuanced attention to culture and power, where questions of what is, has been, and could be are always ethical, political, and in process. While the humanities are more traditionally understood as a collection of disciplines concerned with the human condition (Goldberg 2014), our definition focuses instead on common concerns across these divisions, or what James Clifford calls "the greater humanities" (2013). Some contributors to this volume do identify as historians, philosophers, or anthropologists, and others are far more comfortable being interdisciplinary. Most important is a shared understanding that humanities approaches are not merely a matter of trading quantitative for interpretive methods, or of comparing methods between disciplines, but rather of insisting that *all* knowledges are situated (Haraway 1988). At the same time, emphasizing culture and power signals their inseparability: questions of meaning and value are inherently questions of politics, broadly defined.

From the coeditors' situated positions at the UC Merced Center for the Humanities where this volume was conceived, California, within the context of the American West, has served as an environmental hydrology case study par excellence. Our offices, overlooking the Vernal Pools Reserve, Lake Yosemite, and the Le Grand irrigation canal, all within the Merced River watershed, were windows into all kinds of ongoing water politics. These included the hydraulic modernism of the American Gold Rush inscribed in regional industrial water systems design, and ongoing wetland mitigation conservation projects meant to compensate for the development of the campus itself. We surveyed nearby reservoirs where boats lay grounded on drought-cracked lake beds, and then nervously updated our Twitter feeds the following rainy season as flooded watersheds threatened state infrastructures with collapse. Immersion in these powerful land-and-waterscapes was the incubator for the hydrohumanities.

A brief overview of the discourses relating to California and the Western United States exemplifies a central point that each chapter in this volume advances for the hydrohumanities: hydraulic environments embody social and political power, as do the knowledges that circulate about them. Three literatures have been especially influential in informing critical understandings of water and power in humanities

scholarship: histories of water, especially as associated with environmental history; interdisciplinary water studies, most notably those that bridge natural sciences and the humanities; and contemporary scholarship that thinks *with* water, particularly with attention to its materiality. Outlining these areas in more detail below, we map a trajectory from disciplinary to interdisciplinary hydrohumanities water scholarship.

Among water historians, Donald Worster is the acknowledged principal for the United States: his 1985 book *Rivers of Empire: Water, Aridity, and the Growth of the American West*, an ecocultural history of industrial water systems development, led to his part in founding the subfield of environmental history, new in the 1970s. Worster's contribution was to reach beyond the United States to define regional water supply development as a centralized tool of hegemonic power wielding social and political control on a national scale. He grounded his water history in the theory of "hydraulic society" presented by Karl Wittfogel ([1957] 1967), a founding member of the Frankfurt School. Wittfogel's postwar study of communism in China had analyzed centralized control of water as bureaucratic ideological totalitarianism. Many subsequent scholars, while acknowledging Worster's formidable contribution, have objected to his sweeping application of Wittfogel's thesis to what they see as a dissimilar situation, challenging the attribution of a grand-scale overriding motivating factor—hegemonic imperialism—to California. Norris Hundley Jr. (2001), for example, preferred to look for diversity in local situations to uncover complexities of interplay between human values and waterscapes. Hundley has argued that water development scenarios are best understood—and critiqued—within their own specific contexts. This can reveal more accurately the ways political culture, policy-making, and cultural realities resonate within the positions and practices that imbue waterscapes with co-human agency.

The emergence of the subdiscipline of environmental history in the 1970s ran parallel with wide-ranging cultural dissemination of water politics in the popular press and in cultural production for the North American public at large. Perhaps most famously, Roman Polanski's 1974 film *Chinatown* dramatized the polemical politics of California's "water wars," spurred by the importation of water from distant watersheds into Southern California in the first few decades of the twentieth century. From the 1911 Los Angeles Aqueduct to the 1939 Colorado River Aqueduct and the range of federal and state irrigation projects of the 1950s to the '70s in California and Arizona, environmental justice responses ran deep. Citizen uprisings aimed at water injustices related to the funneling of the Owens River into the L.A. Aqueduct, for example, were to Southern California what San Francisco's Hetch Hetchy Aqueduct had been to Northern California, when the founding of the Sierra Club and related naturalist ideologies engaged protest against damming the Tuolumne River in Yosemite National Park. These issues live on the docket of water politics to this day. Environmental writer Marc Reisner's *Cadillac Desert: The American West and Its Disappearing Water* (1986) brought the

