Rachel Carson Center

Perspectives

Unruly Environments

Edited by

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Introduction: Unruly Matters

This volume theorizes and historicizes "unruly" environments—places difficult to control and categorize, whether choked with vegetation, submerged underwater, or encased in concrete. Bringing together scholarship that examines unruliness around the globe and through time, this volume considers the definition and theoretical importance of unruly environments. Is unruliness, nature's inherent quality, the function of a resistant and autonomous materiality? Is it, on the other hand, a social artifact— an expression of incomplete mastery and environmental uncertainty? Or is it, as many authors here suggest, somewhere in the middle, the nexus where society and nature collide and coalesce? Despite differences in method and discipline, the contributors to this volume all agree that stories of unruly environments, wherever they are found, are important to tell. At a time when human and nonhuman realms are increasingly entangled, stories of unruliness seem more important than ever. While they remind us of the limits of environmental control in an era of technological and institutional hubris, they are also a useful corrosive for the more encrusted categories of nature, society, and agency.

The question of agency lurks behind many of the contributions to this volume. Can the concept of unruliness help us to converse meaningfully about nonhuman agency? If, as the field of environmental history posits, nature—variously defined—plays an important role in shaping human history, can we go so far as to say that nature has agency? "Extreme" environmental qualities such as salinity, aridity, altitude, wetness, openness, barrenness, or unpredictability surely mold economies, institutions, and identities. So, too, do slower-moving and subtler currents of change, ranging from rainfall, sedimentation, and temperature to overgrowth, afforestation, and species invasion. All the papers here suggest a more complicated—and composite—vision of agency, one that blurs the boundaries between society and environment, the human and nonhuman. Whether in the form of environmental uncertainty, interspecies encounters, or engineered landscapes, these contributions force us to consider a "restless materiality"—one that not only resists human intentions but actively reshapes them. When we fully acknowledge the complexity of exchanges between environments and societies, the notion of relegating agency to the realm of human intentionality seems wholly inadequate. What sorts of implications, both theoretical and

practical, flow from this realization? How do we tell stories, about ourselves and our surroundings, with a more composite and nuanced understanding of agency? While no consensus is attempted here, the contributors to this volume all suggest that thinking about unruliness is at once salutary and timely. It makes us better scholars—and probably humbler citizens, too.

This volume is the result of a February 2014 workshop sponsored by the Rachel Carson Center and hosted by the Nehru Memorial Museum and Library in New Delhi, India, and the Ashoka Trust for Research in Ecology and the Environment in Bangalore. During two days of discussion and presentations, the participants pondered the epistemic and practical challenges that unruly environments pose. Purposely informal and at times even playful, the essays that follow endeavor to promote the efficacy of unruliness as a theoretical tool. For example, in her examination of the ancient Deccan Plateau of south-central India, Aloka Parasher-Sen argues that unruliness developed among the interstices of coterminous landscapes or spaces that illuminated "the diversity, variability, and interdependence of complex entities." As people migrated into and out of the plateau seeking sites of settlement, economic opportunity, and developing religious and artistic traditions, they found themselves in a "constant state of negotiation" with the natural world. Unruliness lay in the disorder that more often than not denied the push of progress.

Several essays demonstrate how unruliness developed when the vicissitudes of nature frustrated imperial designs. In his study of Cherrapunji, in the present Meghalaya State in India, Sajal Nag argues that the extreme wetness of the region—one of the rainiest places on earth—challenged British efforts to assert control over the area and even caused imperial authorities to flee. Samuel Temple's account of hydraulic engineering projects in French Algeria echoes the importance of unruly environments for imperial rule, focusing on the ways in which French efforts to eradicate environmental risks in fact fertilized new ones that undermined their claims of conquest. Similarly, Paul S. Sutter's essay on the construction of the Panama Canal shows how unruliness shaped the concerns of canal planners who sought to control Panama's tropical environment, including the mosquito-borne illnesses that plagued their efforts. The concept of unruliness, Sutter explains, allows us to replace narratives of environmental conquest with those of "hybrid environmental management."

Two essays examine the ways in which unruliness forms when human modifications to the environment engender new interactions with wild animals. In her study of the Central Himalayas, Radhika Govindrajan shows that unruliness forms and is most clearly observed through the collective interaction between humans, plants, animals, and the divine. "Their unruliness," she concludes, "is manifest in their capacity to transgress human expectations of them." Siddhartha Krishnan, focusing on the post-independent fate of Toda grasslands in the Indian state of Tamil Nadu, associates overgrowth and loss of visibility with environmental unruliness. He argues that afforestation campaigns of once open grassland have led to an increase in perceptions of predatory risk, as tigers reoccupy lands patiently cleared for generations.

Two more essays examine the ways that unruliness forms when nature challenges the human need for permanence. In his study of Malibu, California, Christof Mauch shows how efforts to create a coastal "paradise" were thwarted by wildfires, heavy rains, and landslides. This, he contends, came to represent the "creation and expulsion from (our self-created) Eden." Unruliness, his essay demonstrates, is a product of our own making. Similarly, Christopher L. Pastore posits that unruliness is the human perception of disorder. Nowhere is the contrast between order and disorder more evident than alongshore, where the forces of stability on land communicate with the dynamism of the sea. Finally, the issue concludes with analysis and critique by William Beinart.

By implying that natural forces have somehow broken human rules, the term unruliness reveals a deep-seated belief that humans can and should dominate the world around them. Unruliness emerges when environmental conditions disrupt human efforts to impose order, often creating fear and financial loss. But lest we forget, unruliness can also create a space for opportunity and enterprise. Even as unruliness frustrates us, it can also enrich the human condition.

This volume discusses geographical influence on society. For the volume, and the conference it emerged from, the long corridors of the Rachel Carson Center (RCC) have remained most consequential. It was here that we first excitedly discussed unruliness. The center served as an influential space for social and intellectual camaraderie that reflected the RCC's spirit. We warmly thank Christof Mauch and Helmuth Trischler for a most memorable, progressive, and productive stint in Munich. We also thank the Nehru Memorial Museum and Library, New Delhi, and its director Mahesh Rangarajan for hosting the Unruly Environments conference and providing local hospitality. For their editorial support, Stephanie Hood, Katie Ritson, and others deserve our deepest appreciation.

Ruling Nature

Samuel Temple

Unruly Marshes: Obstacles or Agents of Empire in French North Africa?

As long as marshes have not totally disappeared, Algeria's prosperity will not be complete.
— Dr. François-Clément Maillot, 1975

Out of the reclaimed marsh grow men strong and vigorous, "good for the plow, and good for the battle."
—Dr. Edmund Sergent, 1947

Environmental historians struggle to describe the contact zone between nature and society. It is our Bermuda Triangle, easy to lose one's bearing in. We meet other curious souls there, trying, like us, to gauge the horizon, the relationship between people and their surroundings, the distance between past and present. It has become a home of sorts, although it is unruly—full of complex exchanges, subtle flows, and sudden collisions. How do we describe this intertidal zone, this convergence of human and nonhuman, and to what end? What of our historical actors? Were they merely buffeted by its currents, or do they have things to teach us? Were the boundaries between nature and society any clearer to them? The obscure history of marshes in North Africa is as good a place as any to consider such (unruly) matters. Through a short account of French reclamation in Algeria, I suggest that it is precisely between two divergent notions of environmental agency—environments acted upon and environments acting—that unruliness emerges as a provocative and potentially useful theme for environmental historians.

Where Soldiers Die and Empires Are Born

At first glance, the presence of marshes in colonial North Africa may seem anomalous. Historically speaking, too little water—rather than too much—was the environmental challenge of this region for natives and settlers alike. Sensibly, historians have tended to focus on how aridity shaped colonialism, both as an environmental constraint and

a discursive set of claims and fears about the environment. Yet lingering on the boggy edges of empire has its rewards. Upon closer examination, marshes have much to tell us about the nature—in both senses—of French colonialism. During the formative years of French conquest and occupation (1830–70), the greatest environmental challenge was *too much* water. Marshlands stood between the coastal cities and the Algerian interior and became formidable obstacles to French colonial aims. Soldiers and settlers alike fell victim to their malarial airs. Yet, paradoxically, marshes not only repelled imperial aims; they enabled them, becoming vital pathways of empire. Their transformation into productive agricultural land became a key part of French colonial identity, a symbol of environmental mastery and, by extension, cultural supremacy. That these marshlands ultimately proved difficult to control indicates just how unstable that identity—and mastery—was.

French expeditionary forces landed at Sidi Ferruch in 1830 and quickly captured the coastal cities. Their progress was slowed, however, once they turned their attention inland, towards the vast marshy plains to the south. Known as the Mitidja, the region was both prime settlement territory and a strategic gateway to the Algerian interior. Unfortunately for the French it was also malarial. The Mitidja quickly gained the reputation as a man-eater. This "killing climate" fouled the air with noxious miasmas, those invisible agents of disease that dominated the medical imagination prior to, and even after, the advent of germ theory. The French had good reason to fear the region: despite the fierce resistance of Algerian tribes, the biggest killer of French soldiers was malaria. Between 1830 and 1860, soldiers in the *Armée d'Afrique* were 33 times more likely to die of malaria than from military action. Expeditions and outposts in the Mitidja suffered particularly high mortality rates, and tales of death and disease became part of military lore. Bouffarik, a military colony literally built on top of marshes, became synonymous with death. In a single year, the "climate sickness," as many called it, claimed 92 settlers and three successive priests sent to administer last rites. Faced with such losses, military leaders grew skeptical about settlement. It took only a few months after their arrival in 1830 for the first French commander to declare the Mitidja—and by extension, all of Algeria—unfit for French living, concluding it was "nothing but one great cesspit" and the "tomb of all those who dare cultivate it." Ten years later, his successor glumly concurred: "Cemeteries are the only growing colonies that Algeria supports."

The Mitidja did not repel all its suitors, however. For pro-settlement groups, the road to empire ran through, not away from, the marshes. What better theater to demonstrate the genius of French civilization and its mastery of nature? Embracing a narrative of environmental ruin that served so many would-be European colonizers, colonial boosters blamed Turkish decadence and Arab ignorance for the creation of marshes. According to them, the heroic work of the Romans had been squandered, their irrigation and drainage systems reduced to ruins. The French would take up the mantle of their imperial forebearers, remaking the region into the granary of a new empire. The transformation of sickly marshes into healthy and productive fields would vividly illustrate—and thereby legitimate—the French civilizing mission. In the end, settler optimism, fueled by feverish dreams of colonial riches, won out over military skepticism. Henceforth, the Mitidja became both the material and symbolic site of French claims of environmental agency and, by extension, the environmental impotence of Algerians.

Water Out of Place

Once the major campaigns against native forces were over, military and civilian engineers waged a parallel war on the Mitidja, intent on transforming it into a land fit for Europeans. Engineers bent themselves to the task of "rationalizing" the hydrology of the Mitidja. For the French, this meant fighting against basic realities of climate and hydrology. More rain actually fell in Algiers than Paris, but unhappily for the French almost all of it came in the winter months, usually in torrents. The Mitidja was essentially an enormous catch basin for seasonal run-off, collecting waters from the Atlas Mountains to the South. With water rich in limestone and other debris, the rivers, or *oueds,* that tumbled down into the flat plains of the Mitidja slowed and spread out. With only one main outlet to the sea, the rivers bled their waters into surrounding areas, creating seasonal marshes and stagnant pools—breeding grounds for malaria-carrying *Anopheles* mosquitos. To combat these inconvenient truths, the French created hydraulic networks. Engineers, with the help of much forced native labor, scored the landscape with drainage canals and ditches, using the natural slope and paths of the four major river basins to ensure a suitable gradient.

The immediate goal of this hydraulic engineering was to create a landscape suitable for commodity production, primarily wheat, orchards, vineyards, and livestock. By the

1850s, some colonial observers were already talking about the "miracle of the Mitidja." The village of Bouffarik, once considered deadly, became a testament to French environmental mastery. The transformation of its sickly marshes into healthy and productive crops became a symbol of the French civilizing mission. As one former resident recounted, "engineers pulled Bouffarick out of the mud, drained its marshes, altered the course of rivers, leveled the soils, planted orchards, gardens and forests . . . Today the climate is excellent, the air is salubrious . . . Bouffarick has become the healthiest, happiest and most prosperous of all French settlements." Engineers were not only reclaiming marshes; they were inventing a new landscape of French belonging.

