CHAPTER SAMPLER

ENVIRONMENTAL STUDIES

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CONTENTS

Defining Disaster upon Disaster

Why Risk Prevention and Disaster Response So Often Fail

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> The world of policy requires both formal reasoning for much of the machinery of governance but also a more organic connection to, and recognition of, human beings.
>
> —David Haines as quoted in J. Pajo and T. Powers, "The Anthropology of Policy Emerges"[1]

The chapters that make up the following volume attempt something curious. They propose to describe and advance the rectification of something that is essentially a cipher—the gap that exists between what experts know about risk and disaster and what of that knowledge makes its way into the directives of establishments presiding over the problem and the operations of people on the ground dealing with it.

The issue is not unique. The same sort of gap exists in almost every domain that deals with any and every human predicament. The same sort of disjunction prevails between what researchers unearth in the field of health and what enters canons of medical management and actual practice of medical practice. A similar disjunction occurs in the field of food and nutrition. Up-to-date erudition on what constitutes well-rounded and wholesome nourishment only sluggishly creeps into dietary protocols and onto plates. An identical chasm transpires between what is known, what is endorsed, and what is enacted in the realms of environment, hydrology, education, transportation, and more. All such fields display a rift, and a pernicious one, between what experts recognize and what gets into the governing mandates and executed undertakings.

In the sphere discussed in the volume, that of the perils that menace human communities and the catastrophes that befall them, the gap between knowledge, policy, and practice has led, and is increasingly leading to, dire consequences. That gap has resulted in advancing people's

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vulnerability rather than diminishing it, it has engendered a furtherance in the number and sorts of hazards that human communities face rather than dispatching them, and it has augmented the miasma surrounding a people's recovery from calamity rather than alleviating it. In some instances, the gap has been responsible for creating endless hardship: it has magnified poverty, enabled disenfranchisement, and led to the founding of enduring recovery ghettos. Indeed, it has engendered what those in the risk and disaster field commonly voice: "First there is the disaster; then comes the real disaster."

Addressing the gap between what is known about hazards and disasters and what enters policy and programs would be important enough considering the circumstances that have prevailed more or less consistently around the world until recently. However, the chasm bears particular and snowballing importance now. The sorts and the scope of both hazards and naturally triggered and technological calamities that people face today have proliferated in the past few decades and with harrowing impact. Because there is little sign that this newfangled exigency will lessen rather than further advance, attending to the breach between what experts comprehend about risks and catastrophes and what gets put into guidelines and operations at this time carries great relevance. It not only bears on present alarming happenstance, but also bears on the imminent future (Hoffman 2016a, 8–9; 2016b).

The corpus of erudition about hazards and calamities is not small. Over the past sixty years, scholars have acquired a great deal of knowledge about every kind of cataclysm and the risks leading to them through systematic research across multiple disciplines. Illuminated have been the causes of mishaps, the quagmires of recovery in the short and long runs, and the increasingly frequent displacement of affected people along with their necessitated resettlement. Yet little has been accomplished in terms of risk reduction; the problem has instead turned into risk creation. Nor has much been accomplished to lessen the brunt of disasters when they happen; indeed, their calamitous clout has amplified. In the meantime, on top of the previously garnered realizations, three new and critical understandings concerning risk and disaster have emerged, each with considerable study behind it. One is that the ever-more-frequent disasters of both geophysical and technological origin across the planet along with increasing conditions of vulnerability are being driven by disturbing contemporary economic, political, and social forces. The second is that both the old and the new sets of disaster-driving factors are merging with further aberrant and exacerbating components, including global warming, coastward migration, and urban densification (Hoffman 2016a, 2017). The third is the now almost totally accepted comprehension that there is no such thing

as a natural disaster. All catastrophes are human caused at one level or another. Even seismologists, climatologists, and engineers have come to accept this realization. There may be natural triggers to disasters, but it is what humans choose, do, make, alter, or ignore that results in a calamity's occurrence, including those erroneously called "natural" as well as those deemed "technological"—that is, disasters that are the consequence of flawed human manufacture. No matter if the happening is an earthquake, flood, volcanic eruption, cyclone, wildfire, drought, nuclear meltdown, oil spill, or other pollutant, the underlying determinant is social. We ourselves are creating the hazards and the calamities.

Yet, time and again, little cognizance amplifying risk exposure, disaster causation, or how disasters unfold to favorable or unfavorable circumstance seems to get through to today's burgeoning governmental and nongovernmental operatives or doers on the ground. And the word "burgeoning" is hardly accurate. The numbers of governmental agencies from international to national to regional and especially the nongovernmental organizations (NGOs) dealing with hazards and calamities everywhere have mushroomed almost beyond count. The disaster industry, if we can call it such, today ranks among the fastest growing in the world. Although without question many individuals in positions of authority or engaged in on-site operations in dire situations are well-meaning and well-versed, far too many lack familiarity with the basic components and erudition dealing with the problem. Many are political or career-ladder appointees who have little background in hazards and calamities. Some are well-intended neophytes. Others are benign or not-so-benign opportunists: scores of compelling needy people and heaps of alluring money are involved. Admittedly, the informative literature is extensive. It is also somewhat scattered. Still, comprehensive texts and pertinent journals abound, as do many knowledgeable consultants. In consequence, for example, despite the well-known fact that very few aspects concerning one disaster are transferrable to another, what often emerges are ill-suited cookie-cutter approaches and unfitting stratagems derived from such mis-garnered dockets known as "best practices" and "lessons learned." All told, the upshot has been, as White et al. note, we are at a state of "knowing better and losing even more" (2001, 81).

A Growing Alarm

We are not the first to address the dismaying and increasingly dangerous rift between what is known about risk and disaster and what gets into policy and practice. Warnings about the problem have long existed, but

have recently spread. In their article "The Disaster-Knowledge Matrix—Reframing and Evaluating the Knowledge Challenges in Disaster Risk Reduction," Spiekermann et al. (2015) also address the difficulties in integrating research-based knowledge into the policies and practices surrounding disaster scenarios. They access what they perceive as the core barriers in the exchange and implementation of knowledge concerning risk and catastrophe and introduce a means to identify factors hindering the conveyance of information. Their inventory somewhat parallels ours, although theirs is more focused on mechanism. Correspondingly, in his chapter in the book *Disaster Research and the Second Environmental Crisis* (2019, 161), James K. Mitchell directly asks, "Why can't we do better?" He notes that most efforts to contravene risk and disaster up to present have focused on four diverse, but not well-amalgamated themes: (1) improving scientific knowledge and technical intervention, (2) instituting legal restraints on unwanted actions, (3) buttressing existing societal arrangements for reducing vulnerabilities, and (4) developing incentives to accomplish mitigation in combination with bringing in underrepresented groups. He proposes a strategy of empowerment based on uniting all participants in a collective endeavor. Wilson (2006) in his article, "Beyond the Technocrat? The Professional Exert in Development Practice," details how the common understandings of professional and governmental roles lead to missing the crucial point of engagements with other actors. He calls for open spaces and a community of practice. David Mosse, a professor of anthropology at the University of London who has also worked as a social development advisor for several NGOs asks in his chapter in *Development and Change* (2004, 639–671) if good policy is impossible to implement. He observes that most agencies are shaped by the exigencies of their organizations and the need for joint associations rather than by enacting efficacious policy. Strategies are further formed to solidify political support, therefore, making the link between research, policy, and action problematic. White and Haughton (2017, 412–419) note how decision makers in both process and practices of hazard management skew their protocols toward current concerns and, in so doing, shape future guidelines in conformity to current circumstance, thereby impeding new and changing input. Long-term considerations accordingly become located in so-called hazard-scapes, in which risks are fixed and difficult for future generations to reverse. They refer to the practice as the "tyranny of the present." Serafini (2017), speaking of the failures of recovery after the Italian earthquakes of 2016 and 2017, reaffirmed that a common cause of the rift lies with many layers of bureaucracy, each charged with a different aspect of risk and disaster. All progress in consequence duly

ends up in a complete stalemate. Noting similar paroxysms in what he calls adversarial countries, Kelman (2012) points the blame of not integrating programs to action on the manifold failures of disaster diplomacy. He cites the double edge of dealing on the one hand with power brokers and on the other with the fear of scrutiny, all combined with internal prejudice, misgivings, and mistrust in governing institutions. Finally, Brondo (2015) calls for the much overdue amalgamation of practitioners within germane academic departments as the means of improving understandings and efficacious initiatives.

What Is Addressed in the Following Chapters

By pulling together contributions from individuals who have been deeply involved in policymaking with those who have extensive experience as practitioners as well as with academic researchers, we attempt in this volume to formulate a comprehensive examination of the chasm that exists between what is known about hazards and events, what gets into dictums, and what gets enacted. Our intent is to offer a triptych that reflects all three aspects in relation to the others. Introduced in the chapters are many concerns that are well established and many that are not, among them the factors that drive vulnerability and disaster construction; the frequent efforts of global and national forums to establish guidelines along with their constant revisitation; the tribulations faced by field personnel confronted with critical needs versus roadblocks; the effects of global warming; the complexity of resettlement; gender; the importance of local people's perceptions and ideology, including their chimeras and delusions. A summary of the book's chapters follows. Further description appears in introductions to the three parts.

Part I of the book, entitled "Illuminating the Fissures: Suppositions, Execution, Agendas, Realities, and Execution," is directed toward an exposition of the problematic fissures between knowledge, policy, and practice from the point of view of people who have both shaped programs and tried to enact them.

This part begins with a chapter outlining the scope of the disjunction and stating many of its manifold, and often covet, facets. Although he is an academic, Roberto E. Barrios has nonetheless directly worked in a number of risk, disaster, and recovery situations. His chapter "Unwieldy Disaster: Engaging the Multiple Gaps and Connections That Make Catastrophes" sets forward many of the basic causal components that debar the integration and realization of information disaster experts have amassed. The chapter further shows how anthropological research methods and

theories, a theme that we return to in the book's conclusion, helps explain why disasters not only often persist but also end up distending human and economic costs. Barrios stresses that what is required to bridge the chasm is a combination of understanding human behavior as expressed in each particular cultural circumstance, amalgamated to expert knowledge, material agency, governance practice, and very importantly, a measure of imagination. Barrios also presents the philosophical background that separates the various players involved in the disjunction.

The second chapter, "Advocacy and Accomplishment: Contrasting Challenges to Successful Disaster Risk Management," written by Terry Jeggle, a highly experienced and informed international practitioner, takes the examination of the rift directly to the practitioner's dilemma. Despite the many guiding international mandates and conferences that have asked the many factions immersed in the risk and disaster conglomerate to share information, few have executed efforts to minimize the quandary or share their ken. He points out that there exists no acknowledgment within any international charter that indicates a condition or undertaking in one place transfers, or is applicable, to another. Jeggle asserts that competent disaster risk management advances effectively only when both effort and leadership are localized. He further discusses the advocacy aspect of international, national, and local institutions and outlines the history of directives guiding them, including the United Nations' (UN's) International Decade for Natural Disaster Reduction (1990 to 1999), the Yokohama Plan, and the UN's International Strategy for Disaster Reduction (2000 to 2015) and outlines how terminology shapes perceptions, roles, contexts, and agendas.

In "Natural Hazard Events into Disasters: The Gap between Knowledge, Policy, and Practice as It Affects the Built Environment," Stephen Bender, from his original background in architecture to his many years as an international hazard and catastrophe executor, takes a sweeping look at sovereign states, multilateral development banks (MDBs), NGOs, and the international community. He examines how each defines, shapes, and operates within various vectors of the disaster field: risk reduction, risk management, climate change adaptation, emergency assistance, and post-disaster relief, recovery, and reconstruction. The various agencies involved, he maintains, know very well who is vulnerable and why, what can be done, and who will benefit from their policies and practices. What he discloses about them, however, are the covert issues of power, prestige, and funding among and within these organizations. Bender chronicles how certain concerns arise to claim dominance, which they are, and how they eclipse others. As a result, discontinuities, often deliberate, not only result in total downfall but also lead to it.

Adam Koons is an anthropologist who has spent his entire career as an in-the-field relief agent. His work has taken him to countless countries on almost every continent and almost every sort of fateful situation. He has worked in the context of environmental to technological catastrophes, conflict arenas, and in refugee and resettlement camps. Key to his direct and immediate endeavor has been the rights-based approach derived from the Sphere Minimum Standards directives, a protocol shared among such agencies as the UN-led Inter-Agency Standing Committee, the 190-member consortium of United States–based NGOs, and many other international groups. Although axioms exist, in "Humanitarian Response: Ideals Meet Reality," he finds there almost always remains a disparity between what should happen and what does happen. The challenge lies in the interstice between the ideal and the real-time decision making that by exigency ensues in crisis situations. Both axioms and actions bear implications in terms of ethics, politics, sociocultural desires, and ongoing relief operations.

In "Disaster Theory Versus Practice? It Is a Long Rocky Road: A Practitioner's View from the Ground," Jane Murphy Thomas takes the investigation of the knowledge, policy, practice chasm into a detailed description of several actual recovery projects. Within the portrayals, she deciphers why some of the programs succeeded and others did not. Thomas illuminates barriers, describes the many actors involved along with their positions and roles, then tells when and how the players nurture the project or constrain it. The projects take place in Bangladesh, Afghanistan, and Pakistan-administered Kashmir. Each project has a differing overseeing agency. In her exposé Thomas earmarks cultural issues, organizational behavior, matters of expedience, the muddled meaning of the term "expert," and, as with other chapters, power and politics.