politics of water into the public sphere in print, as *Chinatown* had done in film. Most recently, journalist Mark Arax contributed a 2019 best seller, *The Dreamt Land: Chasing Water and Dust across California*, a history-memoir-exposé expounding the inseparability of water and society. California-as-water-culture is a daily front-page feature, an ever-trending media theme, a matter of embedded public concern.

While California and the U.S. West anchored the inception of this volume at UC Merced, the Water Seminar participants, as well as the current volume's contributors, represented a broader balance of global water concerns in the humanities. An exemplary global-scale contribution to the hydrohumanities history discourse is the nine-volume series *A History of Water*, completed between 2005 and 2016 (Tvedt and Oestigaard, eds.). The volumes cover major themes in world water issues, with contributors from an array of disciplines and from every region of the world. The series focuses equally on the Global North and South, and on problems of water equity and access, into the future. One volume, for example, titled *Water and Food*, focuses twenty-two essays on Africa alone, to reveal the diversity and depth of water-related agriculture and food security throughout the continent's history (Tvedt and Oestigaard 2016). With the volumes released over the course of more than a decade, the series serves as a comprehensive chronicle of the world's major water issues at the beginning of the new millennium. Moreover, Terje Tvedt served as the first president of the International Water History Association (IWHA), founded in 2001 in parallel with the decision of the United Nations Educational, Scientific and Cultural Organization (UNESCO) to focus efforts on the roles historical scholarship could play in policy-making (Reuss 2004). Environmental history has long served as an international bridge between the technological and scientific aspects of water and water's investigation within the humanities.

In focusing on the role of humanities scholarship in leading toward sustainable water futures, *Hydrohumanities* is also indebted to a number of collaborative interdisciplinary volumes that establish the central place of culture in conversations about water. The product of a UNESCO project, *Water, Cultural Diversity and Global Environmental Change* (Johnston et al. 2011) anchors water as elemental in sustaining cultural and biological diversity in equal measure. The theoretical approach of *Hydrohumanities* more specifically builds on the groundbreaking collection *Thinking with Water* (Chen, MacLeod, and Neimanis 2013), as this work mobilizes diverse humanities perspectives to challenge the dominant Western assumption that water is a resource to be measured, managed, and sold. For Cecilia Chen and colleagues, alternative storyings and mappings of water bridge nature-culture and material-metaphor divides to connect meaning to ecological crisis. As Ingrid Stefanovic (2019) asks, nudging humanities water scholarship closer to publics and decision-making, "might a deeper, embodied vision of the wonder of water inspire more thoughtful policies?" *Hydrohumanities* builds on this

shared foundation of relational thinking *with* waters in their many meaningful materialities, while attempting to push calls for alternative modes of attention within cultural theory toward new forms of hydraulic leadership.

Outstanding interdisciplinary volumes bridging arts, sciences, and beyond in discussions of water include *Rivers of the Anthropocene* (Kelly et al. 2017), which is primarily concerned with forming a transdisciplinary environmental research culture by exploring frameworks and methods for bridging natural sciences, social sciences, humanities, and policy. Taking a coordinating tack, this volume shows *what the humanities can do* in a time of crisis, and challenges the tendency to task the humanities with responding only after the natural sciences have identified a problem. We call on the humanities to lead.