Yet celebrations over the conquest of marshes were premature. In the summer of 1857, a mysterious epidemic broke out across the Mitidja. The colonial governor sent out anxious missives to his prefects and engineers, asking for their opinions about its cause. The responses reveal an interesting shift in attitudes towards environmental agency. While there was a general consensus that the persistence of marshlands, fed by an unusually wet winter, contributed to the outbreak, most pointed to another, unexpected agent of disease: the drainage networks themselves. The problem, it seemed, was one of *curage*, the cleaning and upkeep of canals and ditches. The matrix of man-made channels had begun to clog up from the siltation of limestone-rich waters. Vegetation grew quickly in the nutrient-rich sediment: marshes were being reborn inside the very technology designed to eradicate them. It made little practical difference whether one believed that illness spread by miasma or mosquito. The French were engineering their own insalubrity now; or, rather, their engineered landscape was.

The displacement of risk from marshes to infrastructure, from native to colonial nature, turned narratives of French environmental agency inside out. Unruly nature emerged from inside the systems designed to control it. Understandably, fingers were pointed. Engineers and state officials blamed settlers for not maintaining their hydraulic systems. Settlers, on the other hand, viewed lingering insalubrity as a failure of state, not society. It simply had not done enough. One observer wrote acidly in 1863: "Unfortunately, neither Arabs nor emigrants are completely to blame. If the land, abandoned and used for centuries, exhales its feverous miasmas, if pestilent marshes persist, if there are not enough trees to purify the air, and if the rivers are, for the most part, unhealthy, the fault lies partly with the state for not improving and draining the lands enough."

Despite these setbacks, the development—and myth—of the Mitidja continued apace. With lands prized from native Algerians—through military and legal violence—European settlers spread across the region. Soon, the "miracle of the Mitidja" became a testament to the hardy frontier souls who dared to cultivate it. Its story, often repeated, cast settlers, not the French state, as the true environmental agents of the colony. Nature, like the Algerians themselves, had been conquered, disciplined, and retrained. That, at least, was the story.



Poster Commemorating the Centenary of the Conquest of Algeria by France (Henri Dormoy. "L'Algérie 1830–1930." Poster. 1930. Pays de grande production agricole. Imp. Paris).

From Miasma to Malaria

When participants gathered in Algiers for the Second International Conference on malaria in 1930, the first tour they took was through the Mitidja. Once an "infected plain," they were told, the Mitidja was now healthy and prosperous, thanks to French engineering, French settlement, and, most recently, French science. In truth, the emergence of malarial science contributed little to the conquest of the Mitidja. True, the discoveries of the plasmodium parasite by Alphonse Laveran (himself stationed on the edge of the Mitidja) in 1880 and of the *Anopheles* vector by Ronald Ross in India in 1897 shifted attention from miasmas and marshes to mosquitoes and humans. Antimalarial programs attempted to control the human "reservoir" of plasmodium parasites through spleen exams, quinine distribution, screen installation, education, and, to a lesser extent, segregation. Yet environmental engineering, despite its grounding in miasma theory, remained an important part of French antimalarial campaigns. New drainage projects, insecticide spraying, canal cleaning, even the introduction of mosquito fish all focused on reducing the breeding habitat for *Anopheles*. Above all, the antimalarial campaign understood the importance of maintaining French waterworks. As Edmond Sergent, head of the antimalarial services and president of the Pasteur Institute in Algiers, wrote in 1933, "domesticated waters offer no habitat for Anopheles."

Water, however, kept finding ways to evade domestication. Indeed, the very existence of an antimalarial service spoke to the persistent unruliness of the Mitidja. One of Sergent's main concerns was the clogging up of the Mitidja's plumbing a now vast hydraulic network of canals, drains, and ditches. Siltation was an ever-present challenge given shallow gradients and the high percentage of limestone and other sediments suspended in the water. As in the 1850s, the hydraulic landscape had, inadvertently, fostered the growth of a new kind of marsh, a "linear marsh" of choked drains and ditches. It was no coincidence that the first antimalarial campaign targeted railway lines and stations where drainage ditches and mixed crowds of Europeans and Algerians converged. Although championed as proactive measures, antimalarial campaigns highlighted the flagging environmental agency of both settlers and the colonial state. Colonialism had overcome one set of environmental risks only to encounter other, more complex risks that emerged from the very infrastructure and institutions of empire itself. The eruption of environmental unruliness anticipated the social and political unruliness to come.

Unruly Histories

What difference does unruliness make, both in the histories we seek to understand and the stories we choose to tell? In the case of French Algeria, paying attention to unruliness underscores the ecological uncertainty of colonial rule, something that gets lost in more instrumentalist readings of colonial environments. There is now a formidable scholarship on how narratives of environmental degradation served to reinforce colonial claims over both resources and people. Caroline Ford and Diana Davis, both prominent environmental historians of France, argue that exaggerated stories of deforestation justified and legitimized colonial conquest in North Africa. Yet one is hard-pressed to find nature "talking back" in these accounts. Ideologically charged, it remains strangely inert and mute. Unruliness helps one tune in to the ways that nature escapes through the cracks of instrumentality, and how it exceeds the boundaries and meanings we attribute to it.

Many environmental historians would probably vigorously deny that they are deaf to the unruly speech of nature. Many would probably nod in agreement to Timothy Mitchell's provocative question, "Can the mosquito speak?" After all, what is the point of environmental history if you have little sense of nature's agency? Yet I think there is a way we fancy ourselves—environmental historians, that is—as the only ones who hear these strange

noises. According to Mitchell, the British in Egypt were incapable of grasping the composite agency of nature because they were unwilling to disentangle the knot of political, technological, economic, and ecological regimes that together supported their empire. According anyone, or anything, with environmental agency threatened the very assumptions of modernity and its exaltation of European rationality. Yet it seems clear, at least in Algeria, that the French were aware of the tangled web of environment and infrastructure, ecology, and politics. That modernity produced new, more complex sets of risks was not lost on them. I think this is so because, as Bruno Latour suggests with a wink, "we have never been modern." French colonial order certainly attempted to maintain rigid distinctions between nature and culture, just as it did between native and settler. But everywhere you look you see evidence of how much work that actually took, of how incomplete its workers knew the project to be, and how they, almost despite themselves, struggled with their own assumptions about agency. And so, to finally come around to my next reason for attending to unruliness: it is also useful for sweeping away some of the cobwebs that still cling to our assumptions about modernity, then and now. In some ways, one might argue that our historical subjects were more, rather than less, attuned to their unruly worlds. In that case, we have as much to learn *from* them as we do about them.

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Paul S. Sutter

Triumphalism and Unruliness during the Construction of the Panama Canal

"Unruliness" as a concept has many potential applications for environmental history, but it seems particularly useful for analyzing the confluence of imperialism, modernity, and environmental control. Scholars of imperialism have long examined aspects of rule and unruliness in human terms, but have only recently focused on environmental management as a central activity of imperial powers, particularly their limited or mixed success in their efforts to rule the more-than-human world. Environmental forces have sometimes been powerful in reshaping or compromising imperial rule and creating tensions between the ideologies and material practices of empire. Environmental historians would do well to attend to such unruliness. Historical examinations of environmental unruliness are also valuable at moments of high modernity, when environmental managers have been keen to engage in, hide behind, and justify their actions based upon narratives of environmental mastery. In these cases, unruliness seems a potent tool not only for challenging boasts about environmental conquest and for making a case that the more-than-human world was rarely quite so controlled as its modernist masters believed, but also for interrogating modernity's penchant for splitting the world into discrete social and environmental categories. In this sense, as scholars such as Timothy Mitchell have shown, unruliness can be used to show how the nature-culture divide has itself been a product of, and a crucial strategy for, imperial and high-modernist environmental management. Recognizing environmental unruliness in history, then, is not merely to animate a nature that resists human mastery; it is to point out how such discrete social and environmental categories cannot contain or adequately describe material power.

The moment of imperial modernity for my research has been the construction of the Panama Canal, an engineering feat achieved a century ago by a specially created branch of the US government called the Isthmian Canal Commission (ICC), along with various subcontractors and a massive and diverse labor force. The US entered the new nation of Panama in the early twentieth century with a distinctive vision for imperial administration: the Canal Zone was less a colony or sphere of economic influence—though it did have aspects of both—than it was an engineering and public works enclave, a ten-mile-wide strip of imperial modernity meant to stand in contrast to its environmental and social

surroundings and to define its modernity by that contrast. Within the confines of that strip, the US canal commission was deeply concerned about whether they could control the tropical nature of Panama, particularly the distinctive threats to human health posed by "tropical fevers" such as yellow fever and malaria. Such concerns were not unique to this US errand in the tropics: European imperial powers also worried about the toll taken on the health of temperate peoples, and how they would control, develop, and rule tropical regions under such adverse environmental circumstances. The British sociologist Benjamin Kidd's 1898 treatise, *The Control of the Tropics*, is a perfect example of this concern about the tropics as an unruly global space. While Kidd was convinced that the tropics held vast riches if the region could be developed to Western standards, he also insisted on "the innate unnaturalness of the whole idea of acclimatization in the tropics, and of every attempt arising out of it to reverse by any effort within human range the long, slow process of evolution which has produced such a profound dividing line between the inhabitants of the tropics and those of the temperate regions." In the tropics, he noted, "the white man lives and works only as a diver lives and works under water."[1] Tropicality was thus a powerful imperial environmental imaginary.

Nowhere in *The Control of the Tropics* did Kidd discuss the Panama Canal, but the book was written with a clear sense that "the American people, are, in their relations to the tropical regions of the earth, passing through a period of development which . . . is likely to profoundly influence the history of the world in the twentieth century."[2] The US entry into Panama in the first years of the twentieth century was central to that "period of development," and US Americans approached Panama with the same anxieties about how they would—or whether they could—master the tropics. As Kidd intimated, the construction of the Panama Canal was a critical early moment in a long history of US developmental modernism moving out into the rest of the world. It was a project utterly predicated on successful environmental management and a fortified environmental management state. Moreover, and along with the occupation of the Philippines and other new territories of the US empire at the turn of the last century, the construction of the Panama Canal was a classic case of the place of sanitary administration in imperial rule. The successful completion of the canal in 1914, and the public health administration that made it possible, proved to many that the anxieties of commentators such as Kidd were misplaced and that the tropics could be mastered.

1 Benjamin Kidd, *The Control of the Tropics* (New York: The Macmillan Company, 1898), 30, 54.
2 Kidd, *The Control of the Tropics*, v.

The completion of the Panama Canal was accompanied by an outpouring of literature on the achievement, marked by what I call "tropical triumphalism." In a remarkable flurry of books—dozens of them appeared in the 1910s alone—participants and commentators celebrated the United States' achievement at Panama as a conquest of nature, and particularly of tropical nature. James Bryce, the British Ambassador to the US from 1907 to 1913, nicely captured this triumphalist wave of sentiment when he evocatively referred to the Panama Canal as "the greatest liberty Man has ever taken with Nature." This Anglo-American triumphalism was thoroughly rooted in a discourse on how US administration, informed by the latest scientific discoveries and technological innovations, had mastered adverse environmental circumstances. Observers celebrated the triumph of modern US science and engineering, which would usher in a coming century of what the historian Michael Adas has termed "dominance by design." They also crowed about the US piercing of the isthmus and their creation of a new passage to India, a geographical rearrangement that qualified US Americans as a new breed of geological agents. Perhaps most importantly, this triumphalism celebrated the US Americans' apparent unlocking of the tropics to future development. As Bryce himself put it, echoing many other commentators, the completion of the Panama Canal, and particularly the successful sanitary administration on the isthmus, "has opened up possibilities for the settlement by Europeans of, and for the maintenance of permanent European population in, many tropical districts hitherto deemed habitable by their natives only. To the effect of such an example one can hardly set bounds." This tropical triumphalism suggested that the completion of the Panama Canal was a moment of environmental mastery that would reverberate through what Henry Luce called the American Century.[3]

I have come to see the "tropical triumphalism" that marked the canal's completion as one of its most important historical features.[4] In Panama it was a formative expression of a dominant modernist approach to nature, one that masked the incompleteness of US environmental mastery even as it naturalized the social and racial inequities built into the canal-building process. As we mark the centennial of the canal's completion, it is a particularly important moment to recognize that the lessons US Americans took from Panama would carry through many other major environmental manage-

3 James Bryce, *South America: Observations and Impressions*, corr. and rev. ed. (New York: The Macmillan Company, 1917 [1912]), 30, 36.