Part II of the book, "Situations and Expositions: Plights, Problems, and Quandaries," moves the discussion of the rift away from agent and operative to an exposition of outstanding plights, problems, and quandaries that vex the disaster scenario. Some of particulars (e.g., gender) that this part addresses have long been known, and some are newly compounding (e.g., climate change and the increasing predicament of displacement). The types of calamities cited are both of quick-onset, albeit that is a misnomer—all have long developing chronologies—and those slow in arrival and recognition. Some are unexpected, and some predictable and chronic. Different aspects of the gap are unmasked again in each chapter in this part of the book.

To begin, Shirley J. Fiske and Elizabeth Marino take on the mounting disaster imbroglio of climate change." They point out that enmeshed within climate change are both slow- and quick-onset occurrences and that

both sorts of events contribute to the expansion of devastation. Climate change, in contract to other risks and occurrences, brings up distinct, and often political, chasms between erudition, policy, and action because the scholarship itself may be endorsed or denied. The fundamental dilemma, as the authors point out, is that the acuteness of the catastrophe is largely invisible. The onset of the alteration is by and large incremental. Sometimes it is marked by punctuated events, and other times it creeps up in a continuous way. The fracture between knowledge, policy, and any sort of mitigation, therefore, comes down to local definition and acceptance of the situation. Acceptance depends on several sources: insiders, outsiders, region, state, country, and globe. The authors set forth the social construction of climate events such as floods, hurricanes, wildfires, and rising sea levels, even though to the communities they seem to be forces of nature. They detail how climate change calamities in actuality occur, as with other disasters, in historical and socioeconomic contexts of power, social stratification, income, resource, and social network disparities, although once again outsider agencies often little heed the genuine causations.

Brenda D. Phillips addresses the perennial disaster quandary of gender and its role in the disparity between exhortation, instruction, and implementation in her chapter, "Disrupting Gendered Outcomes: Addressing Disaster Vulnerability through Stakeholder Participation." The matter of gender has no boundary in the risk and disaster amalgam. It crops up at every level and in every facet from original hazard to final recovery, if there is such. To say that the elements embroiled within the gender conundrum are myriad, complex, and clamorous is understating the subject. As Phillips indicates, the neglectful and reprehensible treatment of women both leading to and subsequent to a catastrophe appears an intractable scourge. Despite years of recognition and concerted effort, the mistreatment and disparities of gender within the material, legal, economic, political, and ideological realms of disaster continue. In her all-encompassing survey, Phillips illuminates the totality of predicaments and, in so doing, unveils the pervasive schisms that remain largely unabated between what is known about gender within risk and catastrophe and what does, and mostly does not, happen. The chapter brings up a number of global situations and sets forth what achievements have taken place. She includes a number of new contributions to the topic, including the recent inclusion of men and the predicaments they endure.

As risk situations and disaster impacts burgeon across an increasingly populated globe, the displacement of people and the need for the resettlement has escalated. The question is, Where can people go as land disappears and perils loom? What happens when whole communities or ethnic

groups want to move together as one, and not as individuals? Anthony Oliver-Smith who has worked more than forty years in the two arenas implicated in the mushrooming predicament, disaster and development and forced displacement, addresses the growing quandary in his chapter, "Resettlement for Disaster Risk Reduction: Global Knowledge, Local Application." As the quagmire widens, so does the resistance on the part of those who must move and those who must accept newcomers. The gap between what is, in essence, an unchartered situation and old policies and solutions looms especially large. Oliver-Smith's chapter reviews the history of resettlement, then examines the contradictory confluence of environmental disruption and Disaster Risk Reduction (DRR). He lays out the construction of global opinion about the matter, reports on progress and problematic outcomes, and illustrates with germane case studies.

Ryo Morimoto's chapter, "From Nuclear Things to Things Nuclear: Minding the Gap at the Knowledge-Policy-Practice Nexus in Post-Fallout Fukushima," zeros in on another contemporary development, in this case a peril that has sprung up only in recent decades but carries with it annihilating ramifications. His focus is specifically on the latest incident in what has, unfortunately, become a litany of happenings. In his chapter, Morimoto resurrects two older phrases that he finds more applicable than ever. One is "missing expertise" (Rajan 2002), and the other is "a new species of trouble" (Erikson 1994). Morimoto's particular concern is the contamination of and, especially, the vexation of decontamination in a land where the event of contamination itself violated cultural code. He argues that the gap surrounding this peril does not arise from unsuccessful coordination of knowledge, policy, and practice nor from lack of common language or clear communication. The rift lies, he claims, beyond the reach of the simple knowledge-policy-practice collaborations. It is ethnography, the key method of anthropology, he argues, that reveals what decontamination consists of for the locals undergoing the interminable catastrophe of the Fukushima meltdown. He reminds us again of another implicit understanding about disasters: The distribution of risk and vulnerability in society is uneven.

Mark Schuller's chapter, "'Haitians Need to Be Patient': Notes on Policy Advocacy in Washington Following Haiti's Earthquake," sheds light on yet another modern occurrence in what Morimoto in his chapter calls the nexus of disaster and its growing place in the disparity. That occurrence is the rise of today's clamorous advocacy. Schuller's discourse centers on Haiti, a country on the western part of the island of Hispaniola. As a nation, Haiti has become almost eponymous for every predicament noted in this book. The event Schuller details is the devastating Haitian earthquake of 2010 and its grievous continuing post-disaster recovery.

Through his personal participation in a solidarity effort championed by a number of local NGOs directly dealing with the plight of the islanders, he enumerates the actions, obstacles, and frustrations of the advocacy effort as it progresses all the way from its home site to Washington, DC. He describes the mandates of the nonexpert, non-knowledgeable politicians who nevertheless hold sway over programs and funding and tells how the money goes to military and for-profit firms he decries as Beltway bandits for their great influence over protocols, contracts, and aid distribution. He recounts the process and players, the official representatives, the lobbying, and tells of the formation of helpful support groups. His revelatory chronicle discloses the roles played by language difficulties, socioeconomic status, and trust.

Part III of the book, "Revamping Apparatus and Outcome," turns to whether solutions or perspectives exist that might offer an integrative bridge between accumulated knowledge about risk reduction and calamity and the tangled web that has so often led to their suppression.

Susanna M. Hoffman's chapter, "The Scope and Importance of Anthropology and Its Core Concept of Culture in Closing the Disaster Knowledge to Policy and Practice Gap," circles back to Barrios's initial presentation. She advances that anthropology's deep cultural perspective, and with it the inclusion of local, indigenous proficiency, can operate as a mechanism for consolidating scholarly information, externally imposed guidelines, and, ultimately, the production of effective aid. She proposes, as increasingly have others, that integrating a people's own mastery and appreciations along with the other contributing vectors achieves better outcomes in reducing vulnerability and accomplishing restoration. Anthropology's frame of reference incorporates a people's long-garnered understanding of their surroundings along with the ways they have traditionally managed upheavals. It incorporates what they perceive as dangers, and what they want outcomes to be. Their perceptions and desires are not necessarily the same as outsiders'. More importantly, it includes understandings of complex, many-layered, guiding customs a people may share, the disregard of which has caused many risk reduction and disaster recovery programs to flounder. How is space perceived? Who has the actual prescriptive authority to stay or go? How is property inherited and what does its legacy mean? Hoffman recounts a host of details that impact efforts but often are neglected. It is the lack of fusing deep culture, indeed allowing such customs to dictate, that has commonly led to not only to one disaster but also to disaster upon disaster.

After first noting how anthropologists today routinely chronicle the human impact of disasters, the chapter coauthored by Katherine E. Browne, Elizabeth Marino, Heather Lazrus, and Keely Maxwell directly

specifies the misalignments between institutions offering aid and communities receiving it and makes precisely and squarely explicit "what is known" about disasters from anthropology's most critical insights. In their chapter, "Engaged: Applying the Anthropology of Disaster to Practitioner Settings and Policy Creation," they earmark the obstacles faced in enabling practitioners and policies to recognize gained knowledge and offer, as no other presentation in this book does, a point-by-point set of recommendations for integrating risk and disaster knowledge into policy and practice. To do this, they ask three questions: (1) What is expressly and currently known about the causes of disaster, reducing impact, and managing impacted communities when calamities occur? (2) What in detail are departures that separate academic work on disasters and practitioner work? (3) And finally, what suggestions can be offered to span and eliminate the chasm? The authors come from a broad spectrum of practicing and academic anthropologists. They cover their topics in bullet point clarity, discussing such points as convergence of outsiders, shunning self-help, the drawbacks of privatization, the flaws of an extraordinary versus normal perspective, divergent measures of success, language and framing use in order to convey advice and more, and conclude with citing instances where academic and practitioner approaches are united.

The final chapter of the volume turns the discourse toward the future and reminds the reader that the time ahead matters. In her chapter "Future Matter Matters: Disasters as a (Potential) Vehicle for Social Change—It Is About Time," Ann Bergman asks if risk and disasters themselves can provide the vehicle for social change. In giving her chapter the subtitle "It Is About Time," she presents a double entendre. The problems of risk and disaster have gone on too long and their impacts even now influence what is coming. Bergman delves into a discussion of utopia versus dystopia in the context of past and looming calamity. She muses about whether dangers and disasters are the new normal, and if so, whether they have agency and provide opportunity. In all these questions, she directs the reader toward an understanding of sustainability.

Further Factors

While together the chapters in *Disaster Upon Disaster* cover a far-reaching panoply of factors involved in the chasm between risk and disaster knowledge, policy, and practice, still more factors exist. Some of them are crucial enough to bear mention.

The first among them straddles a double line, sometimes overt but mostly covert, often said as a facetious characterization but largely

deeply believed. It is the seemingly implacable judgement among many policymakers and practitioners that any insight emanating from the academic or scholarly community is the product of someone "airy-fairy" or "ivory tower" and is, therefore, without merit. One colleague practitioner deemed the it "the wall of scorn." Those adhering to the attitude treat academics as if they have never faced "reality" or, at least, the reality that policymakers and practitioners must deal with. Therefore, they know nothing about the nitty-gritty of hazard mitigation or disaster entanglement. Such a posture ignores that, in fact, most academics in the field of risk and disaster engage in situ in assessing actual hazardous situations and have participated in post-event tumult. Some have even been victims (Hoffman 1999). Their research by its very nature takes them to such settings. Those who study risk and disaster have as well typically looked at countless cases of vulnerability and calamity, enough to see the existence of overarching patterns that augment understanding and pinpoint unique distinctions. They can see beyond a singular crisis to the whole collective. Many consult with a wide variety of diverse organizations and speak at conferences attended by all sorts of personages, including governing officials, heads of agencies, and other experts, all of which gives them particular ability in potentially closing the gap between various factions.

There further abides a widespread and unfortunately persistent assumption among many engaged in the risk and disaster enterprise that the only solution to hazards and calamity lies with physical solutions, as in building levees, heightening tsunami walls, and thinning forests. Unfortunately, the public has been long inculcated in the same belief. As a consequence, most funding and authorized programs go toward tangible fixes, not social ones. That the fundamental cause of risk and disaster is exposure and requires social remedies, goes ignored. As a consequence, physical scientists and engineers, and not social scientists, are given primary, and frequently singular, consideration in addressing any malady. As the first several chapters in the book makes clear, authorities also tend to favor economic interests, such as development, tourism, and industry, over matters of mitigation, although these same priorities are themselves leading causes of the burgeoning disaster expansion.

To cap off the conundrum, policymakers and agencies also often do not see the entire discipline of hazard and disaster research as being all that credible. In this, the fault also lies with the scholars of the field. Hazard and disaster knowledge is scattered among a number of disciplines and researchers from the various bailiwicks have yet to coalesce their topics into a single specialty. While some experts attempt to integrate their subject matter with others, some do not. Similarly, the few universities that house disaster centers and give degrees in the subject again by and large

advance only the one vector, generally the social one, and neglect the others. Within the fostering universities, as well, the subject of catastrophe is still considered to be marginal and is treated as such. It is also true that the study of risk and disaster itself has yet to develop the three criteria that would establish it as a recognized and accredited field. The subject lacks a unifying set of theories. Although it rightly embraces a diverse set of approaches, each is rather territorially espoused and advanced by a particular discipline, with little, albeit growing, crossover. In addition, while the body of literature necessary to give credence to a field is rapidly growing, it, too, lacks integration. Lastly, over the unfolding of the field, the academics involved have switched the focus of their study in a seemingly erratic manner. Concern has peregrinated from events to recoveries, victims to survivors, extent risks to risk reduction, risk reduction to risk construction, vulnerability to exposure, mitigation to resilience. Some scholars currently even eschew the word "disaster" and admonish others not to use it. The wavering theme and parade of mutating vocabulary have rendered scholars flighty to policymakers and aid establishments and have implied a feckless nature to their knowledge.