Recently, there has been a proliferation of aquatic concepts and frameworks in the humanities. Instead of positioning water as an object *of* study, scholars are plunging into the material-conceptual depths to reimagine disciplines, forms, and approaches. There are disciplinary frameworks that push against traditions grounded by terrestrial bias: René ten Bos brings attention to Peter Sloterdijk's call for an "amphibious" anthropology equally at home in the water as on land, rather than privileging one element over the other (ten Bos 2009); Sugata Ray (2017) offers "hydroaesthetics" as methodological grounds for an ecological art history; and Laura Winkiel (2019) gathers leading literary ocean studies under a rubric of hydro-criticism. Where some scholars, such as Michelle Burnham (2019), mobilize oceans to rethink the story of the novel as a literary form, others are exploring how watery forms themselves overflow disciplinary boundaries. Irene Klaver follows the meander from its namesake river through classical design to a critique of efficiency culture (2014); while Stefan Helmreich surfs the waves of science past and present toward climate-changed futures (2014) and, with his colleague Caroline A. Jones (2018), looks at science, art, and culture through an "oceanic lens," with an eye for decolonial critique.

Humanities attention to oceans in particular has been generative of named bodies of water work. Most broadly, Elizabeth DeLoughrey (2017) describes a twenty-first-century humanistic "critical ocean studies," while others refer to the "blue humanities" (Gillis 2013), a term most often associated with the work of Steve Mentz and Stacy Alaimo. While blue humanities is sometimes deployed to be inclusive of those with freshwater foci, the concept has decidedly maritime origins, naming "an off-shore trajectory that places cultural history in an oceanic rather than terrestrial context" (Mentz 2018, 69). Indeed, there is a tendency for humanities water scholars to self-identify as ocean scholars or river scholars, separated by a salty/fresh divide. Historian of oceans Helen Rozwadowski (2010) traces this compartmentalization to the disparate origins of humanities river scholarship in environmental history and of humanities ocean scholarship in the history of science and technology. Of particular importance for this volume are the liminal spaces of aquatic environments and concepts, spaces the authors find especially

productive for challenging existing boundaries, whether based on salinity or solidity. It is not enough to trade terrestrial bias for an aquatic one; these very categories, and the practices that constitute them, must be interrogated.

HYDROHUMANITIES

The hydrohumanities, then, emerge from much longer trajectories of studying water and power, while at the same time bridging water scholarship across fresh/salty divides. In some locales, the water prefix *hydro* is inseparable from power in a very practical sense. In British Columbia where large dam projects provide the bulk of electricity, for example, *hydro* is used as a synonym for electric power, as in having to pay one's hydro bill. As this colloquial shorthand reminds us, there is no power without water. Through the lens of hydropower, water is energy and force, but it can also be militaristic (DeLoughrey 2019) and hydrocolonial (Hofmeyr 2019). As we have begun to trace above, however, there have been notable shifts in how humanities scholars have conceptualized water-power relationships, from power *over* water, to water *as* power, to rethinking *with* water the very concept of power itself. Most importantly, hydrohumanities scholars see constellations of human-water-power relationships as irreducible to their component parts, none of which acts simply as a context for the others.

Discourses about water and power, however, have been predominantly focused on struggles for human power *over* water: who gets to own and control a limited resource with seemingly limitless economic potential. Many of these researchers' basic interests were built in part upon water law and policy, and on water rights history. These have ranged in focus from the exposure of social and environmental effects of water law and government policy (Pisani 1986) to comparisons of water governance structures around the world based on differences in their respective cultural histories (Dellapenna and Gupta 2009). Hundley's (2001) comprehensive California water history focuses on "human values and what human beings do to the waterscape" in Indigenous and industrial scenarios across the timeline (xviii). Water, in turn, is the object or the context, as DeLoughrey has noted of pre-1990s ocean scholarship, where "the ocean became a space for theorizing the materiality of history, yet it rarely figured as a material in itself" (2017, 33).