4 Paul S. Sutter, "The Tropics: A Brief History of an Environmental Imaginary," in *Oxford Handbook of Environmental History*, ed. Andrew Isenberg (New York: Oxford University Press, 2014), 178–204.

ment achievements of the twentieth century—from the construction of the Hoover Dam through the hubristic embrace of chemical pesticides, to the various efforts to export environmental control as a hallmark of US-style development. Such claims of environmental mastery shaped the early field of environmental history in important ways. It was this rhetoric of tropical conquest that first drew me to consider this topic two decades ago, at a moment marked by another critical anniversary—the Columbian quincentennial—when many historians were avidly revising how we understood human conquests of various sorts, and when environmental historians were pointing to the environmental nature of those conquests. Early US environmental historiography formed part of this reconsideration of conquest as a process driven by ideological arrogance and adverse material environmental, as well as human, impacts. Two decades later, environmental historians have raised important questions about the nature of environmental modernity itself, questions that have reshaped my approach to the Panama Canal's environmental history. Rather than just pointing to the dark underside of environmental mastery, and to the costs of environmental modernity, I have come to question its very logic in Panama. The tropical triumphalism of the US certainly contained a lot of truth: where others had failed, the US completed a canal across Panama, and to a large degree their control of the disease environment was a critical part of that process. But in the two decades since I first stumbled into this research, I have become more intrigued by Panama's unruliness in the face of US rhetorical celebration, and more critical of how triumphalism sorted the material aspects of US administration into discrete categories like the natural and cultural, or the tropical and temperate.

Tropical triumphalism has acted to obscure a more ambiguous material environmental history of canal construction. The disease problems that US Americans often assumed to be essentially tropical were in fact problems that the canal project had a large part in creating—mostly because the various environmental disturbances of canal construction created ideal breeding grounds for vector mosquitoes while the social arrangements of labor reshaped the epidemiological dynamics of the isthmus.[5] Describing US sanitary achievements in Panama as a kind of tropical conquest glosses over the extent to which US Americans were scrambling to control a set of environmental and social conditions that they themselves were co-creating. Tropical triumphalism also skewed medical priorities in ways that downplayed major public health problems

5 Paul S. Sutter, "Nature's Agents or Agents of Empire? Entomological Workers and Environmental Change during the Construction of the Panama Canal," *Isis* 98 (2007): 724–54.

on the isthmus—pneumonia and tuberculosis—which US officials initially neglected because they did not seem tropical and did not threaten white US workers. Indeed, the rhetoric of tropical conquest generally missed how intertwined environmental and labor management were in US sanitary efforts at Panama. In terms of the US sanitary achievement, the Panama Canal was not a place of tropical environmental conquest but a space of hybrid environmental management. This was a lesson not easily rendered in triumphalist rhetoric, which required a discrete nonhuman nature that could be mastered by a superior culture.

In a broader engineering sense, this approach to seeing the unruly in moments of alleged environmental mastery encourages us to see the Panama Canal not as nature dominated by human engineering, but as a piece of infrastructure that mixes both. The anthropologist Ashley Carse has emphasized the incompleteness of the canal's 1914 realization, and by suggesting how much the canal has been a partnership between human engineering and the environmental services of the canal's watershed. Without discounting the important achievements of US sanitary officials during the canal construction period, we might similarly conceptualize the US sanitary program in Panama in such hybrid terms. To the extent that the sanitary program allowed those from the US—and the legions of West Indian, southern European, and other non-US workers—to complete the canal, it might justifiably be celebrated as instrumentally important. But to see it as a conquest or mastery of tropical nature is to misunderstand both the environmental and the social history of canal construction. In Panama, unruliness is thus a concept that allows us to escape the confines of the modernist nature-culture split and to see the unruly in hybrid or co-produced ecologies, perhaps as a defining part of them. Unruliness allows us to push beyond a basic notion of the "agency of nature" to see the more complex causative forces of the more-than-human world.

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Sajal Nag

Rain, Rain, Come Again: Cherrapunji, the Rainiest Spot on Earth

In Cherrapunji, in the East Khasi Hills of the present Meghalaya State in India, the British established a hill station in 1831 where they could escape the tropical heat of the Indian plains. British officials were attracted by the cool climate—a result of the heaviest rainfall in the world— and soon made it the administrative headquarters of northeast India. So impressed were they with Cherrapunji that the agent to the government general was willing to exchange "a portion of the bold and sterile land [in the plains] for a slice of fertile land below [in Cherrapunji]." He immediately recommended a sanatorium be established to aid the recovery of European military men. But the Cherrapunji station had to be shifted to Shillong, since the area's wetness threatened soldiers' health and challenged efforts at imperial administration. The soils in Cherrapunji held very little moisture, so despite the precipitation drinking water was scarce. This paper investigates how climatic unruliness vexed British attempts to assert control while providing an opportunity for local people. Both substantially inherent in the place and imagined in the minds of imperial authorities, Cherrapunji's "unruliness"—its enduring sogginess—fundamentally shaped human decision making.

The Making of Cherrapunji

Cherrapunji is a cluster of hilltop villages situated 51 kilometers from Shillong, the capital of Meghalaya. The earliest reference to the rains of Cherrapunji was made in 1827 by David Scott, who wrote: "We have had almost incessant rains and mists here since the 28th last [May 1827]. This is a great drawback on the climate of the place . . . The quantity of rain that falls here in April and May must be at least ten times as much as they have at Nongkhlaw."[1] Scott's estimates were corroborated by Dr. W. Cracroft, who began measuring rainfall in Cherrapunji in June 1832. He measured nearly 577 centimeters of rain in four months, making Cherrapunji one of the wettest places, if not *the* wettest place, on the globe. The *Imperial Gazetteer* in 1908 declared Cherrapunji the wettest spot in Asia, with an extraordinary annual rainfall average of 1,163

1 Scott to Lamb, 10 June 1827, cited in R. B. Pamberton, *Eastern Frontier of India* (Calcutta, 1835; rev. ed., Delhi: Mittal Publishers, 1979), 247.

centimeters. The cause of this heavy precipitation was clear: the Khasi Hills rose from the plains, halting the southwest monsoon that drove across the flooded territories of Eastern Bengal and Sylhet. The air, saturated with moisture, would rise, cool, and be precipitated as rain. It was this rain that attracted the British.

Rain's Oppressions and Disappearance

The rainfall that attracted the British brought challenges as well as benefits. Catholic missionaries in the area reported:

> Such heavy rains produce extreme dampness which penetrates everything, causes severe soil erosion and floods as the water rush down to the plains. Tables, chairs, benches etc. must be fixed with bolts. Otherwise they fall to pieces. Iron bolts cannot be used because they rust and become loose. Only wood and brass can be used. It is the same with nails. Shoe nails must be made of wood! Leather articles get mildewed and deteriorated. Books disintegrated and become discoloured. New books no longer new after a rainy season! Clothes, linen, bed sheets and blankets are always damp and have an unpleasant odour. One longs for sunshine in order to bring everything out into the open air to dry. Salt melts and medicines are spoiled. Flour and rice become lumpy unless they are cooled in air tight containers or kept in a heated room.[2]

Protestant missionaries faced similar difficulties. "Most of my time," noted one Welsh Presbyterian in 1841, "is occupied in saving our goods from being ruined by the rain. No sooner have we dried the contents of one box than we must open another to dry the contents of that and so on with all our belongings."[3] Even when it was not raining, Cherrapunji was almost always cloudy. Intervals between rains were occupied by deep fog, which shrouded the area in darkness. A lack of light and confinement indoors caused depression, and many resorted to drinking. Alcoholism became a major problem among Europeans living in Cherrapunji; prolonged depression led some to take their own lives.

2 Christopher Becker, *History of the Catholic Missions in North East India* (Shillong: Vandrame Missiological Institute, 1980), 201–2.
3 John Hughes Morris, *The History of the Welsh Calvinistic Methodists' Foreign Mission to the End of the Year 1904* (1910; repr., Delhi: Indus, 1996), 88.

Paradoxically, the ceaseless rains of Cherrapunji also left the region in want of drinking water. British officials tied this water scarcity to the soil's inability to retain moisture. One possible cause was topsoil erosion; early botanical reports by William Griffith as early as 1837 showed that there were very few trees. In 1850, the geologist Thomas Oldham posited that the Cherrapunji grasslands had developed gradually through natural processes. Over time, heavy rainfall had carried off the thin, loose layer of topsoil. In the early 1850s naturalist Joseph Dalton Hooker came to similar conclusions, asserting that the absence of forests in Cherrapunji was natural. Conditions had grown so difficult for Europeans by that time that the Cherrapunji station had long since been abandoned. In 1834, when the last British soldier left the hills, the Court of Directors lamented that "so much expense should have been incurred in the prosecution of an experiment which has so completely failed."[4]

If nineteenth-century "experts" had believed that the Cherrapunji landscape was completely natural, by the twentieth century it was widely recognized that humans had modified it in significant ways. Since antiquity, trees have been harvested across the region to produce charcoal for iron production. In addition, the local Khasi people had long practiced slash-and-burn agriculture among existing forest stands, barring a few hundred hectares that were preserved for religious reasons. But it was British corporations, such as the Peninsular and Oriental Company, which made the biggest mark in the shortest time. Coal, limestone, petroleum, and sandstone extraction and firewood collection led to dramatic landcover change. Combined, these pursuits decimated the remaining forest stands, causing soil erosion and converting much of Cherrapunji into unproductive wasteland. Over the course of the twentieth century, forest cover across the region was reduced by more than seven percent. Forests play a vital role in generating rainfall: in the absence of adequate tree cover less rain falls, and when it does fall the water runs quickly over the landscape, scouring the soil of valuable nutrients. From the 1940s there grew a lurking suspicion that annual rainfall in Cherrapunji was declining. There was an acute shortage of drinking water in the winter months despite heavy rainfall in the summer—a case of "water, water everywhere/nor any drop to drink."[5] Environmental scientists have begun to label Cherrapunji a "wet desert," where rainwater simply drains into the plains, leaving very little on the hilltops. A

4 David Reid Syiemlieh, *British Administration in Meghalaya: Policy and Pattern* (Delhi: Heritage Publishers, 1989), 50.
5 Samuel Taylor Coleridge, *The Rime of the Ancient Mariner* (London: J & A Arch, 1798).

nearby village called Mawsynram (about 16 kilometers from Cherrapunji) was labeled the new recipient of the heaviest rainfall: from 1941 to 1979 its annual average rainfall was 1,186 centimeters, while Cherrapunji received only 1,153 centimeters. Another report suggested the highest rainfall to be in Waialeale on the Hawaiian Island of Kaua'i. Deforestation had clearly taken its toll, and so Cherrapunji's—and the Khasi people's—claim to fame had begun to dry up.

Conclusion

Cherrapunji was a sleepy hilltop village in the remote northeastern frontier of India, discovered as a consequence of the colonial search for a cool place suitable for European sensibilities. In the course of their stay, the British discovered it to be the wettest place on Earth, but the rainfall proved to be too precarious to administer the region efficiently. The British abandoned Cherrapunji, escaping to the safety and serenity of Shillong, but the colonial presence lingered. British corporations removed Cherrapunji's mineral wealth and the trees that held it in place, leaving it a barren wasteland. It proved ruinous for a place whose geological and climatic patterns limited the types of plants that grew there. Eventually, European colonists, traders, miners, and speculators left Cherrapunji to the Khasi people, and the rain. Its barren land and exhausted mines left precipitation as the region's only resource. What had been a source of unruliness for British authorities created a sense of stability for the Khasi, who earned a living from the visitors who came to see the rain. But with rumors of dwindling rainfall and growing competition among other high-rainfall locations, this source of livelihood became threatened. Alas, all they could do was hope and pray for the rains to remain.

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Nature Strikes Back

Radhika Govindrajan

The Man-Eater Sent by God: Unruly Interspecies Intimacies in India's Central Himalayas

The distinctive silhouette of the *toon* trees that guarded a small temple in Poli—a hamlet in the Kumaon region of India's central Himalayan state Uttarakhand—were a welcome sight on a cold December night of 2012.[1] Although the path to the temple was illuminated by moonlight, our group of eight carried torches. No one was sure if the man-eating leopards that had attacked and killed several women in nearby villages were dead or alive, but we were certainly not taking any chances.