Rarely has yet a further contributor to the rift between knowledge, policy, and practice caught much attention, that is, the taking into account certain veiled aspects within the realm of policy and practice. Without a doubt true kindness exists among many disaster management and relief administrations and organizations, and certainly among their staff, but what is often not acknowledged is that the aura of solicitude they frequently procure and the actions they take under that posture involve hidden considerations that work to obstruct outside input. In almost every hazard or disaster situation, one or two organizations and/or practitioners emerge to attain, and then continue to bear, the designation of holding particular sympathy toward the suffering. What is often overlooked is that frequently when such an organization acquires veneration, at the same time, it garners power. Once achieving the esteem of exemplary compassion, the organization then readily gains determination of programs and protocols (Barrios 2017). That, in turn, creates the phenomena of drawing sympathy back to itself, redoubling its cull of rewards, notoriety, money, continuity, and, again, power. The establishment that gains the mantel of sympathy, and with the funds and repute achieved, is often able to create monuments to itself, construct and name buildings bearing its name, and propagate legends lauding its magnanimity. Frequently, it further acquires official, or semi-official, status as chief among organizations, thereby diminishing the import and thrust of other entities. When a particular agency gains the sway of sympathy, the disjunction between expert knowledge and the agency's practices rigidifies. Agencies with the

power of sympathy tend to discount expert opinion as being extraneous to their proven success. They also more readily adopt cookie-cutter and best-practices platforms despite their having little or no relevance. Since their prestige as well often allows them access to many locales and situations, they become overextended and find easy answers more adroit. Dominating governmental or private establishments also secure influence over the framing of disaster: what happened, how long it lasts, and what constitutes actual injury. Often they promote dogmas of progress and betterment to justify their actions. It should be noted, however, that in many cases the victims also cultivate and wield the dynamics of sympathy.

In addition, it warrants mentioning that most authorities and agencies direct their policies and programs to what they deem as "communities." Yet the very use of the term "community" can worsen the gap in integrating scholarly expertise and especially in seeing that expert insight reaches an entire populace. "Community" is a word that has sliding definitions. In many cases community is more concept than fact. The word may or may not apply to a composite of survivors or vulnerable and, even if to some degree applicable, it may or may not include all relevant persons. Unquestioned, as it usually is, the term, and the assumption it implies, can connote both a broad sweep of inclusiveness and all-round effectiveness. Most often, in truth, it means the program reached some of the germane persons, such as its minor functionaries or ad hoc groups, but in truth did not make inroads to reach the entire body. In many instances, the use of the term "community" may only provide the persuasive wording of a funding proposal. Most anthropologists as a rule have dealt with authentic communities, where interaction among those involved takes place on a constant and continuous basis. But in most situations today, certainly those of major risk and calamity, community operates perhaps more like a metaphor borrowed from physics; the potential of collectivity into an actual community among a group of people may be there but is largely underlying. The fact of community becomes kinetic only when it is triggered by something such as a catastrophe, and probably last but for a short while. The thought that people compose a community may, thus, be a false instrument of policy and programs and leave the meaningful spread of knowledge and information sidelined in its wake.

Dismayingly, most programs, be they by government or other agency, still also revolve around relief as opposed to risk reduction or creation. The concern with relief, as opposed to prevention, is deeply rooted in history (Dauber 2012) and, despite knowledge particularly concerning risk and exposure, continues to affect the focus and ideology of most authorities and agencies. The notion that the vulnerable are responsible for their own condition is also deeply rooted and rebuffs considerable wisdom to

the contrary. Both antiquated notions are thankfully undergoing a slow but steady reassessment via the current popularity of resiliency studies.

Policymakers and practitioners, and for that matter scholars, may also experience program amnesia, but it may not be deliberate. Over time most agencies, officials, and practitioners undergo a great deal of turnover, taking along with it the chronicle of dangers and dilemmas. The forgetting, however, may also be purposeful, such that faulty programs are used again to promote hidden agendas or because they reflect inertia. Between policymakers, researchers, and locals, there also occurs issues of translation along with other failures of communication. Each separate entity in the complex of risk and disaster, might use different terminology or interpret words or intent differently. In fact, failures of communication are endemic to the entire conundrum. Again, these may be guileless snags, but they may also occur from calculated mishap.

One final point: Disaster agencies in their policies, along with practitioners and their actions and academics in their analyses, have tended to be decidedly Western-centric in all their considerations concerning risk and disaster. The orientation is somewhat ingrained because, at the bottom line, the very ideas of risk, recovery, and resilience are themselves Western notions. In every situation concerning surrounding hazards, programs to be implemented, and on-the-ground practice, whether these take place among a Western society people or non-Western, all persons involved need to assess the circumstance in a culturally relative and local manner. That includes what the people assess as a risk, define as a disaster, and how they calculate what constitutes recovery. Still more crucial is the inclusion of what knowledge the people themselves have about their surroundings and their perils before assaying, enacting, or installing any judgments, programs, or protocols.

Currently, the gap between risk and disaster knowledge and what enters the directives of policy and the actions of practitioners pervasively continues. With the explorations as to why detailed in this volume, along with the increasing insights of others addressing the issue, the hope of an integrated endeavor moves nearer.

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Note

1. Epigraph: Pajo and Powers 2017, 11.

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Environmental Anthropology Engaging Ecotopia

An Introduction

Joshua Lockyer and James R. Veteto

We are living in a utopian moment. The majority of humans are already being negatively affected by a number of coupled social and environmental crises. These conditions are created in large part by hegemony of thought and practice that ontologically separates humans from nature, rationalizes the externalization of the social and environmental costs of production and consumption, justifies extreme inequality, and sees solutions only in a continuation of the same systems that generated the problems in the first place. Together these and other problems constitute a crisis that demands imaginative responses and viable alternatives. We contend that anthropology must find ways to engage with such existing possibilities.

The present crises are not new; the fundamental idea that the current situation cannot continue was recognized decades ago with the rise of international discourse on the topic of sustainable development (Brundtland 1987). The widely promoted concept of sustainability is ultimately utopian in nature; it is the good state that we must strive for but may not actually exist except in theory. Despite our best efforts, we do not know exactly what a sustainable society looks like. This has been the paradox of utopianism since Sir Thomas More ([1516] 1906) coined the term "utopia" in 1516, and it is the paradox of sustainability today.

The premise underlying this volume is the basic belief that, at its best, anthropology has always been about exploring real possibilities for a more just and sustainable world. From the early work of Lewis Henry Morgan on indigenous rights (Eriksen and Nielson 2001) and Franz Boas on dispelling popular misconceptions surrounding the concept of race (Boas 1928); to the mid-twentieth-century work of Laura Thompson and her interdisciplinary participatory efforts to improve social and environmental conditions within the Hopi tribe (Thompson 1950); to more contemporary examples such as Nancy Sheper-Hughes (2006) working to protect

the basic human rights of her informants, Robert Rhoades promoting the inclusion of mountain people's perspectives in sustainable development and planning (Rhoades 2000, 2007), and Eugene Hunn's (1999) legal testimony and advocacy work protecting the traditional subsistence rights of Native American tribes in the Pacific Northwest, anthropology has a long and perhaps underutilized tradition in providing solutions to socioenvironmental problems. With this volume, we seek to bring environmental anthropology into more productive engagement with the active pursuit of real ecotopian possibilities in our capacity as theorists, applied social scientists, and concerned citizens. In order to do this and in the spirit of engagement, we reach beyond the confines of academic environmental anthropology to connect with academics from other disciplines and, perhaps more importantly, with some of the leaders in the diverse social movements that are engaged in active pursuit of more just and sustainable lifeways and livelihoods.

This volume brings together anthropologists, environmental social scientists from other fields, and citizen activists who are engaged with three interrelated and often overlapping ecotopian social movements: bioregionalism, permaculture, and ecovillages. All of the contributors share a belief that in the current global context of increasingly negative news about interrelated social and environmental conditions, it is time to put forward work that is solution-focused rather than problem-oriented. As issues related to climate change, environmental degradation, and socioenvironmental injustices have increasingly become major areas of concern for communities around the world, people have begun asking themselves more frequently, "How can we create sustainable communities and livelihoods?" We share a belief that the bioregionalism, permaculture, and ecovillage movements offer potential and partial answers to this question and that engaging with them is one way to improve the relevance of anthropology to the wider world.

Our effort to bring together solution-focused instead of problem-oriented work does not suggest a move away from critical analysis. Rather, it reflects an acceptance of the severity of social and environmental problems, a recognition that solutions are already being developed from the bottom up, and a realization that these grassroots solutions can potentially be strengthened and made more viable through academic analysis. What we are suggesting is a strategic decision to engage with citizen-activists around the world who share understandings of the nature of social and environmental problems and the forces that create them, and who build collective commitments to pursue more just and sustainable possibilities. Our collaborative work in this domain may be characterized by what E. N. Anderson called "ethnoanthropology of the ecological community" (1969:

275) or, following a similar line of thinking in participatory international agricultural development (e.g., Rhoades and Booth 1982), solutions-back-to-solutions. This work is grounded in the premise that anthropologists must engage across disciplines and with practitioners around the world to pose, analyze, and refine viable possibilities, and in doing so, move beyond disengaged cultural critique. In fact—in going beyond our usual roles of recognizing, describing, analyzing, and deconstructing culture—such work suggests that anthropologists can be co-creators, with engaged practitioners of our research projects, in the cultural process. To borrow and modify a concept from permaculture and ecology, we are proposing that an important avenue for environmental anthropologists is engaging in *ecocultural edgework* that moves beyond nature-culture dualisms and strengthens ongoing efforts to build a sustainable world.

Ecotopian Possibilities

The idea that anthropology is well positioned to contribute to an ecotopian future is not new. Indeed, this goal was expressed quite clearly in 1969 by Anderson in the well-known volume *Reinventing Anthropology,* edited by Dell Hymes. In his essay "The Life and Culture of Ecotopia," Anderson laid out a prescient picture of emerging socioenvironmental crises and proposed that anthropologists prepare themselves to participate in "restructuring the world as an 'ecotopia'" (275).

Along these lines, Anderson envisioned two general strategies. First, citing the work of Marvin Harris and Roy Rappaport, he promoted the use of an emergent cultural ecology framework for documenting the energy flow and resource use patterns of non-Western societies in the belief that these societies manifested more sustainable patterns of human-environmental relationships. Although cultural ecology has been critiqued for being overly functionalist and teleological in its treatment of traditional and indigenous cultures (e.g., Orlove 1980), we believe that the proliferation of self-identified "living laboratories" in the form of ecovillages grounded in a bioregional worldview and permaculture design principles opens up unique opportunities for applying the lens of cultural ecology. Another critique of cultural ecology and ecological anthropology has centered on their overuse of ecological analogies in describing human communities; yet bioregionalists, permaculturalists, and ecovillagers are explicitly trying to redesign their real-world communities according to the principles of ecology. How well are groups of people who use ecology as their primary navigational compass in constructing communities of place doing at achieving their goals? Despite the rapid proliferation of such groups, there

is very little research aimed at assessing their endeavors. Such research, especially where it is ethnographically informed, promises to be revealing—both for the successes and shortcomings it may uncover—and has the potential to expand the analysis of both cultural ecology and ecological anthropology while simultaneously engaging questions of interest to political ecologists and other theorists (Veteto and Lockyer 2008; Chapter 5, this volume).

Second, building in part on empirical case studies, Anderson suggested that "anthropologists should concern themselves with planning for the world" (1969: 276). Invoking a reinvigoration of applied anthropology, Anderson's suggestion was that anthropologists could help formulate and test "organizational structures" that might lead us toward ecotopia by focusing in part on "how the balance of power can be redressed" (278). How, exactly, this was to be achieved remains unclear in Anderson's essay, although he mentions that "organizational strategies can be formulated and computer-simulated" (278) and enters into a long description of what an ecotopian society might look like. Anderson alluded to the fact that some countercultural groups were actively trying to model such a society, but believed that their vision was simultaneously shortsighted and overly idealistic.

For a variety of good reasons, many anthropologists would balk at such a utopian project as planning for the world. Anthropological interventions in the world have, at times, had regrettable outcomes. However, we see an alternative possibility, one alluded to but not pursued by Anderson when he references countercultural groups as people who were potentially moving in the right direction. While the failure and collapse of the 1960s countercultural projects have been widely remarked upon, a closer examination indicates that emerging social movements—bioregionalism, permaculture, and ecovillages among them—are building on the successes and failures of the 1960s counterculture in an attempt to develop more effective strategies for moving toward ecotopia. Indeed, bioregionalists, permaculturalists, and ecovillagers are in effect "planning for the world" through active experiments in their own communities and the development of ecotopian models that may be altered, refined, and expanded as appropriate for other local biocultural contexts. This "bioregional planning" does not employ the totalizing meta-utopianism characteristic of industrial capitalism or socialism, but rather builds on Wendell Berry's insight that "[t]here is, as maybe we have all noticed, a conspicuous shortage of large-scale corrections for problems that have large-scale causes. Our damages to watersheds and ecosystems will have to be corrected one farm, one forest, one acre at a time" (2008: 45). Nor do these groups succumb to the escapist and oppositional mentalities that have often marginalized countercultural groups in the past. In fact, these movements today

typically seek to build bridges across a number of divides—ivory tower from village, Global North from Global South, and nature from culture.

While important and insightful work ensued in the years after 1969 and many of Anderson's suggestions were at least nominally taken up in the fields of ecological and environmental anthropology, his essay is still relevant today. The patterns of inequality, injustice, and ecological degradation that he referred to have only become more manifest in the world and are increasingly acknowledged and studied by environmental anthropologists. From early synchronic approaches in cultural ecology that used culture as the unit of analysis and answered fundamental questions about how groups made their living through subsistence strategies, the social structures that resulted from local adaptations, and the ways in which they rationalized that living ideologically (Steward 1955); to approaches in ecological anthropology that shifted the unit of analysis to the scale of population and measured human energy flows through ecological systems (Rappaport 1968); to more processual approaches that incorporated actor-based theory, history, and political economy (Orlove 1980) or contemporary environmental anthropology, with its blend of theory, political awareness, and applied policy concerns (Townsend 2009), environmental anthropologists have always been concerned with sustainability and human societies. It is only appropriate that anthropologists would take an increasingly active role in the transition to a post-carbon world.