Others, however, focus on how water is itself powerful, not merely a substance to be fought over. Here, hydrohumanities scholarship has the potential to reinflate "flattened" ontologies where no entity (human or otherwise) is assumed to have more theoretical standing than another (as in actor-network theory or object-oriented ontology). Most crucially, water can help add dimension without limiting power to vertical hierarchies. Or, similarly, it can add depth where others have merely positioned "the sea as a stage for human history; a narrative of flat surfaces rather than immersions" (DeLoughrey 2017, 33). With Chandra Mukerji's conception of logistical power (2009), for example, water's properties

are no mere context: water itself has agential capacities that can sometimes be shaped to assert human control over territories. "Water," she proclaims at the beginning of her chapter, "is an underestimated tool of power." Harnessed by the seventeenth-century French state engineering of the Canal du Midi, the resulting form of power is impersonal, enacted through "managing social relations by material means." Ruling with water, human control becomes almost imperceptibly enmeshed in waterscapes: "Logistical power worked silently outside social pressures, and in this sense, the canal seemed apolitical even as it initiated social change." Geographers, too, are rethinking power with water. Resisting the terrocentrism of the discipline, Christopher Bear and Jacob Bull (2011) emphasize that, in following the water, geographers must also "question the politics of moving through and with water" (2265). Taking this imperative more broadly, Philip Steinberg and Kimberley Peters (2015) outline an entire "wet ontology" drawing on voluminous oceanic depths to insist on dimension and nonlinear fluidity as a way to conceptualize a multidimensional spatiality of power and geopolitical order.

Conversations about water and power are often related to colonialism. This is especially paramount in settler-colonial societies where land-centric cultural and political systems have been violently imposed along with a decidedly Western conception of the very separation between land and water (Steinberg 2001). By contrast, a group of Indigenous scholars has outlined theories based on a "water view" *from* rather than *of* water (Risling Baldy and Yazzie 2018), recentering water in entangled processes of being, knowing, and responsibility in ongoing decolonial struggles. As Cutcha Risling Baldy and Melanie Yazzie explain, "our theoretical standpoint is one that foregrounds water view, (re) claiming knowledges not just for the people, but also for the water; not just looking at our relationship to water, but our accountability to water view" (2018, 2). Following Salish tradition, Lee Maracle rejects frameworks of Western ownership to remind us that "the water belongs to itself" (2017, 37).

As editors and settlers, we recognize the Wichita, Chinook, Clackamas, Wappo, and Yokuts peoples whose traditional lands we have inhabited and continue to occupy while working on this volume. Thus situated, *Hydrohumanities* is meant to be read alongside collections written and edited primarily by Indigenous water scholars and activists. Most notably, the special issue of *Decolonization* edited by Cutcha Risling Baldy and Melanie Yazzie (2018) provides a rigorous wealth of perspectives, while outlining how water has taken an unprecedented role as an "ideological and ontological centerpiece" within current waves of Indigenous resistance (8). The place of water in these struggles is perhaps most evident with the #NoDAPL movement's emblematic *mni wiconi*—"water is life"—a phrase that is at once prayer, ontology, and resistance. Water supports life, contains life, and is itself alive (Estes 2019, 13). For an even broader, globe-spanning set of perspectives, *Indigenous Message on Water* provides a multilingual anthology of water narratives, as knowledges representing the diversity of almost thirty Indigenous

peoples (Sánchez Martínez and Quintanilla 2014). By contrast, *downstream: reimagining water* (Christian and Wong 2017) takes a more unifying tack, aiming to bridge European and Indigenous understandings of water to form an "intergenerational, interdisciplinary, culturally inclusive, participatory water ethic" (18). As the "decolonizing" of practices and discourses has become increasingly trendy in academia, it is crucial to position recognition as only a starting point in struggles that are fundamentally about the repatriation of Indigenous land/water/life (Tuck and Yang 2012). Scholars must actively stay mindful of ways in which we complicit in and continue to benefit from colonialism, even as we unpack questions about water, indigeneity, and justice.