After a woman had been killed by a leopard the previous October, people were terrified of leaving the safety of their homes after dark. For once, the state's response was quick.[2] The leopard was declared a man-eater, and Lakhpat Singh Rawat, a Garhwali hunter hailed in the vernacular and English press as a modern Jim Corbett, was brought in to destroy it. In the middle of October he shot an adult leopard that he claimed was the culprit. Yet just as people began to let their guard down, a second woman was killed by a leopard in the same area, and then another. There were rumors that Rawat had shot the wrong leopard, but it was also possible that there was a second on the loose. After ten days, Rawat shot another leopard, and the local administration declared that the region was now free of man-eaters. But shortly thereafter a fourth woman was killed and eaten: it appeared that the area was not man-eater free.

In December, a few weeks after these events, my friend Kusum asked me to join her on a trip to Poli, her maternal village, where some families were organizing a *jagar*—a god and spirit possession ceremony—in a temple dedicated to Golu *devta*, a powerful local deity. On the night of the *jagar*, Golu, speaking through the medium he had possessed, was answering people's queries about jobs and marriages when one elderly man asked him what villagers had done to deserve the terror they were enduring. "Save us from these man-eating leopards," he pleaded. "One is killed, and another follows. When will this end? What have we done to displease you?" The deity responded

1 The names of villages and people used in this article have been changed to preserve their privacy.
2 For an excellent ethnographic of the state's response to the arrival of a man-eating leopard in a small town in the Garhwal region of Uttarakhand, and its implications for an anthropology of the state and bureaucracy, see Nayanika Mathur, "The Reign of Terror of the Big Cat: Bureaucracy and the Mediation of Social Times in the Indian Himalaya," *Journal of the Royal Anthropological Institute* 20, no. S1 (2014): 148–65. See also Annu Jalais, People, *Politics and Environment in the Sundarbans* (New Delhi: Routledge India, 2011)"

angrily. For centuries, he declared, the fields by the forest had been home to a temple, but this land had been sold to an outsider. The recent events were a consequence of people having forsaken their deities in pursuit of greed. The leopards, he warned, would keep coming until balance was restored.

On the way back from the *jagar*, I fell into step with Kusum's uncle, Mohan Joshi, a retired schoolteacher. When conversation turned to the *jagar*, he said that disregarding the deity's pronouncements would be foolish. "I'm not a superstitious man," he continued. "The government is saying that leopards attack people because the forest is being destroyed by humans and there is no food left there . . . There might be some truth [to that], but it's also true that leopards have *always* come into our villages. They come of their own choice and at the order of deities." When I asked what he meant by this he said: "Humans, animals, and deities have responsibilities towards one another. We have forgotten our responsibilities towards our gods. That's why killing one leopard after another will not do any good. They will just keep coming until we propitiate our deities . . . Leopards are also devotees [*bhakts*]. They are fulfilling their obligations to the gods."

Mohan's reflections capture how human-wildlife conflict is shaped by the unruly nature of human and nonhuman animals inhabiting geographies that overlap and intersect and are themselves unruly. Leopards visiting villages, he reminded me, was not a new phenomenon; the animals did so "by choice," not because they were compelled to by the destruction of their "natural" habitat. His observations are confirmed by wildlife biologists, who find that leopards in India are highly adaptable in having *learned* how to live in and around human-dominated, multi-use landscapes. Several point out that leopards thought to have "strayed" into zones of human habitation are actually constant but largely invisible *residents* of these spaces.[3] What is clear is that the "vibrant" and restless materiality of these animals means that they constantly transgress human imaginative placings of them in spaces of wilderness.[4] Across India leopards are creating new habitats in unexpected spaces that are remarkably different from one another. From visiting municipal rubbish dumps on the city's edge at night to sleeping in fields

3 T. R. Shankar Raman, "Leopard Landscapes: Coexisting with Carnivores in Countryside and City," *Economic and Political Weekly* 50, no. 1 (January 2015).

4 I borrow the term "vibrant materiality" from Jane Bennett, who makes a compelling case for the recognition of material agency. She notes that nonhuman bodies and things possess the capacity to make events happen, and that a "lot happens to the concept of agency once nonhuman things are figured less as social constructions and more as actors." Bennett, *Vibrant Matter: A Political Ecology of Things* (Durham, NC: Duke University Press, 2010), 21.

in the middle of the day, one could argue that they act as agents whose behavior produces results that do not always conform to human expectations. They are unruly beings with impulses and desires of their own, which can work with or against their human neighbors in this world of interspecies companionship.

The people who encounter these leopards in these spaces of contact recognize the effervescent, often ungovernable, vitality that they inject into situations, creating unexpected outcomes. In 2011, I overheard a conversation between a group of men about a man-eating tigress who had been attacking villagers in Corbett National Park. One of the men had just read an interview with a forest official who said that villagers were at fault for intruding into the buffer zone and disturbing the big cats; the group was both amused and angered by the comment. One of the men laughed and said: "Wait for the day when a tiger strolls into his office. Then he will know what it's like. I don't need to go to the forest, I see a leopard near my house every month. These forest officials can try and control us, but how will they control these animals?" His comment was a reminder of these animals' capacity to transform the course of life in ways that are neither desired nor anticipated by humans.

These unpredictable interspecies encounters occur in a shared landscape that is itself unruly and saturated with possibility. The absence of clear boundaries between field and forest in this region has been exacerbated over the last decade as a result of the growing abandonment of agriculture by young people who find it unprofitable and demeaning. Fields abandoned by humans are quickly reclaimed by secondary growth—mostly varieties of grasses, shrub bushes, and woody species grown by farmers in small quantities for fodder, fuelwood, and fiber. During the monsoons especially, grasses grow tall and thick, coming almost waist-high for some women. Some grass is cut for fodder, but as the human and livestock population of villages drops, much of this growth goes unchecked. Scholars working in other parts of South Asia have noted how, as fields are abandoned and villages depopulated, land once cultivated slowly reverts to wooded tracts, even as its bears the detritus of earlier habitation and cultivation. Similar processes of reclamation by "nature" are at work in the mountain villages of Uttarakhand.

This changing, ungovernable landscape creates microhabitats capable of supporting small groups of wild animals in the midst of cultivated and residential spaces. As

forests degrade and fragment, wild boar and deer move into these new habitats to be closer to the fields that they raid for sustenance. They are followed by leopards, whose work is made easier by the concentration of prey in these zones. It is here that people most often encounter these animals, in spaces once considered human domains. However, the unruliness of the landscape now makes it difficult, if it was ever possible, to separate a "human world" from a "wild world." These intersecting multispecies geographies refuse easy boundaries, offering instead a world of uneasy and messy cohabitation.

There exists a further layer of complexity to the unruliness emerging from, and shaping, these interspecies encounters. People like Mohan Joshi, the schoolteacher who told me that leopards were also devotees of local deities, believe that humans, animals, and deities live in a usually harmonious world of mutual obligation and responsibility. However, when someone is remiss in their duties, chaos can ensue. According to this perspective, the man-eating leopards acted as they did because the gods desired it. This belief was strengthened by the perception that even the state, with all its resources, was unable to deal with the refractory leopards. People asked how three man-eaters could emerge in succession within a month. Even if only one leopard was the culprit, the fact that two had been shot in a case of mistaken identity confirmed for many that the man-eater acted with divine sanction. People thus made sense of the leopards' unruly behavior in terms of the deep and meaningful relationships they believe animals to share with local deities. What permits such readings of animal behavior is a widespread belief that animals share certain social attributes with humans—as Philippe Descola puts it, "a hierarchy of positions, behaviors based on kinship, respect for certain norms of conduct."[5] As in many other social and cultural contexts, animals are perceived not as beyond the realm of the social, but as constitutive of it.

Let me return then to the question of unruliness. I have suggested that unruliness both emerges from and structures interspecies intimacies in the central Himalayas. The collective of human and nonhuman (animal, vegetal, divine) bodies is one marked by unruliness, which emerges through the ability of nonhuman actors to exert consequences by virtue of their materiality. In the blink of an eye, plants and grasses reclaim spaces that were under cultivation for decades; people would often exclaim

5 Philippe Descola, *In the Society of Nature: A Native Ecology in Amazonia* (Cambridge: Cambridge University Press, 1996), 88.

at how quickly fields became overgrown with grasses, shrubs, and trees, creating a patchwork landscape of field, forest, and an intermediate between the two. Animals like leopards, but also monkeys and wild boar, likewise inject their own unpredictable agency into interspecies life. Their unruliness is manifest in their capacity to transgress human expectations and to act in ways that have unexpected consequences.

People recognize and manage such unruliness by extending a kind of personhood to animals, based in part upon an understanding that humans and animals alike are subject to the power of local deities. This understanding of animals as devotees encourages culturally meaningful forms of mediation in cases where humans' unruliness—or, in this case, the unruliness of humans who forget their obligations to the gods and sell land with a temple on it—threatens to get out of hand. It is this unruliness, with its unexpected possibilities, which allows for the flourishing of an interspecies companionship rooted in more than just violence and fear. The relationships engendered are characterized by conflict, respect, fear, admiration, and other embodied forms of intimacy. If we are to understand the complex and multiple dimensions of the interspecies companionship at the heart of human-wildlife conflict, we must first recognize and theorize the complicated promise offered by these unruly edges.[6]

6 I borrow the term from Anna Tsing's wonderful essay on mushrooms and interspecies companionate relations: Tsing, "Unruly Edges: Mushrooms as Companion Species," *Environmental Humanities* no. 1 (2012): 141–54.

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Siddhartha Krishnan

Woody, Thorny, and Predatory Forests: Grassland Transformations in the Nilgiris, South India

The pastoral Toda people of the Nilgiris ("Nil" for blue and "Giri" for mountains) in the South Indian state of Tamil Nadu say things about their surroundings that suggest unruliness: they are dark, woody, thorny, and predatory, they say. An open and grassy landscape is a mid-twentieth-century memory; much afforestation has ensued since India gained independence in 1947. Grasslands are now patches or fragments in a landscape vegetated by eucalyptus wood lots, wattle thickets, and scotch broom undergrowth. The Toda find this landscape unruly, and my essay seeks to understand why by historicizing the reasons for this unruliness. The colonial conservation policy of preserving grasslands for their recreational amenities rendered the landscape vulnerable to post-independence development policies that were critical of such colonial patronage. When the landscape was afforested after independence, it was not only utilitarian concerns that formed nationalist rationale but also notions of sovereignty.

First, a disclaimer: not all Toda hamlets are in Wenlock Downs, a northwestern tract of the Nilgiris, which I specifically refer to as being unruly. Other Toda hamlets to the south and the west of the Nilgiris find themselves amidst woody vegetation, but there is a concentration of Toda hamlets in the Downs. As a lived-in region, they are visibly the most continuous afforested tract, and following the invasion of wattle and broom, they have come to resemble a runway landscape. On the Nilgiri Plateau I consider the Todas who live and work in the Downs to be most vulnerable to predatory risk and environmental stress, more so than other Todas and other communities. A brief anthropological and geographical introduction to the Toda and their grasslands is useful here.

Only 1,319 of the 2,498 grassy acres defined as Toda patta land ("patta" refers to an individual land title or right) are in the Downs. Toda patta lands are a common land tenure, created for the Toda in 1882; in 1893 these grasslands were included in the Madras Forest Act. A legally sanctioned common tenure managed under forest rules is unique in India: in British and independent India lands are normally held individually and are subject to revenue rules. But the British patronized the Toda, like they did their grasslands. The British created a special land tenure for the Toda, since the latter was

perceived, through the racially tinted colonial gaze, to have an assemblage of strange traits differing from common "native" traits. A robust physique, their peculiar language, the barreled houses in which they dwelled, and the possession of intimidating wide-horned buffaloes (*Bubalis bubalis*)—all formed this exotic assemblage. Because Toda grasslands also contained stunted tropical evergreen coverts called "sholas," and lay adjacent to forest reserves, they were brought under the forest administration's jurisdiction. With this brief history of Toda commons—and the disclaimer that not all Toda pastures are unruly, or that all Toda are vulnerable to such unruliness in their everyday lives—let me briefly narrate a controversy of the 1950s surrounding the beauty and utility of the Downs, which resulted in decisions that rendered them "unruly." We can then conclude with a more detailed discussion of landscape unruliness as the Toda experience it.

Toda Heartland becomes English Heartland

For millennia the Toda grazed and burned the upper Nilgiri Plateau in the northwest. They also intently maintained an open and grassy landscape. The dominance of grass was anthropocentrically maintained whatever the other biotic and climatic dynamics. Ecologists have suggested that annual fires also facilitate grassland dominance, although the presence of ground frost has also been linked to preventing the establishment of shola forest species. On this open and grassy landscape the Toda herded, penned, and milked their livestock, and sang about these broad-horned beasts and the endless open and green vistas; the landscape was at once a material achievement and a symbolic archive. The British sentimentally appropriated this landscape for its resemblance to that of their undulating, grassy, and marshy homeland.