Anderson's (2010) more recent volume, *The Pursuit of Ecotopia,* nominally an exposition on what traditional and indigenous societies can teach the world about the pursuit of ecotopia, is as much a lament of the fact that ecotopia still seems as far (or farther) away today than it did in 1969. We believe that the idea of anthropologists contributing to a more ecotopian society remains an important goal, and strategically choosing to engage with ecotopian movements is one valuable avenue for pursuing it. We also believe our efforts may shed light on some of the most fundamental questions in environmental anthropology, such as: What does a sustainable community look like in the twenty-first century? How can we transition to a world of socially just sustainable communities? What are effective political, personal, and social actions for achieving a sustainable world? What strategies can be undertaken to lessen the impact that highly extractive areas of the world have on less consumptive regions? How can we combine traditional ecological knowledge with appropriate technology in creating more sustainable communities?

In the following section of this introduction we provide a selective overview of the ideological and practical strategies of the bioregional, permaculture, and ecovillage movements and how they interrelate with approaches and concerns in environmental anthropology. We will then

link these movements with contemporary thought in radical, solutions-based environmental anthropology. We conclude this introduction with an overview of each chapter in the book and some common themes that run throughout the volume.

Bioregionalism, Permaculture, and Ecovillages

Our conceptualization of this book is rooted in many years of research in ecological and environmental anthropology and an even longer engagement with activism in the environmental and social justice arenas. In our academic work and activism, each of us engaged with bodies of ideas and groups of people who are attempting to enact just and sustainable alternatives to existing political and economic hegemonies. We sought, in part, to move beyond a politics of protest to engaging active utopian pursuits of just and sustainable futures. In the course of these explorations, we repeatedly returned to three movements, each of whose vision is global in scope, but with activities that are typically local in scale. These movements articulate and enact alternative development strategies that foreground moral concerns with justice and sustainability and attempt to contend with the complexities of biocultural diversity, power inequalities, and structural violence. In addition, each movement aims to build global networks that bridge diverse contexts while simultaneously maintaining focus on sustainable local livelihoods. These three movements, bioregionalism, permaculture, and ecovillages, have been largely ignored by mainstream development practitioners and anthropologists alike, while being employed extensively on a grassroots level. With this volume, we aim to provide at least a partial foundation for greater engagement with these socioecological movements.

Each of these three movements and their respective philosophies and practices represent essential components for transformation to a more just and sustainable world. Bioregionalism represents the worldview and resulting politics—a basic understanding that humans and human activities are fundamental components of ecosystems, not separate or even "coupled," and that human organization should be guided by natural systems instead of arbitrary political boundaries. Permaculture represents an ethically grounded methodological toolkit for putting the bioregional worldview into practice; it provides guidelines for developing sustainable human ecosystems wherein humans live simply, so that all may simply live. Typically, ecovillages are the incomplete and ever imperfect results of using permaculture to enact the bioregional worldview; each ecovillage is

a unique "socionature" that actively attempts to model just and sustainable human lifeworlds in a particular places.

While bioregionalism, permaculture, and ecovillages are simultaneously diffuse and interrelated, it is possible, at the risk of reification, to identify them individually. Each is to some degree rooted in countercultural currents of the late 1960s, although they burst onto the scene somewhat later and are in a constant state of dynamism. All three simultaneously incorporate a global-scale critique of industrial capitalism and a vision of locally based forms of sustainable development. Each of the movements has at its heart a fundamentally ecotopian imaginary; however, each movement also seeks to put those imaginaries into practice. Below, we provide a brief introduction to bioregionalism, permaculture, and ecovillages, and suggest areas where they intersect with environmental anthropology.

Bioregionalism

Bioregionalism emerged in the 1970s with the writings of Raymond Dasmann, Peter Berg, Gary Snyder, and Stephanie Mills, to name several of the more prominent bioregional thinkers. It is a philosophy that resonates with, and draws directly on, early theory and ethnography in ecological and environmental anthropology. Bioregionalists have built their theory and praxis in part by directly citing the works of A. L. Kroeber, Ruth Underhill, Marshall Sahlins, Karl Polanyi, Roy Rappaport, Robert Netting, and Gregory Bateson, among others, indicating that environmental anthropology has fundamentally contributed to the construction of ecotopian possibilities. It also suggests that we would be remiss not to engage with those who use anthropological theory and knowledge to effect sociocultural transformation.

A prominent precursor to, and influence on, bioregional thought is evidenced in the work of nineteenth-century geologist and anthropologist John Wesley Powell. Powell's contributions to early American anthropology are too often written out of the history of the discipline, despite the fact that he was founder and director of the Bureau of American Ethnology from 1879 until his death in 1902. In addition, his approaches toward classifying and organizing Native American cultures and languages still serve as a foundation for anthropological knowledge today. Yet, Powell was more than an anthropologist, and his attempt to bring together geological, geographic, and ethnographic knowledge in the interest of sustainable development in the American West is where the closest articulation of bioregionalism in the history of American anthropology can likely be found.

In his *Report on the Lands of the Arid Region of the United States* (1879), Powell recognized that sustainable human settlement and development of the West depended on topography, surface water sources, and cooperation grounded in the knowledge of these features. Based on this inherently bioregional perspective, he proposed a radically different plan for the settlement of the American West than the imperialist vision of Manifest Destiny. In Powell's articulation, land in the arid West would not be divided into rectangular quadrants, but rather into irregularly shaped parcels dictated by the undulations of watersheds. Cooperative communities of freeholders—modeled in part on Mormon customs and New Mexican acequia associations—would develop small- to medium-scale irrigation, timbering, and pasture systems appropriate to each specific locale. Such place-based cooperative organizations would prevent the exploitation of local resources by outside interests and ensure sustainable human settlements.

Needless to say, Powell's recommendations did not become the basis for policy and the West was divided and settled according to more familiar models grounded in the misguided meta-utopianism of Manifest Destiny—denoted by rectangular land parcels and more amenable to manipulation by powerful special interests. In retrospect, Powell's vision was prescient if imperfect. While today's anthropologists would certainly balk at his cultural evolutionism, bioregionalists and anthropologists alike can recognize the fundamental wisdom in his recognition of the human-nature dialectic in the American West. Had his policy recommendations been adopted, the western part of the United States might have developed more along the lines that future bioregionalists later envisioned. Indeed, had his proposals been fully implemented, they may have negated the need for the bioregional movement to arise some seventy years after Powell's death.

Fundamentally, bioregionalism suggests, following Gary Paul Nabhan (1997), that human groups are "cultures of habitat." Bioregionalism roots human cultures in particular places. Bioregionalists seek to organize cultural, economic, and political life according to the criteria presented by vaguely defined eco-regions and more empirically identifiable watersheds. Bioregionalism proposes that economic activities should be dictated by ecological boundaries rather than arbitrary political divisions. It envisions a re-grounding of culture and community within particular watersheds and ecosystems.

The fundamental program of the bioregional approach is "reinhabitation." Reinhabitation entails a process whereby individuals and communities decide to commit themselves to a particular bioregion and live "as if" their descendents will be living there thousands of years into the fu-

ture. The antithesis of the current global economic system, which rewards hypermobility and jumping at the chance for quick profit, reinhabitation means doing what is best for the long-term health and viability of the socioecological community (Snyder 1995). Bioregionalists often take the indigenous societies of their bioregions as models of long-term inhabitation and sustainability, but work within their own cultural traditions, with a sense of dynamism that does not reify or essentialize traditional place-based cultures. Reinabitation does not mean that people cannot travel or network with others at different scales within the global community; in fact, reinhabitatory bioregionalists are more properly understood as practicing a place-based form of what Escobar (2001) has described as a fully networked "localization."

> Bioregionalism calls for commitment to this continent place by place, in terms of biogeographical regions and watersheds. It calls us to see our country in terms of its landforms, plant life, weather patterns, and seasonal changes—its whole natural history before the net of political jurisdictions was cast over it. People are challenged to become reinhabitory—that is, to become people who are learning to live and think "as if" they were totally engaged with their place for the long future. (Snyder 1995: 246–47)

Bioregionalists are also focused on experimenting with watershed-level forms of direct democracy and consensus decision making. The basic proposal is to create cultures that are informed by local ecological dynamics and empower citizens to govern their own bioregions based on a more ecological worldview. Nation-states and international governing agencies are viewed as power-hungry entities that make decisions in faraway places and impose arbitrary political boundaries (often based on profit motives) that are usually harmful to local people. States can be worked with when it is necessary and beneficial to local bioregional interests, but local governance is the political ideal. Bioregionalism can thus be properly viewed as a pacifist eco-anarchist formulation.

A risk familiar to environmental anthropologists posed by the bioregional movement is that of suggesting that environmental determinism be the guiding philosophy for future human organization. Bioregional thought does tend toward a watershed-level environmental determinism, and as anthropologists we suggest that bioregional conceptualizations remain fluid, dynamic, and negotiable to diverse groups of local people. This is, in fact, the reality that bioregionalists have experienced as they have sought to enact their imaginaries. In the current global context, bioregions and watersheds are crosscut by diverse groups of people from widely divergent ethnicities, languages, socioeconomic statuses, occupations, and worldviews. In fact, human groups have organized themselves throughout history in ways that do not always correspond exactly to constructed

bioregion or watershed formulations. For example, in Ecuador, Rhoades (1999) found that when international development researchers tried to implement watershed-level management programs, local indigenous groups were spread out across multiple watersheds. This led to a situation where scientific watershed management, which has a lot in common with ecological bioregional thinking, became a top-down bureaucratic formulation being imposed on local people. Snyder, in recognizing the pitfalls of the scientizing tendencies of institutional ecological bioregionalism in California, has identified a parallel "cultural bioregionalism" that is more attuned to the nuances of local social constructions and human organization. Cultural bioregionalism is an excellent entry point for collaboration between cultural anthropologists and the bioregional movement:

> Here is perhaps the most delicious turn that comes out of thinking about politics from the standpoint of place: anyone of any race, any religion, or origin is welcome, as long as they live well on the land … [This] sort of future culture is available to whoever makes the choice, regardless of background. It need not require that a person drop his or her Buddhist, Jewish, Christian, animist, atheist, or Muslim beliefs but simply add to that faith or philosophy a sincere nod in the direction of the deep value of the natural world and the subjecthood of nonhuman beings. A culture of place will be created that will include the "United States," and go beyond that to an affirmation of the continent itself, the land itself, Turtle Island. (Snyder 1995: 234)

Figure 0.1. Ninth Continental Bioregional Congress, Earthaven Ecovillage, Katuah bioregion, summer 2005. Photo by Joshua Lockyer.

In ongoing efforts to enact this proposal, bioregionalists have since the early 1980s come together in bioregional congresses to share stories and strategies and to cooperate with neighbors to build bioregional communities. As Peter Berg says in his opening chapter in this volume, "There's a tremendous diversity among bioregions … but the schema for growing native life-place politics starting with socialsheds of neighbors, joining these in watershed councils, and proceeding to the creation of bioregional federations or congresses can fit them all."

Thus, bioregionalism provides a potential model for human reinhabitation and a language for organizing processes that will unite people in enacting that model. The oldest bioregional group—the Ozark Area Community Congress—has been in existence since 1980 (see Campbell, Chapter 3, this volume) and the Continental Bioregional Congress, after an initial meeting in 1984, continues to meet every four or five years at sites in the United States, Canada, and Mexico.

Permaculture

Permaculture aims to create

> consciously designed landscapes which mimic patterns and relationships found in nature, while yielding an abundance of food, fibre, and energy for provision of local needs.… I see permaculture as the use of systems thinking and design principles that provide the organising framework for implementing the above vision. It draws together the diverse ideas, skills and ways of living which need to be rediscovered and developed in order to empower us to move from being dependent consumers to becoming responsible and productive citizens. (David Holmgren 2002: xix)

If bioregionalism is an ecotopian philosophy/worldview and political ecology that is actively redefining socio-politico-ecological boundaries, then permaculture is an ecotopian methodology. Permaculture is an ecological design science grounded in a fundamental recognition that economic viability and social justice are interrelated with functioning ecological systems. Permaculture guides the redesign of systems for production, consumption, and inhabitation according to this foundational viewpoint.

The emergence of permaculture can be traced directly to the 1970s, when Australian bio-agronomist Bill Mollison and his student David Holmgren began experimenting with regional perennial polycrop food systems. They developed a framework for applying this system of design in various contexts and at various scales (from garden bed to entire landscape) and started traveling the world to teach people how to apply the framework in their home regions. Thousands of permaculture practitioners have since been trained and most can trace their genealogy back to

Mollison and Holmgren. While permaculture maintains a primary focus on agricultural systems, this design science has been applied to all dimensions of human-environment interaction in rural and urban, overdeveloped and underdeveloped contexts:

> [Permaculture] is about designing sustainable human communities, and preserving and extending natural systems. It covers aspects of designing and maintaining a cultivated ecology in any climate: the principle of design; design methods; understanding patterns in nature; climatic factors; water; soils; earthworks; techniques and strategies in the different climatic types; aquaculture; and in the social, legal, and economic design of human settlement … Strategies for the necessary changes in social investment policy, politics itself, and towards regional or village self-reliance are now desperately needed. (Mollison 1988: i)

The permaculture paradigm encompasses a set of ethical principles and design guidelines and techniques for creating sustainable, permanent culture and agriculture. Guided by permaculture's three ethical principles—earth care, people care, and fair share—and its twelve ecological design principles (see below), permaculturalists around the world come together for gatherings, convergences, and trainings to share examples of permaculture design projects from their yards, gardens, farms, and broader communities. Permaculturalists have moved beyond an initial conceptualization of permanent agriculture to a vision of permanent, bioregionally rooted culture.