MORE-THAN-ENVIRONMENTAL HUMANITIES

The once-nascent field of environmental humanities is now vast and growing. *Hydrohumanities* contributes to moving past conversations of definition (Oppermann and Iovino 2016) by establishing water as a key "arena" for the environmental humanities. In doing so, *Hydrohumanities* answers the call of Astrida Neimanis, Cecilia Åsberg, and Johan Hedrén (2015) for academic activism that incorporates "humanistic modes of inquiry into environmental problem-solving" (72). Enacting this vision, they explain, requires "a deeper and more open dialogue and integrated cooperation between the research community, policy-makers, society and ultimately private individuals" (74). This volume addresses the need to rethink scholarly approaches to environmental humanities through the lens of water. It represents both *tradition* and *transition* in the more-than-environmental humanities, where *tradition* draws upon interdisciplinary engagement to address the specific place of water in the environmental humanities, and where *transition* moves toward modeling a posthumanistic collaboration that enacts "a new configuration of knowledge" and "thick" citizen humanities practices (Nye et al. 2013; Åsberg 2014).

The environmental humanities must be a more-than-human humanities. From anthropogenic global climate change to synthetic plastics circulating in the blood of shellfish, the current situation makes it impossible to maintain any pretense that "the human condition" is separate from what has previously been bracketed off as "the environment." Following the now much-recited rejection of nature-culture dualisms, we approach waterscapes much as the editors of *Arts of Living on a Damaged Planet* do for landscapes, conceptualizing them as "overlaid arrangements of human and nonhuman living spaces" (Tsing et al. 2017, G1). Ocean scholars are already leading the way, learning *with* the sea toward an understanding that human histories have always been more-than-human (Mentz 2018, 69), and insisting that water bodies are transcorporeal bodies characterized by fluid material interchanges rather than by rigid boundaries (Alaimo 2012).

Theoretical interventions must be carried into practice. Though concerned with alternative conceptualizations, we build on field-defining efforts to *practice*

environmental humanities by addressing water problems in the world. Here, Neimanis, Åsberg, and Hedrén (2015) stand out, promoting a naturalcultural ethics of encounter between and among scholars, institutions, and engaged publics working to cultivate a state of "'living well' with both human and more-than-human others in terms of responsivity" (2015, 82–84). With this conscious effort to enact praxis, we propose rethinking the "green field" (83) together with the blue field—water—as a whole. Niemanis et al. insist that this must be done "through the deployment of humanities modes of enquiry" (69). In fact, they conclude, "addressing these problems . . . is not possible *without* environmental humanities" (70, emphasis in original). Taken together, the essays that make up *Hydrohumanities* advocate for the work environmental humanities can do in the world and, specifically, what the environmental humanities can do with water.

BOOK ORGANIZATION

The chapters that follow are organized around three themes that characterize the hydrohumanities: agency of water, fluid identities, and cultural currencies. These themes emerged as common threads thickening over the course of the presentations and events that constituted the UC Merced Water Seminar. As these themes cross fluid forms, times, and spaces, they reveal their ability to show how humanities scholarship has world-changing potential. Each thematic section begins with a brief introduction that explores its respective concept and the associated intersections between its chapters in more detail. Across the volume as a whole, the chapters are organized in a trajectory from rigorously theoretical research toward explicit policy implications. Covering this continuum requires collaboration—with other humanities scholars and beyond—against persistent traditions of individualism.

Part I, *Agency of Water*, examines how water, under its own power, is harnessed by and ultimately confounds human desire and control. Many agencies are entangled in relationships with water, and the task of the hydrohumanities is to track them without losing sight of power. Chandra Mukerji anchors this section and the volume as a whole by foregrounding water in the emergence of a form of impersonal rule she calls logistical power. Focusing on the construction of the seventeenth-century French Canal du Midi, Mukerji meticulously details how water's agency is both harnessed by and comes into conflict with territorial governance. In demonstrating how hydraulic engineering becomes a tool of power, the lessons of the seventeenth century are relevant to present-day questions of how to borrow the power of water without destroying the natural world.