In the 1950s, after independence, the forest bureaucracy sought to hasten an afforestation scheme for the Downs proposed when the Second World War had ended. The last British collector, along with the hill station elite whom he had mobilized, strongly resisted the scheme. At this point, the Downs were being "maintained" as a national park.[1] The tract provided amenities to the English, who used it for activities such as horse riding, jackal hunting, and subjecting the Toda to colonial ethnographic inquiry. It was here that a change of heart came about: the Toda heartland became an English heartland. As

1 Siddhartha Krishnan, "Maintaining the Lord Wenlock Downs of the Nilgiris, South India, as a National Park: Public Recreation, Game Preservation, Aesthetic Heritage and Popular Will (1930–1950)," unpublished manuscript.

Anthony Walker, an English anthropologist, wrote in his *The Toda of South India* (1986), this "transplant" of heart had less to do with the Toda losing interest in the area and more with the English institutionalization of their leisure and lifestyle interests: 20,000 acres were reserved for recreation and pasturage, and in 1900 the tract was anointed the "Lord Wenlock Downs." When the Second World War broke out and forest officials proposed the commercial production of wattle across 6,000 acres on the Nilgiris, records suggest that the Downs were also targeted. Other English bureaucrats, including collector MacQueen, saw the region's beauty as a respite from the dynamic "rush of modern life." The Downs deserved to be a national park, he argued. Deferring to preservationist sentiment, the government, while reasoning it unnecessary to legislate the Downs as a national park, passed an executive order that they be maintained as if they were. The Wenlock Downs Committee was established to oversee the maintenance and report periodically.[2]

The war ended in 1945 and India became independent in 1947. The Downs Committee discussed the question of passing legislation for the Downs to be designated a national park. The committee felt that, with a popular government in power, formal legislation to constitute the Downs as such "should have popular appeal," and the possibility of a hydroelectric scheme that could inundate the grasslands also influenced the committee's decision to propose legislation to the government. The committee was worried about the prospects that inundation posed for Toda grazing. Despite much bureaucratic discussion, the government never passed legislation.

In the mid-1950s, a bureaucratic argument of consequence broke out between McLaughlin, the last British collector, who worried about the aesthetic effects of development, and Subramaniam, a South Indian Chief Conservator of Forests (CCF), who sought to tap the Downs' economic potential. The 1939 afforestation scheme had not progressed well, but it gained traction post-independence. The CCF sought to fast-track the scheme. Whilst McLaughlin believed that the Downs was the most beautiful landscape in the world, Subramaniam saw revenue and employment potential for an impoverished nation. In the end, the nationalist notion of utility prevailed, and the government allowed the wattle plantations.

2 I discuss this interesting case of a landscape being maintained as a national park without being legislated as one, in my forthcoming paper "Maintaining the Lord Wenlock Downs of the Nilgiris."

A Subaltern Sense of Unruliness

Excessive British patronage attracted criticisms of being elitist, and this rendered the Downs more vulnerable to post-independence afforestation. The unintended risk of this afforestation is a hostile, woody, invasive, thorny, and predatory landscape. Tigers and leopards prey upon buffaloes from wattle thickets and thorny undergrowth; there is anxiety when schoolchildren, working husbands, and grazing buffaloes fail to arrive before the light fades. Consequently, the Todas find today's landscape stressful and are nostalgic about the grassy open land of the past; some elders refer to the period when the British hunted tigers on the Downs. But the Toda narrative is problematic: the tiger population in the upper Nilgiris, a sparse one historically, has in fact receded further. So why are tigers felt to be a greater problem today? The Toda say that tigers have historically been present in the Nilgiris, but claim that attacks were only occasional. Carnivores were conspicuous in an open landscape but are concealed in today's woody and thorny one. One Toda said: "Earlier you would know what is in an area in a single glance. Now if you go and look for your buffaloes, you know they are there but you have to first find one, get it to one place, then go looking for the others. As a result, you really do not know what's happening in there."[3] The disquiet of the Toda over loss of visibility is palpable when they recollect communication between hamlets in the past: they would flash mirrors at each other, and hamlets could be seen at distances. Now everything has become "kagar," or "darkness."

3 A more detailed and comparative discussion of tigers in Toda land can be found in Sunetro Ghosal, Skogen Ketil, and Siddhartha Krishnan, "Negotiating Change: Exploring Social Construction of Landscapes and Interpretations of Large Carnivores in India and Norway," *Conservation and Society*, in press. There is no official record of number of tiger attacks and kills. Compensation records usually serve as evidence, but the Toda do not claim compensation, saying that they end up spending more than they would receive. Transport costs are involved in getting to the Forest Department in Ooty, also greasing administrative palms. But tiger sightings are said to have increased during the past decade, and there is also the occasional instance of a veterinarian certifying a carnivore attack.

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Christof Mauch

Unruly Paradise—Nature and Culture in Malibu, California

A World of Seclusion

"27 Miles of Scenic Beauty" is what a sign at the city limits of Malibu promises its visitors. Sandy beaches, great ocean waves for surfing, exotic trees, and spectacular villas are the hallmark of the legendary Southern Californian town. The coastline and the canyons of Malibu have attracted the rich and famous—Hollywood actors, producers, and directors—for almost 100 years, and the ocean views from the hillsides are truly breathtaking, unlike any others in America. Malibu, though very close to Los Angeles, is not a city. There are no high-rises, no highway networks, no factories, no railway lines. Malibu does not even maintain a bus station. Life seems laid back in scenic Malibu. "We've got a nice, quiet beach community here, and I aim to keep it nice and quiet," is what the fictional police chief in the Coen Brothers' 1998 motion picture *The Big Lebowski* says about Malibu. Thousands of postcards and posters depict a Malibu that often looks too good to be real: "Elegant and edgy, provocative yet meditative," to use a phrase from *Boxoffice Magazine* in their review of *Malibu Eyes*, a 2001 Vanguard Cinema movie. Malibu advertisements tend to feature exotic beaches with surfers, stunning sunsets, palm trees, and, more often than not, female models in bikinis. Malibu aims and claims to be a paradise—an American Garden of Eden, a world of seclusion and seduction. Nowhere is this more evident than at "Paradise Cove," a small Malibu beach framed by bluffs where television programs—including *Baywatch*—were filmed, as well as movies such as *American Pie 2* and *Beach Blanket Bingo*. But like all earthly paradises, Malibu is all too entangled with human weaknesses and desires.

From the Chumash Community to the Hollywood Colony

Malibu has a long history that started long before the visual culture of Hollywood. Between 6,000 and 8,000 years ago the area was home to the Chumash hunters and fishermen who were famous for their redwood canoes that allowed them to travel up and down the coast for hundreds of miles. The Chumash gave the land its name, "Humaliwu"—meaning

something like "the surf sounds loudly." The Spanish began to move into California in the sixteenth century, but neither Spanish soldiers nor the missionaries who settled there took a particular interest in Malibu. This changed after California became part of the US and Frederick Rindge, vice president of the Union Oil Company in Los Angeles, bought the "Malibu Rancho" with its more than 13,000 acres. For Rindge a dream came true when he built a home in Malibu canyon and a "farm near the ocean, under the lee of the mountains, with a trout brook, wild trees, a lake, good soil, and excellent climate."[1] Rindge had traveled all over the globe—from the Mediterranean to South Africa and from his native Massachusetts to Chile. But Malibu surpassed in beauty every place that he had visited before. He called it an "American Riviera" and praised its "resemblance with Palestine." Malibu was Frederick Rindge's paradise. In his autobiography, *Happy Days in Southern California*, he exclaimed: "The happiest thought of all thoughts in connection with this beautiful land is that only in Heaven is it more beautiful, and that we can live there, too, if we are faithful."

Rindge had no doubt that he would live "to a great age" like "many of the native race": Victorianno, a native chief, lived to be 136, and—so he asked his readers—"Is it not natural to believe that his subjects lived to be two hundred, at least?" But things turned out different for Mr. Rindge. He died a sudden death at the age of 48, and his wife, May Knight Rindge, the so-called "Queen of Malibu," was forced to sell part of her Malibu property, the La Costa area, to a developer. This exclusive beach soon became a hideaway for such illustrious Hollywood greats as Jack Warner, head of Warner Brothers Studios; Dolores del Rio, the "Princess of Mexico"; silent movie sex symbol Clara Bow; Western hero Gary Cooper; and Duke Kahanamou, the "father of surfing." By the early 1930s Malibu had become a gated paradise for the rich, a refuge from buzzing Los Angeles, the quiet garden of the city. Or so it seemed.

Nature Is an Actor Too

The peace and quiet was deceptive. Even Rindge, who thought of Malibu as a "calm and sweet retreat" in "these almost holy hills," was aware that natural forces lay dormant where he had made his home: "Reclining on the beach," he wrote in his autobiography,

1 Frederick Hastings Rindge. *Happy Days in Southern California* (Cambridge, MA: HG Houghton & Company, 1898 [reprint Anaheim, CA.: KNI Inc. Book Publishers 1984]), 64.

"it is hard to believe that a tidal wave has ever occurred" in this area, "yet such is the case." Rindge was aware of "seismic disturbances" and of the force of the dry Santa Ana winds that came down from the Mojave Desert all the way to the coast, and in 1903 the castle-like ranch that he had built for his family and domestics fell victim to an uncontrolled fire. The fire was not a freak accident, however. On the contrary, catastrophic fires were not the exception but the rule on the Malibu coast. Shortly after the Hollywood actors moved into their beachfront homes in 1929, 13 new homes were ignited and destroyed by wildfire. Los Angeles writer Mike Davis once called Malibu "the wildfire capital of North America and, possibly, the world." He pointed out that the area of the western Santa Monica Mountains was "burnt three times over" during the twentieth century, and large fires of more than a thousand acres raged frequently—on average "every two and a half years"—on the "fire coast" of Malibu. Over the years, Rindge's widow kept building and rebuilding palatial ranches and retreats in Malibu, in addition to a little pottery factory that produced unique tiles with Mediterranean (Moorish, Saracen, and Spanish) designs. But all of the buildings were hit by fire, and many of them, including the pottery factory, were never rebuilt.

Wade Graham, a Los Angeles-based landscape writer, remembered moving to a small wooden house close to the Malibu beach in the 1980s. For him the modern gardens of California resembled what he called an "American Eden." But soon after his family moved to the beach, some of their neighbors were driven out of the Garden of Eden: "We watched fires raging down on us from the Santa Monica Mountains, lines of forty-foot-high flames advancing over the peaks and ridges, red fire engines and crews hauling out hose lines on the PCH [Pacific Coast Highway] to make a stand." [2] And in a scene reminiscent of Nero watching the fire of Rome while playing the lyre, Graham continued: "We climbed up a ladder onto our roof with the garden hose and she [my mother] shared gin-and-tonics poured from a thermos into plastic cups with the neighbor and the basset hound he had hauled up the ladder. The firefighters saved our house, but not some other people's houses."

Wildfires are not the only catastrophes that nature has had prepared for Malibu's residents. Heavy storms are just as common, and Wade Graham's description of an El Niño carries with it somewhat apocalyptic traits: "One pounding bright day in 1984," he

2 Wade Graham, American *Eden: From Monticello to Central Park to Our Backyards. What Our Gardens Tell Us About Who We Are* (New York: Harper Perennial, 2013), 290.

writes, "we watched the house next to our next-door neighbor's—a little, low, pitched-roof affair, clearly from another era—wash away in the waves, broken into a slosh of kindling and boards that clattered frighteningly through our pilings before vanishing."

Perhaps nowhere in the US is nature as unruly as in Malibu. The Malibu Coast Fault Zone is seismically active. In the wake of earthquakes, hills and canyons and the coastline have changed their faces, and the threat of a tsunami hangs over the sandy beaches of Malibu like a sword of Damocles. Yet it is water and fire that have caused the worst damage to homes over the last hundred years. Floods, wildfires, and landslides have pounded the region relentlessly and with almost rhythmic regularity. In fact, different types of disasters and hazards have the tendency to reinforce each other. Almost half of Malibu's mansions are built on steep land, which is prone to mudslides. Once wildfire has stripped the hills of vegetation, the risk of erosion, flooding, and slides increases. Chemistry does the rest. After a fire, the remains of the creosote-laden shrubs and woody plants covering the hills and canyons leave an oily deposit. This, in turn, augments the flow of soil and water.