Permaculturalists worldwide have been involved in the type of ecological planning that Anderson (1969) recommended be undertaken by environmental anthropologists decades ago. Anthropologists have generally not answered the call, but citizen activists and planners in the permaculture movement have been contributing to building more sustainable communities, one garden at a time, across the entire globe for the past thirty-five years. As we have suggested elsewhere—with issues of ecological destruction, climate change, and peak oil looming before us—cross-fertilization between permaculture and environmental anthropology is a timely and vital project (Veteto and Lockyer 2008; Chapter 5, this volume). In this volume, contributions by Aistara, Haluza-DeLay and Berezan, Randall, Fox, and Pickerill (see summaries below) give compelling examples of collaborations between anthropologists and permaculturalists; and in several cases, of projects where environmental anthropologists have been certified in permaculture design and are using skills from both domains to improve sustainability in communities where they both live and work. Permaculture provides these anthropologists with a methodology for challenging dominant paradigms and constructing alternative bioregional possibilities, both within anthropology and the world at large.

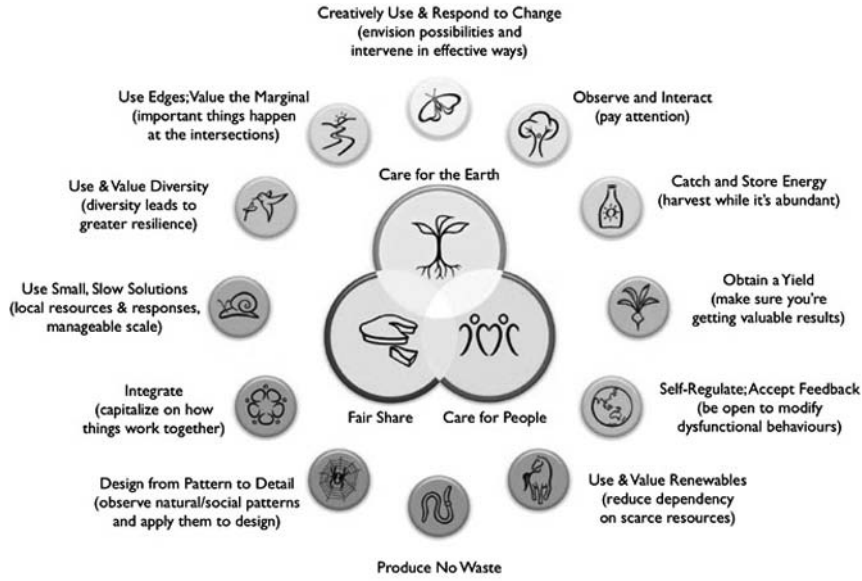

Figure 0.2. Permaculture ethical and design principles. Image courtesy of http://www.permacultureprinciples.com.

Permaculture also stands to benefit from collaborative interaction with environmental anthropology, as its leading practitioners have taken notice of critique from the academy that permaculture is relatively weak on theory (Holmgren 2002). Although permaculture was initially conceptualized within an academic setting, its subsequent development has taken part largely as applications in real-world settings. This has been both a strength and weakness of the permaculture approach. While sustainable living systems have been developed in thousands of sites across the globe, the ecological theory that informed permaculture's theoretical foundations has not been updated to reflect developments in the field. Permaculture was and is heavily influenced by the ecological systems theory of both Howard T. (especially) and Eugene Odum (Holmgren 2002; Odum 1971). Since permaculture was developed by Mollison and Holmgren in the 1970s, it is not surprising that they were heavily influenced by the ecological approach of the time. However, theory and modeling in ecology have generally moved past system approaches that focused on negative feedback loops, homeostasis, climax, and equilibrium to more dynamic and diachronic approaches that incorporate the ecological realities of non-equilibrium, disturbance, chaos, complexity, and patchwork dynamics over deep time (Scoones 1999). Permaculture has not only failed to keep

up with such changes in ecological theory, it has also failed to engage the more contemporary functionalist systems-based ecological theories of resilience and panarchy (e.g., Folke 2006; Gunderson and Holling 2002). This is somewhat surprising. Given permaculture's evolving concern with peak oil and climate change, resilience theory would seem like an appropriate model for understanding how permaculture design systems can withstand and adapt to increasingly volatile environmental conditions. In addition, the erratic climatic patterns caused by anthropogenic climate change and other environmental factors can themselves be more successfully modeled and understood with non-equilibrium modern ecology. Permaculture's relative divorce from the academy over the past forty years has resulted in many successes in praxis, but has left it behind in theoretical development.

Environmental anthropology has much to contribute to theory and praxis in permaculture through its wealth of conceptual work in appraising human-environmental interactions in all times and all places across the planet and its accumulation of thousands of case studies in communities that have been or are living relatively sustainably—exactly the type of communities that permaculture seeks to design. Unlike bioregionalism, permaculture has incorporated almost nothing from environmental anthropology into either its conceptual or practical toolkit. Holmgren (2002) mentions ethnobiology as one of the most important intellectual disciplines that has contributed concepts to permaculture design, but both his book *Permaculture: Principles and Pathways Beyond Sustainability* and Mollison's *Permaculture: A Designers Manual* (1988) (arguably the two most foundational texts in the permaculture canon) do not include any works by ethnobiologists or other environmental anthropologists in their bibliographies. This is a situation that could be remedied through further engagement, as we have argued elsewhere (Veteto and Lockyer 2008; Chapter 5, this volume). For example, the subdisciplines of cultural ecology and political ecology are well positioned to inform permaculture. Cultural ecology's focus on environmental adaptations of groups of people in different areas of the world has produced a large amount of empirical data on sustainable livelihoods. This materialist data (particularly smallholder agriculture case studies) is the type of information that permaculturalists can use in sustainable design. A cultural ecology database that was made available for anthropologists engaged in permaculture research and application as well as to permaculture practitioners would be a robust sustainability tool.

Political ecology is another subfield that can productively collaborate with permaculture. Political ecology has brought political economy and power to the forefront of an ecological analysis that had been apolitical

in its more traditional approach, highlighting how limited access to and control over resources has disempowered individuals and communities in local environments on multiple scales. A significant body of work in political ecology has focused on the relationship of power hegemonies in the Global North to nations and communities in the Global South. The political ecology approach to cultural critique articulates well with permaculture ethics, which encourage modern individuals to live a more simple and ecological lifestyle, thereby enacting a more democratic division of and access to global environmental resources. Both permaculture and prominent strains of political ecology are engaged in resistance to current globalization trends orchestrated by a capitalism whose political power is centered in the Global North. Permaculture offers political ecology the opportunity to study how citizens—particularly in the Global North—are experimenting with lifestyle and social changes to meet the sustainability challenge. Political ecology, among its other theoretical tools, offers permaculture the opportunity for practitioners to contextualize their own positions in global society, which are often privileged to various degrees (see Veteto and Lockyer, Chapter 5, this volume, for more suggestions on how permaculture can be usefully cross-fertilized with ethnoecology, historical ecology, and agricultural anthropology). Taken as a whole, environmental anthropology has much to add, particularly from a cultural perspective, to a permaculture framework that has been dominated by a biological gaze to date and has been less adept at studying human ecology despite its explicit aim of designing sustainable human communities.

Ecovillages

Ecovillages are "human-scale, full-featured settlements in which human activities are harmlessly integrated into the natural world in a way that is supportive of healthy human development and can be successfully continued into the indefinite future" (Gilman 1991: 10). Building on that foundational definition, ecovillages are intentional human communities that use integrative design, local economic networking, cooperative and common property structures, and participatory decision making to minimize ecological footprints and provide as many of life's basic necessities as possible in a sustainable manner. Ecovillages put bioregional thought and permaculture methodology into practice at the community level in service of the fundamentally ecotopian goal of sustainability. Permaculture, agroecology and organic agriculture, alternative energy systems such as solar, wind, and microhydro, and natural and green building methods are common features of these communities. Ecovillages are the most recent manifestation of a long historical phenomenon of intentional community

building. For thousands of years, intentional communitarians have actively sought to enact the vision of small, cooperative, commons-based community living in response to experienced hegemonies of church, state, corporation, and market.

Some ecovillages have their roots in the communes and intentional communities of the 1960s, but most came into being during and after the 1990s as the ecovillage model became a worldwide phenomenon and collective effort emerged to reformulate intentional community building based on more comprehensive ecotopian thinking. The Global Ecovillage Network (GEN) is currently tracking 522 ecovillages around the world, including 234 in the Americas (Global Ecovillage Network n.d.). Hundreds of other ecovillages are either forming or exist that are not documented by GEN. The ecovillage movement is largely centered in the United States and western Europe, but has spread to seventy-two countries around the world (Global Ecovillage Network n.d.). The government of Senegal, for example, has recently created a National Ecovillage Agency in cooperation with the GEN, its Senegalese affiliate GENSEN, the Global Environment Facility, and the United Nations Development Programme (see Dawson, Chapter 12, this volume).

Kasper (2008) has pointed out that ecovillages represent an on-the-ground attempt to overcome the nature-culture dualism identified by diverse disciplines such as anthropology, sociology, environmental history, environmental philosophy, and environmental economics as being at the root of the ecological crisis. Scholars have conceptualized multiple ways past this Western dualism: Latour's (1993) "nature-culture," Haraway's (1991) "cyborgs," and Swyngedouw's (1999) "socionature" are a few prominent examples. Ecovillagers, however, operate more in the realm of physical reality than academic discourse. They attempt to live in ways that reduce the patterns of social and environmental injustice resulting from uneven distribution of resources and resource use among rich and poor on both local and global levels. Ecovillagers essentially are attempting to internalize what economists refer to as externalities; they recognize that the global economy creates far-flung consequences that are not accounted for in the cost of what they consume. They are attempting to make these costs more visible by bringing production and consumption processes within a more local sphere. At a fundamental level, ecovillagers are trying to put environmental and social justice ethics into action by creating communities that are more locally self-reliant and premised on the notion that each person and community must take responsibility for the socioecological impacts of fulfilling their economic and subsistence needs. Ecovillagers attempt to realize their visions for sustainable and just communities by building them in various locales around the world. From the

1990s on they have been increasingly successful in working out sustainable solutions in communities that range from a few families to villages of several thousand people, such as the well-known ecovillage Auroville in southern India.

One example of an established ecovillage is Dancing Rabbit, a community of approximately fifty members located on 280 acres of farmland in northeastern Missouri. Their stated goal is to live ecologically sustainable and socially rewarding lives, and to share the skills and ideas behind that lifestyle with broader publics. The members of Dancing Rabbit have agreed to organize their lives around defined lists of ecological covenants and sustainability guidelines. Because they recognize the impacts of fossil fuel extraction on ecosystems and communities and the implications of high levels of fossil fuel use for global climate change, they have agreed not to use fossil fuels to power vehicles, heat or cool homes, provide refrigeration, or heat domestic water supplies. The members of Dancing Rabbit have put in place renewable energy systems that use locally produced biofuels, passive solar building design, renewable and community-scale energy sources, and decreased energy demand in order to lessen their dependence on fossil fuels and, by extension, their contributions to further ecological degradation and social injustice.

In addition to addressing energy use, Dancing Rabbit has policies in place that specify the sourcing of lumber used in constructing their buildings. Ecovillage members agree to only use lumber harvested within their own bioregion for building projects. Recognizing that this is difficult in the rolling prairies of northeastern Missouri (where wood resources are scarce), they allow exceptions for recycled lumber. As a result, Dancing Rabbit members frequently participate in building demolitions in their local area and harvest the reclaimed lumber for use in the growing number of residential and community buildings in their village. In addition to seeking more sustainable patterns of energy and material consumption, the members of Dancing Rabbit address ways to deal with waste as well. One of their ecological covenants states that all organic and recyclable material used in the village will be reclaimed for use by the community. One manifestation of this is the extensive food waste composting Dancing Rabbit practices. They use compost to build soils, thus contributing to their goal of becoming more food self-reliant while simultaneously restoring the fertility of the degraded farmland that they inherited from previous generations.

Numerous opportunities exist for anthropologists to collaborate with ecovillagers. We (Lockyer and Veteto) have recently initiated an exploratory comparative project with both Dancing Rabbit and Earthaven Ecovillage (located in North Carolina) to help identify and assess sus-

Figure 0.3. Dancing Rabbit Ecovillage (northeastern Missouri) community building. Photo by James R. Veteto.

tainability goals and projects, educational and outreach programs, and future aspirations that guide each ecovillage and their resident members. This information will be used in a longer-term project of developing and implementing a set of methods, tools, and indicators aimed at assessing and comparing each community's progress toward their goals of sustainable living and effective educational outreach. Neither community has been satisfied with existing sustainability measurement tools, such as ecological footprinting, which is geared toward individuals who live more mainstream modern lives. Dancing Rabbit has been measuring their fossil fuel and other energy use since the founding of the community, but otherwise lacks the ability to effectively communicate (outside of on-site living demonstrations) to the outside world how their lifestyle compares with mainstream Americans. Our project will help them better evaluate the effectiveness of their environmental lifestyles in comparative contexts.