In chapter 2, Stephanie C. Kane takes up the concept of logistical power, reaching backward to the Ice Age in order to propel her narrative toward Anthropocene futures. Where Mukerji focuses on a modern canal, Kane turns to the potential channels forming in the wake of melting arctic ice fields, detailing how dramatic

environmental changes offer new logistical power along some routes, while rendering others obsolete. Kane focuses on Winnipeg, Manitoba—a city located in the geographical center of North America—whose economic development looks toward warming trends to support a future role as a major global port. Given its current inland geographical location, this plan confounds the assumption that powerful port cities must be situated at strategic edges linking water routes and land markets. Kane details surprising intersections between geological and historical timespaces, as these set parameters for understanding the degradation of Arctic sea ice-as-solid-water. She emphasizes that more-than-human agency can be unintentional. Dwelling with seeming double contradictions—of an inland port and of the ocean in solid form—she demonstrates how the stakes of material-conceptual boundaries between land and sea emerge with and as conditions of possibility.

Much as Kane shows with her focus on ice-as-water, Irene J. Klaver in chapter 3 expands upon a multiplicity of waters that cannot be contained in a single elemental form. Building from the assertion that water is fundamentally relational, Klaver argues that water is "radical" in its refusal to be reduced to a singular hydro-logic of knowing and being. Detailing colonial water control projects shaping New York and New Orleans, Klaver shows how modern structures have attempted to make water into manageable, measurable entities—the delimited canals, dammed rivers, and determined routes detailed by Mukerji and Kane. In opposition to projects of domination and control, Klaver outlines an epistemology and ontology of meandering, urging scholars and engineers alike to give up rigid ways of thinking and living, to instead allow water—in all its relations—to be our guide.

Part II, *Fluid Identities*, further connects such commingled transformations of physical and conceptual waters to shifting urban and national identities. Ignacio López-Calvo and Hugo Alberto López Chavolla bridge book sections by studying the life-and-death significance of water for Latin American Indigenous communities, via South American literary fiction. First, attending to water's agency using the theoretical perspective of new materialism, they concentrate on the symbolic, cultural, magical, and salvational significance of mountain rivers for Peruvian Quechua communities in José María Arguedas's novel *Los ríos profundos* (*Deep Rivers*, 1958). Second, they contrast this worldview, from an ecocritical perspective, with the importance of sustainable waters for the Wayuu Indigenous group in the Guajira Peninsula of Colombia, as represented in Philip Potdevin's novel *Palabrero*. More-than-human interrelationships take primacy here, as Potdevin portrays the exponential rise in suicide rates among the Wayuu after international mining companies began to steal water resources from ancestral Wayuu lands.

Moving from Indigenous mountain rivers, Penelope K. Hardy's chapter 5 takes a dive deep into the fluid identity of the ocean. Hardy considers how historical developments in the methods and motivations for mapping the seafloor affected resulting Western definitions of ocean space and the uses to which these new

identities were put. Exploring examples from the United States, Britain, Monaco, and Germany, Hardy shows that oceanic maps and charts were almost always constructed in the service of empire, so that the identities these maps assigned to the ocean itself reflected commercial and political as well as scientific concerns. During the nineteenth and twentieth centuries, both naval officers and naturalists increasingly attempted to chart greater depths, creating new Western scientific models of the ocean's three dimensions mediated by technologies of collection and measurement and by the motivations of those who wielded them as tools of territorial power. As a result, the ocean floor is mapped in terrestrial fashion right onto national and imperial frameworks of exploitation and control.

Following the course of aqueous national identities, Kale Bantigue Fajardo hones in on the city of Malolos, considered the birthplace of the Philippine Republic in 1898. His chapter 6 details how national imaginaries have broadened to include images of an "aquapelagic Malolos" of canoes, rivers, estuaries, coasts, and islands. Drawing on fieldwork, media analysis, and personal experience, Fajardo observes how cultural production, local tourism, and NGO activities have decentered church and mestizx architecture, drawing attention toward Malolos's relationships with water. Such a refocusing on water can instigate a precolonial and decolonial turn away from land-bound national monuments. Fajardo argues that the contemporary Philippine postcolonial nation-state, together with local and provincial governments, must move toward Manila Bay, that is, toward water and the seas, in order to better address climate change threats.