The dramatic setting of Malibu, with its steep canyons and striking beaches, is a product of nature. The very same forces that generate Californian earthquakes and put Malibu at risk also created the mountains millions of years ago. When, year after year, rain comes down in torrents, it fills the valleys with roiling waters and rolling rocks, shaping and reshaping the canyons and cutting them ever deeper. The sand of the beaches is a product of nature too: of wind and waves, of surf and turf. It may sound all too obvious. But we—humans—should never forget that we did nothing to create the stunning scenery of Malibu. It was nature, or God, if you will.

Playing God in Paradise

Semi-arid shrubs and plants—so-called chaparral—provide the green backdrop of Malibu's hillsides. "Nature knew her business when she developed the chaparral," wrote Francis M. Fultz, an early Californian conservationist and member of the Sierra Club. "How defenseless mountains are without their coat of chaparral against the elements."[3] Once called "elfin wood," chaparral used to cover most of Southern

3 Francis M. Fultz, *The Elfin-Forest of California* (Los Angeles: Times-Mirror Press, 1927).

California's hillsides and protected it from erosion. With the establishment of Chumash villages thousands of years before our time—there are eight archeological sites in today's Malibu—Native Americans started to burn the green thicket in an effort to plant crops, increase the deer population, and drive out grizzly bears. Chaparral is drought-resistant, full of natural fuel, and is certainly one of the most flammable types of brush on the globe. In its own reproductive cycle it tends to burn every 15 to 30 years, and when the Chumash natives were around it would not grow old. The cycle of wildfire that has ensured the recycling of nutrients and the sprouting of seeds has been largely beneficial for keeping the unique Californian ecosystem (with its coastal sage, chaparral, and oak) intact.

Things changed rapidly when the hillsides were settled in the twentieth century. The ideal of Malibu homeowners was no longer that of a hunting ground or of a wilderness that saw rhythmic cycles of burning. It was instead a lush and colorful garden, a paradise safely shielded from the risks and dangers of wildfires. When Rindge moved to Malibu in the late nineteenth century his utopian vision was that of a "Riviera transplanted." He, as well as many of his contemporaries, began to "improve" the landscape of Southern California by bringing exotic and awe-inspiring trees and bushes and flowers to the coast. Much of the new flora came from the Mediterranean, South Africa, and South America, and was soon to cover the countryside, especially where it appeared to be barren. Step by step, the thicket and brush of Malibu's hinterland was replaced by villas and mansions, by pockets of camellias, azaleas, and roses, by lawns and of tree groves. To protect private homes and gardens, small fires in the brush were routinely extinguished. As a result, the old, dry brush could grow and build up enormous quantities of flammable material. Andrew Gosser, one of Malibu's firefighters, told me in a conversation in 2010 that while there have been fewer fires over the last few years, they have also become more raging and more devastating. Gosser predicted that future fires may be exceptionally harmful because of the unheard-of accumulation of biomass in the chaparral. For some of the canyons—Topanga Canyon for instance—Gosser predicted fires of vast intensity since the last big fire had occurred two generations ago. Palm trees burn "like Roman candles," he explained, and "some of the trees and bushes—pine, eucalyptus, juniper, and the Italian cypress"—have a tendency to burn "like gas."

Fire is always highly "unruly," but the combination of strong winds and fuel and high-end houses that are nestled into Malibu's chaparral landscape has no equal in the

United States. As more and more villas and mansions were built, the calls of Malibu residents for public "protection," "defense," and "relief" have grown ever louder. And they were answered: millions of tax dollars are being spent on tax relief and insurance subsidies. Furthermore, firefighting has taken on a whole new dimension. In an attempt to protect the homes of Malibu's nouveaux riches, regional firefighters employ the largest civilian air fleet in the world. When big fires break out in Malibu, the coast and the hills turn into a battlefield between humans and the elemental forces of nature: Black Hawk helicopters and Sikorsky Skycranes appear in the sky. Each of them takes thousands of gallons of water from the ocean and dumps it over the raging blaze. When things get really bad, airplanes such as Quebec Super Scoopers, DC-10s, or even Boeing 747s that can drop up to 20,000 gallons of flame retardants are being leased. Yet no matter how many fire troops and aircraft are rallied, it may be in vain if nature does not "cooperate." A sudden change of wind can frustrate all efforts. Firefighting in Malibu is, indeed, a Sisyphean task.

It is not hard to explain why people want to live in Malibu: the landscape is dramatic, its blue skies and sunshine are proverbial, the view of the ocean is stunning, and the interaction between water, waves, and wind provides a natural spectacle. But despite great efforts and expenses to build permanent structures, impermanence will always be Malibu's signature. Geology and wind, sea and water will be the winners in the end. Despite conservation efforts, soils keep sliding down the mountains each winter. And even the best engineering—steel and concrete, anchors and caissons—will not prevent cliffhanging castles from collapsing and coastal mansions from eventually flowing out with the sea.

Nature is always "on the move." But in Malibu natural processes occur in rapid succession: change occurs dramatically, in months and years rather than centuries or millennia. The history of Malibu is a modern-day story of paradise, and a rather American one at that. For centuries, US Americans have seen themselves as the "chosen people of God" in working their land, as expressed by prominent individuals such as Thomas Jefferson. They have formed an understanding of progress as a linear development, closely linked to civility and the cultivation of nature. Efforts to turn Malibu into a tame and orderly garden are a reflection of this ideal. Going against the forces of nature is the story of temptation and fall, of creation and expulsion from (our self-created) Eden. The story of Malibu reminds us that our ideals are often expressed in what we grow, and it teaches us how we are caught up in the cross-currents of culture and the ultimate rule of nature.

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Part of the information here is based on interviews with environmental writer Jennifer Price, Los Angeles; Andrew Gosser, Malibu; and Mati Waiya of Wishtoyo Foundation, Malibu, and on the *Malibu Disasters and Hazards* website.

Living with Nature

Aloka Parasher-Sen

Unruly Hinterlands and Settlement Histories of the Deccan Plateau

The settlement histories of the early Deccan Plateau in south-central India serve as an example of environmental unruliness, providing a spatial and temporal framework for investigation. My understanding of "unruly" here follows Peter J. Taylor,[1] whose argument revolves around "unruly complexity":

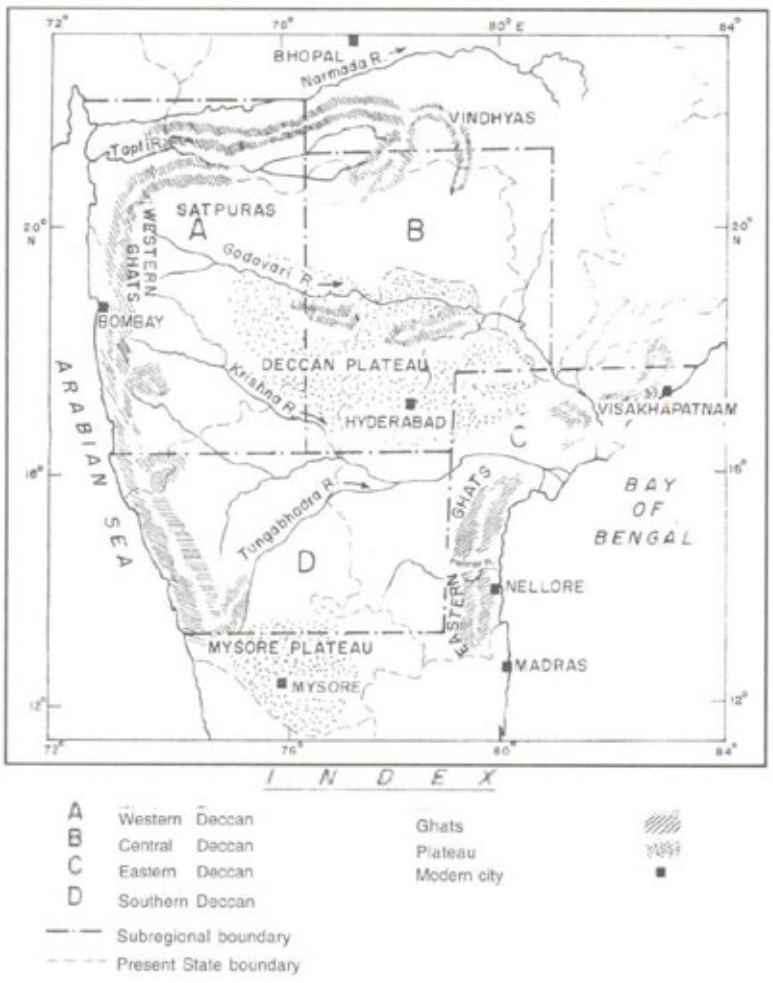
> I am interested in situations that *do not* have clearly defined boundaries, coherent internal dynamics, or simply mediated relations with their external context. *Such unruly complexity* . . . arises whenever there is ongoing *change in the structure of situations that have built up over time from heterogeneous components and are embedded or situated within wider dynamics*. [emphasis added]

Taylor's insights highlight heterogeneous elements and historical variability in geographic and social composition. A focus on specific regions or localities of the Deccan is imperative, for it showcases the diversity, variability, and interdependence of complex processes within a well-defined system over time. Unruliness develops within these systems when previously entrenched forces begin to collapse. The resulting heterogeneity and process of continual adjustment that shapes historical settlement produces unruliness.

The Deccan

Today, we understand the Deccan Plateau in terms of the Deccan Traps, comprising distinct geological subregions loosely aligning with present-day Maharashtra, Telangana, Andhra Pradesh, and Karnataka. The physical Deccan is broadly understood as the land south of the Vindhyas, up to the Krishna-Tungabhadra Basin (see map).[2] As one of the oldest landmasses in the world, it is physically complex. Major rivers cut across the Deccan Plateau, but it is the rocky landscape that marks its physiographic and ecological heterogeneity. The upland plateau is marked by red soils that retain little moisture;

1 Peter J. Taylor, *Ecology, Interpretation Engagement* (Chicago: University of Chicago Press, 2005).
2 Reprinted from Aloka Parasher-Sen, "Origins of Settlements, Culture and Civilization in the Deccan," in *Deccan Heritage*, ed. Harsh K. Gupta, Aloka Parasher-Sen, and Dorairajan Balasubramanian (Hyderabad: Universities Press, 2000), 235.



Map of the Physical Deccan. Image from Aloka Parasher Sen, "Origins of Settlements, Culture and Civilization in the Deccan" (Hyderabad: Universities Press, 2000), 235.

this is particularly apparent in the Telangana territory, which has long relied upon water tanks and artificial irrigation. This single subregion of the Deccan Plateau (marked "B" on the map) is characterized by extraordinary ecological diversity that has attracted widespread settlement over centuries. Despite the difficult terrain, most settlements were situated near pockets of water, enabling agriculture to develop. Over time, the plateau became the agricultural hinterland of both the east and west coasts of peninsular India. Nevertheless, plagued by rocky, shrub-choked soils and limited by the seasonal

availability of monsoon-fed waters, these lands produced only the nominal agricultural output typical of dry farming areas.

The most significant unruly feature here is complexity and multiplicity, and the tenacity with which settlements have repeatedly survived and reemerged. To understand these patterns we need to look beyond simple definitions of unruliness, which is not an absolute state of disorder—of chaos, complication, and inhospitable conditions—as many of us would conveniently believe. The historical environment in the Deccan is one of continuous *negotiation* between order and disorder. Studies have shown how it became a site of settlement and political upheaval, but typically depict it merely as an enabling *bridge* carrying the evolved norms of civilized life from the north Indian plains to the far south. While this region was surely shaped by the trans-peninsular travel and communication it facilitated, Deccan society also developed its own character through the communities that came to inhabit it. The people of the hilly and forested areas of the Southern Peninsula have tended to isolate themselves in refugee zones, which Subbarao has labeled "areas of isolation." The Deccan, however, has also been characterized as an "area of *relative* isolation," unruly through the *diversity* of its physical and cultural landscape. Such unruliness has led Deccan people to adopt and adapt to external influences, establishing a "curious pattern of survival of the older with the new."[3]

Historical Settlements of Telengana

Telengana has been frequently overlooked as its patterns of development do not fit dominant historical narratives of the Deccan. But a closer look at Telengana adds resolution to our definition of unruliness. In Telengana few written records are available for the pre-medieval period, and so the archeological record has been indispensible for constructing its history. Using Taylor's concept of "unruly complexity" we can question a linear narrative of social change, especially one explaining sociopolitical and economic development in terms of "urban" growth or "city" formation—terms that become difficult to apply to settlements that arose between 300 BCE and 400 CE. This so-called early historic urbanization is difficult to envisage across the physically varied environments of the Deccan, which gave rise to diverse settlements: some may fit into the definition of an

3 B. Subbarao, *Regions and Regionalism in India* (New Delhi: Critical Quest, 2011), 7–8, identifies these as "areas of isolation" in contrast to "perennial nuclear regions" identifiable as the chief river basins of the country.

early historic urban center similar to those in other regions of India, while others were particular to the Deccan.