Although anthropological involvement with intentional communities has been relatively minimal (for notable exceptions, see Brown [2002] and Bennett [1967]), there are four interdisciplinary societies that promote and engage in scholarly research on historical and contemporary intentional communities (with many members both living within and conducting participatory action research in collaboration with extant communities)—the US-based Communal Studies Association, the International Communal Studies Association, the Society for Utopian Studies, and the Utopian Studies Society in Europe. Ecovillages have been an increasing subject of study in each of these academic societies, which provide established

platforms by which environmental anthropologists can both engage with ecovillagers and share their research with other scholars.

As noted by Dawson (Chapter 12, this volume), in recent years the ecovillage movement has moved from an inward focus on self-sufficiency to an outward focus on building alliances with neighbors, citizen groups, and educational organizations. The difficulties of buying land, developing village infrastructure, and maintaining viable and healthy consensus-based decision-making processes have slowed down ecovillage development in recent years after initial excitement in the 1990s and early 2000s. Those ecovillages that have survived the test of time are now serving as educational models and living laboratories of sustainability. The Findhorn Foundation, based in Scotland and one of the oldest and most prominent ecovillages in the world, has ongoing collaborative projects with the United Nations and was named a UN "best practice" community. Ecovillages around the world are partnering with nearby cities and towns in the Transition movement, a worldwide phenomenon initiated by Rob Hopkins in Ireland that is helping communities move toward sustainability in a post peak oil world increasingly threatened by unpredictable climate change. Elsewhere, schools such as Berea College in Kentucky and Pacific Union College in California are developing partnerships with or constructing on-campus ecovillages for students to learn about and experiment with sustainable living. Living Routes, an ecovillage study abroad program that places college students in ecovillages worldwide, is detailed by Daniel Greenberg in his contribution to this volume (Chapter 15). The increase of partnerships between ecovillages and the academy are an excellent opportunity for applied environmental anthropologists to engage in socially relevant and meaningful work.

Environmental Anthropology Engaging Ecotopian Possibilities

> Anthropology … can contribute to the critique of current hegemonies as a question of the utopian imagination: can the world be reconceived and reconstructed from the perspective of the multiplicity of place-based practices of culture, nature, and economy?
>
> —Arturo Escobar, "Culture Sits in Places"

> We could start with a kind of sociology of micro-utopias.
>
> —David Graeber, *Fragments of an Anarchist Anthropology*

In his Distinguished Lecture in General Anthropology at the 1992 meeting of the American Anthropological Association, Roy Rappaport noted

the paradox that Western economic rationality was both a main cause of growing social and environmental problems and the dominant discourse being used to frame their potential solutions. Rappaport asserted that solutions to such problems demanded a more holistic view, informed by ecological thinking and social justice. In response, he called on anthropologists to engage our research in pursuit of solutions to the world's problems, specifically calling for renewed commitment to cultural critique and applying anthropological knowledge to the empowerment of local solutions (Rappaport 1993).

Returning to the theme with which we began this introduction, some may object to the idea of anthropology engaging in such a romantic and subjective undertaking as the pursuit of ecotopia. Indeed, words like utopia and ecotopia carry largely negative connotations. Utopia is often associated either with naïve idealism or with hegemonic metaprojects such as nationalism, state-based socialism, and global neoliberalism. However, it could also be argued that utopian striving for a better world is a fundamentally human condition and that anthropology would be remiss not to engage with it.

Some of anthropology's most productive scholarship has focused on utopian endeavors. Richard Fox's cultural history of Gandhian utopianism in twentieth-century India is but one prominent example (1989). In this work, Fox portrays Gandhi and other Gandhians as utopian experimentalists struggling against hegemonies of modernization and British colonialism, a struggle that was essentially cultural in nature: "[T]hey were social experimentalists, struggling with new visions of culture" (Fox 1989: 6). They also shared a grand vision of a better India: "The Gandhian utopian vision asserted that India, given its traditions, could develop a more humane and rewarding future society than either Western socialism or Western capitalism had accomplished" (Fox 1989: 7).

Fox acknowledges that his cultural history is an account of a utopian vision that was never fully realized. Nonetheless, the pursuit of the vision was quite real; it constituted the daily struggle of Gandhian utopians engaged in spiritual public service, home rule, and civil disobedience over many decades. Their experiments took at least some hold in the wider world: "As the experiments accumulated over time … this utopia became a complex culture trait. That is, it became a set of cultural meanings … constituting social identity and practice in twentieth-century India" and laying the groundwork for future utopian experiments (Fox 1989: 8).

Gandhian utopian experimentalists confronted the structures of the world system and the hegemonies that system generated. Fox used such confrontations to address the question of what role individuals or groups and their utopian visions may play in cultural change. Ultimately, Fox con-

cluded that "an effective cultural resistance, such as Gandhian utopia, can arise from confrontations with an existing cultural hegemony, even though the resistance never fully escapes that hegemony" (Fox 1989: 14). In this view, the pursuit of utopia (or ecotopia) is significant as a process in itself, and the focus shifts from an unachievable endpoint toward the effort to get there, and ideas and practices guiding the journey (Lockyer 2009).

While the bioregionalism, permaculture, and ecovillage movements have been little explored in anthropology, they resonate with both Rappaport's and Fox's analyses. Each movement builds moral economies grounded in forms of discourse other than dominant Western economic rationality and guided by the compass of justice and sustainability. James Scott (1976) has shown that Southeast Asian peasants organize social life and economic livelihood activities around a fundamental belief that everyone has a right to adequate subsistence and react strongly when colonial modernization projects impinge on this right. Bioregionalists, permaculturalists, and ecovillagers in the Global North hold to this same belief, but they expand outward to a global scale and turn it on its head. They recognize that their own lifestyle practices obstruct the ability of less affluent people in faraway places to obtain adequate subsistence and continue their traditional customs. Consequent lifestyle changes represent an attempt to decrease consumption and increase simplicity at home in order to take pressure off individuals in the Global South and provide space and support for subaltern movements for cultural rights and economic justice. Like Fox's Gandhian utopians, these ecotopians struggle against a hegemony of thought and practice from which they can scarcely break free—but within which they create real, if partial, alternative possibilities. They are building on the foundation of 1960s countercultural experimentation and are broadening the possibilities of dynamic ecotopian imaginaries and practices.

Our engagement with bioregionalism, permaculture, and ecovillages also resonates with some of the best contemporary anthropological theory building and activist work. Arturo Escobar's engagement with groups constructing alternative political ecologies and subaltern strategies of localization in the Colombian Pacific region and David Graeber's work with the praxis of direct democracy in the Global Justice movement are two prominent examples. Both Escobar and Graeber engage with these movements not only as social scientists, but also as citizen activists who desire, paraphrasing Graeber (2004), to develop social theories that can be actively applied to assisting projects of social transformation toward a more just and sustainable world. Escobar and Graeber's contributions are representative of broader themes in anthropology to which we hope to contribute modestly with this volume.

Escobar's work with social movements in the Colombian Pacific region brings together concepts of place, networks, and social movements in an effort to engage with, analyze, and further processes of economic and cultural localization (2001, 2008). By pointing to "the continued vitality of place and place-making for culture, nature, and economy" in existing communities (Escobar 2001: 141), Escobar provides a counternarrative to real processes in globalization that disembed cultures and economies from places and to accompanying trends in sociocultural theory that claim an end to local cultural ecologies. Although he does not use the same terminology, Escobar engages with many of the same ecotopian themes that we and our bioregionalist, permaculturalist, and ecovillage interlocutors do when he asks "to what extent can we reinvent both thought and the world according to the logic of a multiplicity of place-based cultures?" (2001: 142). His engagement with networked social movements who share dual commitments to preserving ecological diversity and integrity as well as renewing local economies and communities leads him to recognize that such a transformation is a real possibility. The bioregionalism, permaculture, and ecovillage movements share similar commitments and manifest similar possibilities.

While defending the importance of place for both activist communities and in the realm of social theory, Escobar notes that place-based movements are simultaneously connected to transnational networks even as they are primarily focused on the defense of home territories. Paradoxically, in the era of globalization, these transnational networking strategies prove especially important to the viability of reinhabitation. Simultaneous attention to global networks and local projects enable reinhabitory movements—and the scholars who engage them—to combine an understanding of larger political economic forces that impinge on local places with a phenomenological understanding of how local communities experience place and assign meaning and value to it. Perhaps even more significantly, global networks of place-based movements provide unique opportunities to share strategies and lessons for the defense of place and to build collective strengths.

Following Escobar's logic further, a focus on local, reinhabitory, and restorative movements enables both scholars and citizen activists to shift emphasis away from global political economic forces as the dominant problematique and to reorient their gaze onto what Harvey (2000) might call "spaces of hope." As Escobar suggests, "to construct place as a project, to turn place-based imaginaries into a radical critique of power, and to align social theory with a critique of power by place requires that we venture into other terrains" (2001: 157). This argument reflects our desire

to shift scholarly engagement from a problem-oriented trope to one that is more solution-focused, a move that we believe—following Graeber—builds upon the fundamental anthropological project of providing real, alternative possibilities to dominant hegemonies. Indeed, this exploration of alternative possibilities is exactly the kind of work that reinhabitory movements are engaged in: "For the most farsighted social movements, whether the situation is read in an ecological or a cultural register or a combination of both, the basic idea is the same: overcoming the model of modern liberal capitalist society has become a must for survival, and perhaps a real possibility" (Escobar 2008: 303).

Both Escobar and Graeber pay particular attention to the relationship between theory and practice and between activism and scholarship. They recognize that the participants in the movements they focus on are, along with scholars, social analysts as well, and that the forms of theory and practice engaged by both activists and scholars have potential for cross-fertilization. In this line of thinking, the constituent members of social movements are recognized as political ecologists in their own right and active producers of knowledge (Escobar 2008). As exemplified in the use of environmental anthropology by bioregionalists, these social movement actors draw on critical social knowledge produced by academics as they construct and refine their ecotopian visions and practices. In such situations, "one obvious role for a radical intellectual is … to look at those who are creating viable alternatives, try to figure out what might be the larger implications of what they are (already) doing, and then offer those ideas back, not as prescriptions, but as contributions, possibilities—as gifts.… such a project would actually have two aspects, or moments if you like: one ethnographic, one utopian, suspended in a constant dialogue" (Graeber 2004: 12).

Conclusion

> Someone has to do something that is consistent with the vision of fitting into ongoing natural processes before any reasonable person will support that vision.
>
> —Peter Berg, *Envisioning Sustainability*

> Active bioregionalists don't merely raise their hands to vote on issues but also find ways to interact positively with the life-web around them. They work with neighbors to carry out projects and build a bioregional culture together. Put another way, they are the working practitioners of what academics and others term "a paradigm shift."
>
> —Peter Berg, *Envisioning Sustainability*

We hope the selections contained in this volume illustrate Berg's comments by showing how diverse groups of people are actively modeling real ecotopian possibilities. We also hope they demonstrate the value of engaging with those constructing such possibilities. Former Association of American Geographers President James J. Parsons expressed a similar sentiment in 1985 when he commented on the emergence of bioregionalism:

> Recently a whole new subculture of bright, energetic and dedicated amateurs has emerged, especially in the western U.S. and Canada, that is reasking in new ways questions that have long been fundamental concerns of geography about the human use and abuse of natural systems. They have been dressing up old ideas and concepts about the interrelationships between nature and human culture and responsible stewardship of the earth with refreshing originality and vitality. They are potential allies and they have things to say to us that are deserving of our attention. (Parsons 1985: 1; see also Chapter 2, this volume)

Just as Parsons recognized affinities between bioregionalists and geographers, we note a similar affinity among bioregionalists, permaculturalists, ecovillagers, and ecological/environmental anthropologists and multidisciplinary political ecologists.

While these citizen activists may appear at first glance as romantic idealists, a closer examination reveals endeavors that are simultaneously ecotopian and practical. Such individuals may have grand visions, but they recognize those visions are not within immediate reach and are engaged in a constant iterative process of critical analysis, reassessment, and consequent adjustment of their projects. They share some of our fundamental ideals regarding justice and sustainability, incorporate anthropological knowledge into their projects, provide living laboratories of cultural change, and represent opportunities to make environmental anthropology more relevant to immediate concerns.

Just as Rappaport (1993) suggested two decades ago that ecological health has been subverted by the discourse of short-term economic growth in the fields of development and sustainability, so too have hope and idealism been subverted by practical (and supposedly objective) as well as overly critical postmodern and Marxist approaches in mainstream anthropology. Yet, it remains true that much of anthropology is fundamentally guided by a moral compass: a utopian impulse to contribute to positive change in the world guided by our accumulated knowledge of the forces and factors that create human suffering or flourishing. What we are suggesting is an ecotopian anthropology that engages with movements for environmental justice and sustainability and applies its knowledge, methods, and forms of critical analysis toward ultimate goals and values we share with those groups. We hope this effort will help lead us simultane-

ously toward a deeper understanding of the processes of cultural change and toward a more sustainable future.