Part III, *Cultural Currencies*, presents both top-down and bottom-up challenges to the technical and economic logics that dominate public water conversations and influence policy-making. Here, we return, via culture, to conversations about policy in a narrower sense. In chapter 7, Rina C. Faletti connects an iconic 1970s scientific photograph representing land subsidence to present-day water policy by examining the politics of agricultural photography. In 1977, surrounded by vineyards in California's Central Valley, a prominent USGS hydrogeologist posed next to a power pole, marked high above his head with the years of previous decades, to show where the land surface lay in the past and to emphasize how dramatically it had subsided. With this photograph he staged a human-scale visualization of vast groundwater resources disappearing with unchecked industrial pumping. Situating the photograph within a broader history of California agricultural documentary photography between the 1920s and the 1980s, Faletti reveals a parallel subtext of societal conflicts caused by industrial water systems. California's water, agri-, and petro- cultures rose as the land surface, and the social substrata that labored to work on and in it, invisibly declined. Issues raised by photographers have fed policy interests into the present. In 2014, California's Sustainable Groundwater Management Act set forth a plan for statewide groundwater stewardship into the coming century. Water-inspired images like those under Faletti's analysis reveal long-term effects of both scientific and social documentary photographers,

whose visual calls for action work toward remedying otherwise invisible problems of environmental and social justice pertaining to enmeshed relationships among land, water, and work.

In chapter 8, James L. Wescoat Jr. and Abubakr Muhammad urge scholars—and policy makers—to incorporate into water management the cultural concept of the Indus basin as a garden. Since the second half of the twentieth century, water managers have described the Indus River basin as a food machine, an irrigation system, and a water-energy-food nexus, while social scientists continue to emphasize issues of governance, power dynamics, and political economy. Turning to future problem-solving for postcolonial development of the Indus basin, Wescoat and Muhammed detail continuing references to Edenic ideals in the region, while documenting the eclipse of Eden by techo-metaphors: machine, system, nexus. The explicit exclusion of garden irrigation from the 1960 Indus Waters Treaty prompts a thought experiment: what difference might it make to people and places of the Indus region to return to the idea of the Indus basin as a garden? The answer from Wescoat and Muhammed is a call for a culturally-based model of water resource management.

Finally, Veronica Strang concludes the volume by opening humanities water policy conversations situated on a global scale, recounting her participation in the process of defining *culture* in the United Nations' 2017 Guiding Principles for Water. Policy debates about water's *value* tend to focus on conceptualizations of water that can be measured quantitatively, with water's cultural value defined as a discrete area of use, vaguely associated with spiritual meanings or cultural heritage. Traditionally resistant to quantification, cultural values of water are placed on the periphery of decision-making about water use and management, and are often ignored altogether. In counterpoint, Indigenous communities propose integrated views of water's value, offering the critique, often in collaboration with social sciences and humanities scholars, that the notion of culture as a domain apart from the real world is unproductive for water policy futures. In response, experts, including Strang, worked to define more inclusive categories for value, organizing the UN Principles into "economic values," "environmental values," and "cultural and spiritual values." Revising customary thinking in this way confronted several challenges: how to articulate "cultural values" for water that could be integrated into local, regional, and global decision-making; how to introduce a unifying theoretical basis to counter categorical divisions that deny water-as-culture; and how to demonstrate that cultural values of water are central not only to the environment, but to economic activities around the globe.

Together, these contributions call on humanities scholars to craft new stories of power and values by pursuing alternative mappings deepened by a multiplicity of views. This collection, as a whole, is meant to guide scholarly and public discourse in a current era that demands more creative, and more relevant,

reimaginings of environmental issues, with approaches that can actualize more just water futures.

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