To analyze the historical trajectory of the Telengana, details of early settlements, including Dhulikatta, Kotalingala, and Peddabankur around the mid-Godavari valley, and others located farther away, such as Kondapur and Phanigiri, were taken as examples. Each had its own character, structural remains including fortifications, religious structures, and edifices associated with artisanal activity. And they all flourished on the Deccan Plateau. The dynamics of internal changes that characterized these localities evolved alongside economies that depended on the small-scale production of iron artifacts. Peddabankur and its surroundings were entrenched in the manufacture of iron goods, including sickles, forks, knives, nails, and spearheads. Most places show evidence of the production of terracotta and beads as well. At Kondapur, which evolved into a significant trade center, hoards of beads were found, and along with other sites in this region it was an important center for terracotta production. Many of the terracotta remains were in the form of molds, some used to make coins, and almost all of the sites show evidence of punch-marked, die-struck, and inscribed coins in their material remains, which is rare for the same historical period in other parts of the country. This is evident from the inscribed coins of local rulers found at sites like Kotalingala, indicating a local mobilization of resources, which in turn meant that the political elite had the ability to issue their own coins.[4] Their control of the iron-generating areas probably made this possible, since considerable numbers of iron objects were present at sites including Peddabankur, Dhulikatta, and Kondapur.

Previously, I have compared the specificity of archeological artifacts found at these Telengana settlements, each telling their own local story, to those found in more prosperous regions along the coast or in the fertile river valleys in the Andhra Pradesh areas of the Deccan. Earlier explanations were that settlements emerged in the Telengana as more prosperous regions sought sources of economic development there; the Buddhist monks who traveled across the Deccan Plateau became agents of this change and interacted with and lived off local inhabitants, opening up the region to traders. The key question of what sustained local artists, craftsmen, and technologists, and how they coped with these changes, were themes that scientifically trained archeologists found

4 Aloka Parasher-Sen, "Localities, Coins and the Transition to the Early State in the Deccan," *Studies in History* 23, no. 2 (2007): 231–69.

barely relevant. Yet data show artefactual assemblages that reflected the lives of simple communities that engaged in mixed farming and small-scale production of artifacts produced from local resources. It is these types of sustenance, depending on different modes of production and variegated socioreligious and political organization, that came to characterize the diversity of the Deccan Plateau over lengthy periods.

In characterizing the earliest urban centers on the Deccan Plateau, then, we need to emphasize their heterogeneity and highlight the importance of the existence, or coexistence, of particular subregions as independent or semi-independent entities contributing to the historical development of the entire region. Particular standardized features of literature, monumental brick construction, or coin hoards, known in other parts of the subcontinent, did not appear evenly across the Deccan Plateau, nor everywhere in peninsular India. A unilinear stage of development from pastoralism to agriculture and to urbanization for the whole region cannot be claimed; instead, details of the political and social—as well as economic—systems that controlled and maneuvered these diverged noticeably in each of the Deccan's regions and subregions. Several grades of manufacturing, the market, political and religious centers flourished, drawing long-distance traders from across the subcontinent and as far away as the Mediterranean, who flocked here in large numbers. The Deccan was thus not unruly so as to be inhabitable but, following Subbarao, was an "area of relative isolation" where communication made the origin and survival of communities complex. This complexity was dependent on a diversity that had to be protected. Historical forces have converged on this unique landscape, highlighting economic trajectories of material change alongside sociopolitical interactions of confluence while bringing together complex characteristics and traits that became difficult to homogenize.

Conclusion

Historical studies of the Deccan region have tended to define its political evolution, eulogizing the greatness of its forgotten empires and monuments. This has framed history with a primordial essence meant to assert dogmatism, characterizing the region's uniqueness. This kind of position should be avoided, as each of the subregions of the Deccan Plateau developed a tenuous identity over time that changed with economic and political challenges.[5] In other words, not all periods exhibited similar boundaries

5 Parasher-Sen, "Origins of Settlements, Culture and Civilization in the Deccan."

in each subregion, and at some points in time local identity was more prominent than overall identity.[6] By creating several parameters through multiple sources, including tools, coins, writing samples, buildings, burials, and religious edifices, and demarcating several types using written material found in local contexts, it became possible to show in greater depth the intricate nature of how early historic settlements emerged. In straddling time, space, and data we have highlighted different processes in a constant state of negotiation. Such a historical interpretative approach rejects those that wish to find permanence and certainty in characterizing the Deccan's settlement. It also rejects those that consciously ignore the layering of small but significant fragments of information that reveal the variety and complexity—the unruliness—that shaped the region's historical development.

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6 Parasher-Sen, "Localities, Coins and the Transition to the Early State in the Deccan."

Christopher L. Pastore

Line in the Sand: The Promises and Perils of Ordering the Ocean's Edge

As thresholds between order and chaos, between "places" endowed with meaning and undifferentiated "spaces," the ocean's edges have long lured humans to inhabit them while invariably denying their efforts to fully control them. Mixing security and liberty, durability and variability, coasts evoke the need for permanence alongside a desire—whether real or imagined—for continual change. If, as this volume posits, "unruliness" is an essential aspect of the natural world, a closer examination of coasts reveals the extent to which unruliness occurs when the human need for stability negotiates with nature's dynamism. Unruliness, in other words, is the human perception of, and response to, disorder. In the face of unruliness, boundaries and notions of jurisdiction become blurred. Routines and rules of decorum erode. For many, these irregularities hold special allure: so enticing are unruly spaces that some have sought to enhance and even reproduce them. Others have endeavored to contain or, in some cases, remove them. Yet, as this essay suggests, these changes can come at a cost.

Environmental history has largely focused on terrestrial topics, but a recent transdisciplinary burst of scholarship some have called the "new thalassology" has drawn the seas back toward the center of inquiry. Although initial examinations of the ocean emphasized the physical and conceptual boundaries between land and sea, a new littoral history, one that explores the soggy interstices of ocean and inland, is emerging. While historians such as Alain Corbin have examined how coasts were constructed culturally, others have examined them in imperial and postcolonial terms. Scholars such as Michael Pearson, Greg Dening, and John Gillis have explored coasts in global perspective, while a number of recent environmental histories have begun to explore specific coastal regions alongside the rivers and estuaries that punctuated them.

If scholars have only just begun giving historical coherence to coasts, humans have been creating order along the edge of the sea for much longer. As Fernand Braudel has shown, Europeans and North Africans began modifying the Mediterranean's shores (and surrounding wetlands) in significant ways as early as the fifteenth century. The Mitidja near Algiers, the Pontine Marshes near Rome, the lower Rhone and

Nile Valleys had all been sparsely populated swamps.[1] But through damming and diking humans added order to these otherwise indeterminate spaces over time. Most famously the people of the Netherlands drained their intertidal sloughs to create one of Europe's most prosperous early modern cities. What had once been a nearly uninhabitable maze of marshes was dammed and diked into dry land, setting the stage for a new era of capitalist development.

Coasts served as the principal points of connection around the early modern Atlantic world. Alongshore, the practices of the Old World met with the realities of the New. At once open to exchange and sheltered from attack, littorals and estuaries in particular became important sites of settlement, and people invariably shaped them to meet their needs. Mirroring the trend toward enclosure in Europe, English settlers in North America modified their coastal environments in ways that removed the commons component from intertidal space. In Boston, for instance, a 1641 law intended to encourage wharf construction allowed for private ownership as far as the low-tide mark. That merchants could own the land below high water would encourage them to shoulder the expense of constructing wharves, while still allowing the traditional rights of fishing, fowling, and navigation—a hybrid public-private arrangement. But as wharves sprouted among the shallows, owners began to fill between them, thereby creating dry land from which the commons qualities of the sea were permanently removed. When faced with the sea's ability to undermine exclusive ownership, and so being confronted with an unruly presence on their property, the people of coastal Massachusetts replaced intertidal uncertainty with the security of seawalls.

During the eighteenth and nineteenth centuries, efforts to tame and contain the unruliness of the sea even engendered new tools for economic development. As Jonathan Levy has shown, risk was first commoditized in the form of marine insurance. But by the early nineteenth century risk began to move onshore. Just as common lands and intertidal mudflats were partitioned and enclosed by fences, walls, and wharves, "future peril" was enclosed within insurance policies that encouraged economic, and in some cases environmental, risk-taking.[2] Insurance hedged the promise of profit against the threat of financial ruin. With unruliness safely contained by indemnities,

1 Fernand Braudel, *The Mediterranean and the Mediterranean World in the Age of Philip II*, trans. Sian Reynolds (1949; New York: Harper Colophon Books, 1976), 60–62.
2 Jonathan Levy, *Freaks of Fortune: The Emerging World of Capitalism and Risk in America* (Cambridge, MA: Harvard University Press, 2012), 10.

the same spirit of endeavor that drove maritime expansion bolstered economic development across the North American continent.

The desire to experience the invigorating effects of nature without the danger and mess fundamentally shaped human interaction with the shore during the late nineteenth and early twentieth centuries. With the rising popularity of seaside resorts many holidaymakers, preferring pristine seashores, encouraged seascape painters to remove piers, weirs, and fish pounds from their paintings to advance a cleaner, more romantic rendition of the sea.[3] As Jean-Didier Urbain has shown, twentieth-century beachgoers began to fetishize an organized shore. Phobias of seaweed caused many to consider it a form of "pollution," an unruly vestige of wild nature. So particular were some beachgoers that many municipalities began to rake their beaches and even bring clean sand from other places to achieve seaside perfection. Individual beachgoers, accordingly, felt compelled to enclose individual beach plots. With blankets, folding chairs, and umbrellas they staked their claims, thereby partitioning the shore.[4]

Seeking the tension between predictability and possibility, between order and unruliness, many seaside resorts began to engineer their shores to provide the best of both worlds. The rectangular swimming pools of the 1950s and 1960s have, in recent decades, given way to swimming pools with undulating edges, many of which were built along or just behind beaches to emulate tidal lagoons. If older swimming pools provided a wholly artificial waterfront experience, the new concrete lagoons were shaped to emulate an estuary, a maze of hidden pools and channels as a means by which waterfront loungers could lose themselves in all the complexities of the littoral. Wading among these man-made tidal pools, bathers could experience a sense of childlike wonder without the fear of being pinched by lurking critters. In some of these lagoons, the ultimate freedom could be achieved atop submerged bar stools (like underwater boulders) while the bartender moved safely between the bottles a few feet away.

Even more dramatic feats of engineering have endeavored to replicate the interface between order and unruliness. The growing popularity of the "infinity pool"—that is, a pool designed to create the optical illusion that it lacks an edge—suggests that

3 Matthew McKenzie, *Clearing the Coastline: The Nineteenth-Century Ecological & Cultural Transformation of Cape Cod* (Lebanon, NH: University Press of New England, 2010), 173–77.

4 Jean-Didier Urbain, *At the Beach*, trans. Catherine Porter (1994; Minneapolis: University of Minnesota Press, 2003), 134–39.

many will labor to recreate coastal tensions at any cost. Chest-deep in water, one looks across the swimming pool clear over the ocean to the horizon. The pool could be perched halfway up the side of a mountain, yet the effect is the same: an unobstructed view of an enduring ocean that visually flows directly into a protected bay. In other places, infinity pools emulate the thin sheen of water in the intertidal, a glassy reflection of the sky that again extends clear to the horizon. The widespread belief that infinity pools are the exemplar of refinement suggests that, as we continue to cordon off our coasts, and as we continue to build edges along our shores, taste dictates that at least an imagined communication with the sea must be maintained.