Ecotopian Possibilities for a Sustainable Future: The Contributions

This volume contains sixteen contributions from scholars and citizen-activists of diverse backgrounds. We divided the book into three sections focused on bioregionalism, permaculture, and ecovillages, but readers will notice that overlaps among the sections reflect integration among these movements in both theory and practice. Collectively, the contributions enhance our knowledge and understanding of these three movements while also posing important nodes for critical analysis aimed at advancing the goals of justice and sustainability and addressing broader theoretical issues.

We begin the first section on bioregionalism with a classic piece of activist literature first published by Peter Berg in the bioregional journal *Raise the Stakes* in 1986. This chapter builds the foundational framework and vision for bioregionalism and is appropriately rooted in the specific experiences of activists in a particular place—the Shasta bioregion of northern California. Moving beyond an ecotopian vision, Berg explores the possibilities and practicalities of expanding bioregional governance across various contexts—including urban areas, continental bioregional networking, and coalition building with other movements.

Berg's chapter is followed by one by former Association of American Geographers President James J. Parsons, originally published in *The Professional Geographer* (1985), wherein he notes a distinct affinity between bioregional thought and action on the one hand and academic theory building in geography on the other. While no distinct and persistent engagement between academic geographers and bioregional activists emerged in response to this call for collaboration (for exceptions, see Carr [2004], Frenkel [1994], and McTaggart [1993]), Parsons's chapter foregrounds one of the main aims of this book—to bring scholarship and activism together in pursuit of shared goals of social justice and environmental sustainability.

In Chapter 3, Brian C. Campbell presents an overview of the longest-standing bioregional network in the United States, the Ozark Area Community Congress (OACC). Grounded in collaborative ethnographic fieldwork, it is a cultural history of the network, focusing on the challenges these bioregionalists have faced and the significant accomplishments they can claim. Campbell's research demonstrates the role of place, in this case the Ozark landscape, and symbolism in constructing sustainable

intentional communities and the importance of learning from established agrarian populations. Through the integration of traditional and modern ecological knowledge and praxis, OACC serves as an example for contemporary post-industrial society's necessary venture into sustainable community building.

The bioregionalism section ends with Steve Alexander and Baylor Johnson's account of a unique educational program, the Adirondack Semester at St. Lawrence University in New York, which uses bioregional thinking and experience as a foundational pedagogical tool. This semester-long, off-campus, residential program integrates academic coursework, direct and deliberate experiences, and a purposeful living and learning community to generate a bioregional ethos in the program's operations and participants. Were such approaches more widely available to younger generations through education programs, reorganizing society along more bioregional lines, or at least according to "cosmopolitan" bioregional ethics, might be a more distinct possibility.

Section II, on permaculture, begins with a reprint of our 2008 article in the anthropological journal *Culture and Agriculture,* "Environmental Anthropology Engaging Permaculture: Moving Theory and Practice Toward Sustainability." In this chapter, we identify the historical development of the permaculture paradigm, show how permaculture is being employed at Earthaven Ecovillage in the Katuah bioregion in the United States, and identify fruitful theoretical and practical areas of collaboration between permaculturalists and environmental anthropologists. We close with a suggestive vignette on what the future of environmental anthropology might look like from the vantage point of situated ecovillage life and research.

In Chapter 6, Guntra A. Aistara examines the reception of permaculture practices among Latvian eco-farmers. The chapter builds on ethnographic research Aistara conducted with the Eco-Health Farm Network and the Latvian Organic Agriculture Association from 2003 to 2010, and includes farmers' reflections on the potential for a locally adapted permaculture to further enhance on-farm resilience and long-term sustainability. Aistara builds bridges between permaculture concepts and theoretical ideas within environmental anthropology from a range of thinkers including Tim Ingold, Bruno Latour, and Anna Tsing.

Randolph Haluza-DeLay and Ron Berezan, in Chapter 7, focus on the development of a permaculture network in Edmonton, Alberta, Canada. This network serves, they argue, as a "distributed ecovillage" and a social field productive of ecological habitus. A Bourdieuian theory of practice is applied to the permaculture network, asking to what degree it contributes to ecological habitus. The authors trace the processes of social learning

and the development of hybridized and complicated socio-natures in the Edmonton urban permaculture movement. The dialogical structure of the chapter has each author commenting on key themes from their respective vantage points of reflective practitioner and activist-scholar.

In Chapter 8, Bob Randall details the process of how he, as an environmental anthropologist, used lessons learned from a sixteen-year research period in the southern Philippines (1971–1986) to design a sustainable agriculture organization called Urban Harvest that has partially transformed the Houston metropolitan foodshed. Key to Randall's efforts were his training in permaculture design with Bill Mollison and the use of permaculture as an organizational design tool to unite diverse Houston groups in a collective endeavor to transform the city's foodways.

Katy Fox compares the conceptualizations and processes of progress, hope, and commons thinking among rural Romanian farmers and United Kingdom permaculturalists in Chapter 9. Her chapter elucidates the issue of how these different social groups engage with change in times of ecological, economic, and social crisis. Two central questions frame her ethnography. First, what is the model of progress underlying how people imagine their life projects? Second, how is hope reimagined and practiced in the two groups? For permaculturalists in the UK, permaculture principles provided a pragmatic and dynamic framework for situated action that made it possible to envision the future differently in practice. For Romanian peasants, a discrepancy existed between their narratives about the future and the way in which their practices unfolded. This, Fox argues, is related to two different notions of transition at work in the two groups, and the effects of implicitly and explicitly envisioning better futures.

In Chapter 10, Jenny Pickerill analyzes Low Impact Developments (LIDs) in Britain. This chapter uses the LID example to explore the practices and implications of the permaculture approach when put into holistic practice. LID is a radical approach to housing, livelihoods, and everyday living that began in Britain in the 1990s as a grassroots response to the overlapping crises of sustainability. It is also a direct response to social needs for housing, an anti-capitalist strategy forging alternative economic possibilities, and a holistic approach to living that pays attention to the personal and political simultaneously. As such, it is shaped by the three ethical foundations of permaculture (earth care, people care, fair share) and explicitly aims to put these into practice. Pickerell uses results from ethnographic studies of four British LIDs to critically explore the practices of permaculture and its use within solution-orientated approaches to environmental problems. Moreover, she identifies key lessons from such projects—both practical and academic—that can inform ongoing attempts to shape a more sustainable future.

In the concluding chapter of the permaculture section, Aili Pyhälä looks at how permaculture can, on the one hand, inform development policy and practitioners working on community development and disaster relief and, on the other hand, reframe the whole development policy agenda through a closer look at ethics. Using recent case studies from across the world, combined with theoretical analyses, Pyhälä examines how the principles and ethics of permaculture can be applied in the field of development cooperation to resolve current challenges facing both donors and recipients.

The final section of the book—focused on ecovillages—begins with a contribution by Jonathan Dawson, the former president of The Global Ecovillage Network (GEN), who gives a historical overview of the ecovillage movement and a summary of current developments in ecovillage thinking. Dawson charts how ecovillages—most recently rooted in the intentional community building of the 1960s and 1970s and reaching their apex in the 1990s and early 2000s as "grown-up" endeavors focused on ecological sustainability—have recently made a strategic shift from an inward emphasis on self-sufficiency toward more outward concentration on educational efforts and making cross-linkages with citizen initiatives such as the Transition movement.

In Chapter 13, Brian J. Burke and Beatriz Arjona examine two Columbian ecovillage experiences. The authors assert that ecovillages are alternative political ecologies in the making and that their construction requires transformations at both personal and community scales. Arjona's personal story exemplifies the most common ecovillage experience in Columbia—that of disaffected middle or upper class urbanites seeking a more fulfilling life through a connection with nature and community—and the range of motivations and challenges such ecovillages face. The authors then examine the exceptional case of Nashira, an ecovillage of low-income single mothers—many of whom are victims of violence and displacement—to consider possibilities for developing ecovillages among structurally disadvantaged populations. By placing these two examples in comparative context, Burke and Arjona aim to combat stereotypes of both the Global North and the Global South that impede clearer analyses of the actual social conditions that give rise to and constrain ecovillage projects worldwide.

Todd LeVasseur, in Chapter 14, documents the challenges that five members of an ecovillage training program held in 2000 at the Findhorn Foundation community in Scotland have faced in subsequently implementing the ecovillage vision in diverse locales around the world. Oral history interviews with five individuals—all of whom were co-participants with LeVasseur in the training—show on-the-ground obstacles and

successes in implementing ecovillage-inspired development plans in the Philippines, El Salvador, Brazil, and Austria. Comparing experiences in the Global North and the Global South, LeVasseur shows how local structural relationships contextualize the ecovillage endeavor.

In Chapter 15, Daniel Greenberg uses Living Routes—a semester-long study abroad program that he directs—to explore the pedagogical possibilities that exist for developing stronger linkages between the academy and ecovillages. He identifies ecovillages as an excellent platform for breaking down barriers between ivory tower and village, as well as between thought and praxis. Greenberg calls for increased collaboration between academia and ecovillages as we strive to create sustainable solutions to global environmental problems.

Ted Baker, in the final chapter of the book, makes interconnections between anti-capitalist literature and increasing interest in ecovillages. His chapter asks some critical questions: How are we to conceive of the relationship between intentional communities and the capitalist context they exist within? More specifically, what are the tensions and contradictions engendered by the attempt to construct sustainable communities (ecovillages) within an unsustainable context (capitalism)? Baker grounds his analysis in an ethnographic examination of an ecovillage in southwestern Ontario, Canada, and then proceeds to a more theoretical examination of the relationship between ecovillages and capitalism. Drawing mostly from thinkers in autonomist Marxist and anarchist traditions, he then suggests an anti-capitalist approach that not only provides us with valuable ways to conceptualize this relationship, but can also be enriched and further developed by being brought into contact with the concrete realities of ecovillages.

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INTRODUCTION

Mapping the More-than-Human City in Theory, Methods and Practice

Ferne Edwards, Lucia Alexandra Popartan and Ida Nilstad Pettersen

In the Anthropocene, our lifeworlds have become largely based around cities – places where now more than half of humanity live, work, play and eat (Gottlieb 2009). Cities both catalyse and suffer from escalating contemporary crises. The capacity of cities to respond to societal needs and disasters is encumbered in part by their relationship to a wider more-than-human world, encompassing multiple species (of animals, plants, microbes, viruses, and more) and 'non' or 'other-than' human elements, matters and processes (such as water, minerals, soil, sun and weather).

The rights, needs and desires of other-than-humans within the city are often trivialized by human inhabitants, and subsequently devalued, ignored or even vilified as they compete for space and resources. However, cities are not only home to multiple species but they are also co-composed by them, where increased proximity heightens both the frequency and intensity of encounters between human and nonhuman lifeforms, matter and phenomena. This interspecies interdependence extends to the human body that exists in exchange with micro-organisms (McFall-Ngai 2017). Hence, a shift to a more-than-human city considers how 'a range of forces and agents shape urban rhythms, spatial form, materiality, and consumption, not just for and in relation to humans, but for and in relation to themselves and each other' (Sharma 2021: n.p.). This concept stresses relationalities across humans and nonhumans, asking how one species, matter or phenomena impacts or influences another. Furthermore, by realigning humans as part of nature within the city, questions arise: Who and what are cities for? How can diverse natures

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coexist in urban environments? How are nonhuman natures politicized, and how does this impact their governance?

In this book we argue that cities are highly relevant sites for exploring more-than-human relationships, resistance and struggles. Often located in species-rich areas (Luck 2007) but often also set apart from all things 'natural', cities are centres of transformative change where human and nonhuman clusters reveal new edges of tension, possibility and promise. Some argue that cities even represent 'evolutionary hotspots', unifying diverse spaces and species to catalyse new species and assemblages (Schilthuizen 2018). The definitions of nonhuman natures in the city are also being redrafted as the city becomes known as a 'novel ecosystem', challenging staid categorizations of misplaced natures like 'feral' and 'invasive', and instead recognizing their potential to coexist and flourish in cities (Davis 2019). Furthermore, we contend that this posthuman turn emerges at a pivotal time in human history, when the need for urban nature is greater than ever whilst entering global discourse in the call for 'green', 'resilient', 'nature-based' futures. We also advocate that a more-than-human transformation requires creative, innovative, democratic and interdisciplinary approaches.

While some scholars advance radical acknowledgement for convivial new states of human/nonhuman relations, others retain a historical, human-centric and utilitarian perspective, which envisions humans in cities as changing nature rather than embracing the agency of nature to change cities (and humans). Others again fail to recognize the unique, compressed and complex conditions of diverse urban environments. In contrast, our volume joins work by Bram Buscher and Robert Fletcher (2020) and Matthew Gandy and Sandra Jasper (2020) to take a fresh perspective to urban nature, questioning and disrupting assumptions in their many different forms and flows in and across the city. As we move towards more-than-human understandings, it becomes apparent that 'to dissolve the boundary between nature and culture is to radically remix the arts, humanities, and the social and natural sciences' (Gan 2019, n.p.). This changing ground welcomes a broad range of disciplines that offer alternative perspectives, approaches and methods. Here, we have chosen the intertwining perspectives of anthropology, geography, design and urban political ecology to explore how humans can 'make visible', (re)connect to and politicize urban natures. Anthropology provides a thick description of holistic contexts from which to analyse the more-than-human world, while geography considers relationships between space, place and identity in the city. Political ecology guides our inquiry into how power, reflected in institutional, moral and emotional dynamics, constantly shapes the limits of the (urban) community for

both humans and nonhumans. Finally, design translates these findings and concepts into concrete strategies of intervention, facilitating collective exploration and imagination, experimentation and implementation. From this base, this chapter introduces core more-than-human perspectives and approaches in theory, method and practice.