Ever evocative of unruliness, the ocean's edge has required endless tinkering to make it habitable. Both materially and imaginatively, humans have labored to enclose it. But the ocean's enduring presence has often thwarted that impulse toward improvement. Scoured by strong winds and currents, the line in the sand becomes easily blurred. In consequence, humans have looked for ways to emulate the ocean's powerful forces while removing the threat of violence, or just the plain old mud and muck of nature. The philosopher Gaston Bachelard has claimed that a deep or "material" imagination forms when the mind contemplates matter consisting of "profound and lasting ambivalences." "To engage the whole soul," he explained, "there must be a *dual participation* of desire and fear . . . good and evil . . . black and white," and even, he later added, "*la pâte*," a mixture of water and earth. In other words, deep expression and true creativity must be imbued with all the tensions inherent in the natural world. Permanence must be met with possibility and security with vulnerability. Socially, politically, and environmentally—we need them all. Nowhere are these tensions more evident than alongshore. The objects that are "immobile and inert solids," Bachelard concluded, are "foreign to our nature," and as a result of one's constant interaction with them the "soul . . . suffers."[5]

We have taken great pains to improve our shores. The walls that line the littoral have allowed for dramatic economic growth, and the pools constructed at the edge of the sea (or were made to look as if they were) are veritable works of art. So drawn are we to our beaches and bays that we feel compelled to recreate them, suggesting that there is a deep psychological need to engage with the ocean's edge and the feelings

5 Gaston Bachelard, *Of Water and Dreams: An Essay on the Imagination of Matter*, trans. Joanne H. Stroud (1942; Dallas: Pegasus Foundation, 1982), 11–13.

of unruliness it evokes. As sea levels continue to rise and our coasts bear the brunt of ever-more-powerful storms, we will be forced to renegotiate our relationship with the sea. Doubtless, we will continue to build walls along its shores, but we must not cut ourselves off completely. A sense of collective vitality—and poetry, no less—depends on maintaining that connection. When the uncertainties of nature converse with the human desire for permanence, unruliness emerges. Although intuition tells us to resist it, perhaps a little unruliness can be a good thing.

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Unruly Environments: An Overview

William Beinart

Reflecting on Unruliness

"Unruly environments" serves as a useful concept for thinking about specific research areas and broader approaches to environmental history. A central issue in using the term is whether unruly environments are a general state or condition; in other words, does the idea capture our experience that nature—the combination of all other species and the physical world—is generally a challenge for humans? By implication we are in a constant state of opposition with nature—a battle for control—and unruly environments impinge on all human societies. Or perhaps we should use the term in a narrower sense, with unruly environments being the spaces and processes at the edges of control of states, power holders, and human settlements.

There is no single interpretation of "unruly environments," but the papers in this volume conceptualize them at the edges of both control and settlement: the intrusion or resurgence of certain species into spaces from which they had formerly been banished, including indigenous species—such as tigers and leopards, as in the paper by Siddhartha Krishnan—and exotics such as invasive plants. The notion of invasion is partly dependent on the idea that these were previously controlled spaces. The edges of human control developed not least during the expansion of settlement. For example, the environment in which the Panama Canal was built became newly hostile and unruly to those who constructed it, as we see in Paul S. Sutter's essay. Christof Mauch's contribution on floods, wildfires, and landslides in Malibu similarly considers environmental unruliness in the face of expanded human settlement and control. This interpretation of "unruliness" implies a certain bias: it perceives environmental relationships largely from the vantage point of humans. Sajal Nag's essay on the tribulations of dealing with heavy rains illustrates this. Humans thought there was too much rain; the natural world, by contrast, responded to these rains that are so vexing to humans to produce cherished biodiversity.

Both of these understandings of unruly environments can provide food for thought. Environmental unruliness impinges on all societies; all encounter some degree of environmental uncertainty, and the concept sits at the heart of theorizing the relationship between people and nature. Dealing with such uncertainty shapes how societies order

themselves: this includes sparse populations in environments hostile to humans, but also the most powerful empires and the densest cities. The immanence of environmental unruliness influences so many practices that it comprises an intrinsic element of our social order that is difficult to describe and conceptualize in its totality. It encompasses, for example, how we deal with water, vegetation, fire, earth, and waste. Ordered human society has sought to impose a degree of predictability and manageability on nature, and in this sense responses to unruliness are omnipresent in our designs for living. The concept of unruliness also helps us to understand the potential fragility of human control, or at least the challenges presented by the environment for social order. There is some analogy here with violence; even where violence is largely controlled, its potential shapes and orders human society in many ways.

Control and Human Power

Centers of human power have more capital, science, and technology at their disposal—and so greater power to shape nature. Yet even today, natural disasters regularly have an impact in advanced capitalist countries, from Hurricane Katrina in the United States to the recurring British floods. Are civilizations vulnerable in spite of their technological resources, or precisely because of them? Here it is valuable to include a temporal as well as spatial dimension in thinking about such unruliness; historical examples suggest that environmental uncertainty can be overcome at the heart of civilizations for particular periods, but these are sometimes vulnerable to "collapse." In his book of the same title, Jared Diamond finds a range of examples around which to expand this concept.[1] He is aware of the problems of environmental determinism in analyzing social and political "collapse" of empires and has been criticized for his analytical approach, but he highlights the implications of environmental fragility and unruliness. In this volume, Samuel Temple's essay on the history of colonial control over Algeria's marshes demonstrates how environments constitute such unruliness, whether they are themselves actors or acted upon. The potential of environmental unruliness and vulnerability is at the heart of all human societies, as well as human attempts to confront and conceptualize such forces.

1 Jared Diamond, *Collapse: How Societies Choose to Fail or Survive* (London: Penguin, 2006).

For me the question is not so much arguing for or against environmental factors in shaping societies but thinking about them in relation to other forces. Environmental history opens up our capacity to think beyond conflict or other—for example economic—determinisms, and to develop totalizing explanations. Environmental forces have clearly been significant in the "collapse" of a number of pre-capitalist contexts from the Anasazi to Great Zimbabwe. J. R. McNeill, in *Mosquito Empires*, has given us a wonderful new example of environmental unruliness in the shape of disease influencing the scale and character of empires: unpredictable susceptibility to yellow fever limited British and French expansion in Latin America.[2]

Settlement Peripheries

Turning to the second meaning of the concept, unruly environments often seem more obvious at the peripheries of settlements—at the frontiers of human order. It is difficult to generalize about environmental history as a subdiscipline, but it is remarkable how often authors have been drawn to frontiers as a metaphor and topic of analysis. I suspect environmental history has thrived on frontiers because these are attractive places to see rapid change and to analyze where nature can strike back. Environmental historians are generally champions of nature, and most of us celebrate or at least are intrigued by the idea that the natural world figures in human history and that there are limits to human control. In this case littorals and the maritime world are particularly interesting conceptual avenues into the notion of unruliness on a global scale, as seen in Christopher L. Pastore's essay in this volume on the ordering of the water's edge.

Frontiers and edges of settlement are often conceptualized in relation to expanding empires, but they can equally be experienced at the village level. In writings on long-established agrarian communities in Africa and India, there has perhaps been less emphasis on unruliness and more on resilience. The growing literature on biocultural diversity tends to see "indigenous" people and smallholder communities as thriving on indigenous nature. However, even long-settled regions undergo environmentally provoked shifts and changes in settlement patterns. Aloka Parasher-Sen discusses how heterogeneity and continual adjustment shaped settlements on the Deccan Plateau;

2 J. R. McNeill, *Mosquito Empires: Ecology and War in the Greater Caribbean, 1620–1914* (Cambridge: Cambridge University Press, 2010).

there is a "continuous negotiation between order and disorder." In late nineteenth- and early twentieth-century East Africa, epizootics, epidemics, and drought disturbed the frontiers of pastoralist and peasant settlements, contributing to major outbreaks of sleeping sickness.[3] While the above examples show how unruliness results from humans attempting to expand their range of influence and assert control over nature, unruliness also frequently emerges when the opposite occurs: when humans withdraw or reduce their presence, flora and fauna thrive in these newly created habitats and create new challenges.

The thrust of conservation activities in many countries is towards maintaining uninhabited protected areas and renaturing—or at least the expansion of spaces where human settlement is restricted and less dense. This creates, in effect, new frontiers of nature, and such interventions can lead to unpredictable results that ripple out from core protected zones. Jackals, once nearly controlled in the sheep-farming districts of South Africa, have benefited from national and provincial parks, as well as wildlife farms, and reinvaded private property. Gorillas protected in the Virunga National Park, Rwanda, reportedly cross the boundaries to smallholdings because farmers plant or encourage Australian eucalyptus. The gorillas have found a way to peel back the bark and suck the eucalyptus gum, which they seem to like. Whether it is good for them is another matter. Conservation has been very much related to the entire habitat and critically the bamboo shoots upon which gorillas depend. But now the gorillas are exploring alternative, human-produced food sources. The problem is that local people perceive them as dangerous. This is just one example of many, but it demonstrates the complexity of such renaturing, which can include exotic as well as indigenous species.

Simultaneously, shifts in the global location of production free up other opportunities for plants and animals. I don't believe that the world as a whole is in a post-industrial or post-agrarian phase; more manufactured goods are produced globally than ever before, more food is produced, and more commodities are traded. However, the changing spatial distribution of production leads to deindustrialization or deagrarianization in some areas. The example of the eastern United States, where secondary forest has expanded, is often cited. Space has been created for species that adapt well to living in the interstices of such human-influenced environments. Some of these have

3 Helge Kjekshus, *Ecology Control and Economic Development in East African History* (London: James Currey, 1996).

become more unruly places. Radhika Govindrajan's paper outlines how this process often works: following the abandonment of agricultural fields, forests grow up, which become habitats for wild boar and deer, and these animals, in turn, attract leopards, bringing the predators into close contact with human settlements. I came across a similar phenomenon of the spread of bush pigs in rural communities on the east coast of South Africa during recent research. It is difficult to be certain as to the reasons, but factors include the expansion of protected areas providing a safe breeding ground, decreased hunting as youths are less inclined to pursue this challenging animal on weekend-long excursions, and dietary adaption by the wild pigs to crops and plants. These animals make a direct impact on maize cultivation, creating further environmental unruliness.

Conservation itself is not necessarily an unruly practice: on a global level it is easily containable within a new spatial organization of global capitalist society, and in fact such protected space, along with private wildlife farms, can generate a good deal of revenue. But unruliness, in the form of nature fighting back, has different consequences for different people. For wildlife farmers, more lions and elephants can represent a major source of income from trophies; however, for local villagers on the banks of the Zambezi, the success in regenerating Nile crocodile populations means more deaths for fishermen. The increase in leopards, tigers, and bush pigs in densely populated India is an exciting conservation achievement, but it can have consequences for people at the margins.

Urbanity and Human Unruliness

Perhaps surprisingly, there is another area in which nature is reasserting itself: no longer on the margins, but in the very midst of human settlement. Urban areas have generally been seen as zones of control and ruliness. This is a theme of urban environmental history: frontier cities are sites for processing commodities wrenched from nature, as in William Cronon's *Nature's Metropolis*, or as hubs for organizing frontiers.[4] Cities are in some senses the antithesis of unruly environments, if such environments are conceptualized as "wild." But there are two qualifications to pursue. Firstly, city

4 William Cronon, *Nature's Metropolis: Chicago and the Great West* (New York: W. W. Norton, 1991); William Beinart, *Environment and Empire* (Oxford: Oxford University Press, 2007).

landscapes do sometimes allow renaturing over the longer term; for example, the northern suburbs of Johannesburg are now dense with trees in contrast to the sparser vegetation prior to their suburbanization, and New Delhi streets were planted with a selection of Indian trees when originally laid out. Some species, such as rats and cockroaches, do adapt well to human settlements and potentially threaten them. Secondly, if we expand the notion of unruly environments to include built environments, then many city zones can be conceived as unruly—both socially and environmentally. Cities are often crucibles of crime and of pollution. We would need to debate further whether such an extension is a valuable use of the concept of unruliness, since it is an idea that is primarily deployed here to think about the interaction of natural environments with social order.

This may lead us to a further question. The idea of unruly environments provides a perspective of human-nature relationships from the vantage point of humans. Can other species be unruly simply by being themselves and seeking their own advantage? Or are humans the truly unruly species? Humans, after all, are by far the most disruptive, and there may well be too many of us.

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"Unruly environments"—as unwanted, unproductive, and difficult to control spaces—both attract and repel human efforts to transform them. Far from dwindling away in the modern era, these unmastered places are proliferating, in scholarship as in the world at large. As unruly geographies and ecologies—oceans, marshes, grasslands, mountains, and deserts—they frustrate efforts at social and environmental control. As territorial borderlands, they facilitate unexpected cultural exchange, migration, and material flows. As transformed and built landscapes, they generate new forms of risk and regulation. Bringing together scholarship from across the globe, this volume of *RCC Perspectives* aims to shed light and stimulate discussion on the past, present, and future of these unruly environments.



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