Mapping the Theory

An Anthropology of the More-than-Human

Traditionally, anthropology has engaged with 'nature' in numerous ways. Whilst the more-than-human turn was headlined by the coining of 'multispecies ethnography' by Eben Kirksey and Stefan Helmreich (2010), this approach has been influenced by a long succession of authors. In the early sixties, Henri Lévi-Strauss (1963) suggested that 'thinking with' animals could question human exceptionalism to expand human social and political worlds to include nonhuman beings (Feinberg, Nason and Sridharan 2013: 1). The need for greater consideration of a wider environment was emphasized by Tim Ingold, who sought to bring the 'backdrop' of the environment forward (Ingold 1988: 1).

However, a distinct pure anthropology trajectory is difficult to distil for this topic. From geography and political ecology, significant contributions include Noel Castree and Bruce Braun (2001), Sarah Whatmore (2002) and Nik Heynen, Maria Kaika and Erik Swyngedouw (2006), whose work contested the notion of an apolitical 'wild' nature to instead acknowledge 'nature' as 'hybrid entities, or socionatural assemblages' (Ogden, Hall and Tanita 2013: 12). Moreover, as noted, urban political ecology insists on the need to link the distribution of power with productive activity and ecological analysis (Robbins 2012). However, Anna Tsing (2013) suggested a 'more-than-human sociality' approach that would extend the study of the nonhuman to consider 'animate and inanimate, beings and things, but also entities that are less tangible, such as spirits' (Lien and Pálsson 2021: 4).

Fields of ecology and biology remind us that humans are one part of a larger urban ecosystem, and that urban rifts and anthropocentric views often guide and drive them (McClintock 2010; Pickett et al. 2016). Ecology introduces new paradigms such as 'recombinant ecology' (Barker 2000) that represents relational and connected communities 'assembled through the dense comings and goings of urban life' (Hinchliffe and Whatmore 2006: 123). Contributions from biology include Gregory Bateson (1972), who challenged human exceptionalism to later develop the concept of biosemiotics, and Jakob von Uexküll (2010), who intro-

duced the term '*umwelt*' to acknowledge the existence of specific nonhuman worlds.

This intellectual progression coincides with a changing understanding of what animals are (and are capable of), in turn, informing how we define being human. For example, are we human in our difference to 'nature' because we, as humans, possess culture – or because we work, think, speak, and/or have symbolic thoughts? All these presumptions were raised in earlier years to distinguish humans from 'nature', yet they have now been trumped by science (Lien and Pálsson 2021). Some argue that a shift in anthropology to a 'posthumanist approach helps us to better understand the human condition' (Smart and Smart 2017: 6).

While anthropology has historically noted 'nature' in its thick description of cultural studies, until recently humans remained firmly fixed at its core, persisting the assumption that 'humans alone . . . made and had "culture" (cf. Tylor 1994 [1871])' (Lien and Pálsson 2021: 4). Marianne Elisabeth Lien and Gisli Pálsson examine this rupture before and after the 'more-than-human' turn by revisiting the role of nature in its various forms in traditional ethnographic accounts. Here the affective dimension of fieldwork – a *sensing* of sorts – becomes apparent, where once recorded in notes, 'nature' does not often feature in subsequent theoretical developments. The work of Roland Barthes provides one such example, where Lien and Pálsson ask, 'But what became of the animals? What became of his affective relations with the material world? And what became of the poetry?' (2021: 3). In such classic accounts, they acknowledge how 'A singular focus on meaning, symbolism or utility (Willis 1990; Douglas 1966; Rappaport 1984) has often sidelined other relational practices' (ibid.).

The inclusion of this book within the new Urban Anthropology Unbound series will join others in ushering in a renewed perception of nature within anthropology. A more-than-human anthropology typically stresses the relational ties between people and a wider world, revealing new edges and terrains for ethics, power, conflict and identity. These vital relationships are rejuvenated by an 'attentiveness to nonhuman agency – stones, plants, birds, and bees have the power to transform the world in this work' (Ogden, Hall and Tanita 2013: 16).

Political theorist and philosopher Jane Bennett (2010) acknowledges the 'vital materiality' and political agency of nonhuman entities. Such human/nonhuman entanglements are often perceived as being in a state of 'becoming', where Donna Haraway acknowledges 'that becoming is always becoming with – in a contact zone where the outcome, where

who is in the world, is at stake' (Haraway 2008: 244). She recognizes 'how humans have coevolved with their "companion species" and co-constitute each other' (cited in Locke and Muenster 2015: n.p.).

The liveliness of nonhuman others both raises new ethics and gives rise to new political becomings. Ethically, it calls to 'make visible' nonhuman others in theory and practice (Buller 2016), whilst recognizing the need to establish an ethics of 'living with' the natural world (Kirksey and Helmreich 2010) – or, as expressed by Ogden, Hall and Tanita (2013), an anti-essentialist ethics that goes beyond merely extending moral consideration to nonhumans to instead reconsidering human-based classifications placed on other beings (Hache and Latour 2010). Such a perspective that both decentres the human and recognizes the coproduction and hybridity of others and ourselves serves to outline nuanced modes of being, involvement and responsibility, where different human–animal relationships can appear, such as those of mutuality, companionship and care (Lien and Pálsson 2021). Politically, this interrogates the creation of subjectivities, which are 'decisive to the operation of institutions as they are integrally bound up in social relations of power and the ways in which people understand their relationship to others, whether that be human or nonhuman others' (Nightingale 2011: 121). Ultimately, this book recognizes that a more-than-human politics must account for the 'performance of things and not just the actions of humans (Braun and Whatmore 2010: xx)' (cited in Ogden, Hall and Tanita 2013: 16), raising further questions of belonging, alienation, value creation, conflict and dominance (Feinberg, Nason and Sridharan 2013).

Anthropology is well geared to contribute to the development of more-than-human perspectives. Anthropologists seek to open up understandings that typically go beyond modernist European or Western conceptual frameworks, where anthropologists often act as 'translators' across cultures. Seeking a holistic perspective through the practice of ethnography – defined as a 'comprehensive approach to the human condition' (Otto and Bubandt 2010: 3) – anthropology is also well positioned to work with other disciplines to explore in rich detail 'the interconnectivity of animals–humans–environments, as well as highlighting the experiences of marginalized human and nonhuman groups' (Hovorka, McCubbin and Van Patter 2021: 3). The posthuman turn can deepen this holistic goal to 'meaningfully integrate the affective and the ecological, the individual and the relational, moving beyond anthropocentrism, speciesism, symbolism and utilitarian thinking' (Lien and Pálsson 2021: 16). The next section acknowledges another prominent discipline in the making of the more-than-human: geography.

Bringing Nature Back In

There has been a strong movement in human and animal geographies over the last three decades to 'bring nature back in' to the conceptualization of the human world. Henry Buller (2014) presents an excellent overview of this trajectory, detailing how a special issue – 'Bringing the Animals Back In', led by Jennifer Wolch and Jody Emmel (1995: 633) – argued 'for a new animal geography to go beyond taking animals as merely "signifiers" of human endeavour and meaning'. Others followed suit (Philo and Wolch 1998; Wolch and Emel 1998; Philo and Wilbert 2000; Urbanik 2012), emphasizing the need to not only acknowledge the agency of animals and nonhuman others but to show how agency is interpreted in time and place, focusing on the physical and conceptual places and spaces of human–nonhuman interactions.

Engaging interest from and engaging with diverse disciplines, such as the environmental humanities, politics and Science and Technology Studies (STS), this subfield has since emerged to become

> a porous, shifting and eclectic heterogeneity of ideas, practices, methodologies and associations within a more-than-human life/world: an 'emergent scholarly community' . . . , one in which animals matter individually and collectively, materially and semiotically, metaphorically and politically, rationally and affectively. (Buller 2014: 310)

These 'vital connections' (Whatmore 2006: 601) or 'lively biogeographies' (Lorimer 2010: 491) offer new ways and points of reflections for understanding our place, connection and responsibility to a wider world. With cities becoming the dominant sites for the human population, we next consider the 'urban turn' in more-than-human studies.

However, before we can explore the 'urban turn' to bring nature back *into* the city, a brief explanation is needed to understand why nonhuman nature – physically and symbolically – 'left' cities. Here we acknowledge a focus on Western cities and the colonialization of cities as a process, whereas such a human–nonhuman separation did not occur within Indigenous communities.

Up until the mid-1800s, European and American cities were full of working animals: horses were used for transport, machinery, and their manure for fuel; cows for milk, cheese and meat; pigs for meat and as eaters of urban trash, manure and dead animals; and chickens for eggs and meat (Blecha 2007; McShane and Tarr 2007; Brinkley and Vitiello 2014). Urban industries included fresh food markets, stables, piggeries, slaughterhouses and breweries – the remnants of which can still be seen today in building and street names.

The arrival of the City Beautiful movement in the late 1800s introduced a new urban ideal, desiring to remove distasteful and immoral behaviour, smells, noise and liquids (Donofrio 2007). Modernist separationist discourse from the Enlightenment period also underpinned this perspective, asserting a moral order that placed humans 'above' and 'outside' nature.

Urban natures became designated in broad terms as being either 'good' or 'bad'. 'Good' natures remained in the city, where a rise in aesthetics and romanticism in mid-eighteenth-century Europe embraced 'wild primeval' nature in stylized forms. Symbolizing controlled beauty, subdued natures entered homes as paintings of model gardens and as picture cases of pressed dead butterflies, beetles and spiders. 'Wildness' also became a source of nostalgia, affection, contemplation and inspiration, with prestigious creatures presented alive in zoos, aquariums and at circuses (Barber 1984; Cronon 1991).

Conversely, the designation of 'bad' natures prompted a 'discursive erasure of animals from mainstream imaginaries of the modern city' (Blecha 2007: 15). Selected species were recategorized according to their use or enjoyment value for humans, or instead declared to be a 'transgressed species', such as rats, cockroaches and pigeons (Atkins 2012). Urban zoning and policy reinforced these anthropocentric assertions (Brinkley and Vitiello 2014). Thus, through processes of purification and polarization, many 'undesirable' animal species were marginalized as 'problem' species, justifying their relocation (whenever possible) to rural regions (Wolch 2002; Braun 2005). Hence, 'place' perpetuates particular framings that guide assumptions and politics for the nonhuman 'other'.

From the mid- to late 1990s, calls to acknowledge the presence of nonhuman nature's presence in cities have arisen predominantly in critical animal studies and geography, revealing a series of 'nature turns'. This surge in popularity was fostered by earlier research in urban wildlife studies from the late 1960s and early 1970s (Adams 2005; Gehrt 2010; Magle et al. 2012) and Human–Animal Studies from the 1990s (Anderson 1997; Shapiro and DeMello 2010). Critical Animal Studies emerged in the 1990s, transforming into Critical Animal Geographies soon after, with one outcome being a focus on urban human–animal relationships (Wolch and Emel 1995; Philo and Wolch 1998; Philo and Wilbert 2000; Buller 2016). This subsequent urban animal turn (prominent in animal geographies, and extending to include nonhuman natures more generally in recent years) has called for the modernist boundaries between city/country, culture/nature and wild/civilized to be overcome, allowing new perspectives to raise questions about who and what the city is for,

and how it should be defined. As such, cities are becoming reconceptualized as more-than-human places that necessitate recognition of species' agency, innate values and ethics – outside of the human-dominated frame.

A range of concepts are growing that seek to disrupt traditional perceptions of the city and who it is for. Concepts of dwelling and *umwelt* are both on point for placing nature in the city. 'Dwelling' refers to 'an immediate, enduring and relational process of being-in the world' (Ingold 2000; Jones 2009). These degrees of approaching closeness across species, which are further accelerated in the urban environment, are expressed by Deborah Bird Rose (2009: 87) as the 'situated connectivities that bind us into multispecies communities'. The act of 'untaming' is another popular approach. Adriana Allen, Andrea Lampis and Mark Swilling argue for 'the act of untaming as forms of producing the urban that are rarely acknowledged or recognized as productive pathways to rethink what makes and could make cities conduits of social and environmental justice' (Allen, Lampis and Swilling 2016: 2; also see Preface).

Cyborg urbanization also emerges as a useful concept to explore human–nature–city relations (White, Rudy and Gareau 2016: 153). The authors Erik Swyngedouw (1996) and Matthew Gandy (2005) were among the first to underline the interconnections among apparently separate domains. As Nik Heynen, Maria Kaika and Erik Swyngedouw (2006: 11) point out, '[t]he urban world is a cyborg world, part natural/part social, part technical/part cultural, but with no clear boundaries, centres or margins'. This means that urban metabolisms and flows are discursively constructed, and cannot be separated from the choreographies of power and political projects (Kaika 2005).

Decolonialization too provides a useful frame for analysis. Decolonizing nature within the settler-city seeks to recognize the uneven power flows that underpin the distribution, framing and management of nature – a prominent theme in this book (see chapters 4, 6, 7, 10, 16). While settler-colonial relations may not appear immediately obvious, Sarah de Leeuw and Sarah Hunt recognized that 'the complex and interdigitated nature of globalization and neoliberalism mean that profits and accumulations drawn from settler-colonial geographies implicate people and places beyond specific state borders' (de Leeuw and Hunt 2018: 2). Nathan McClintock provides the example of urban agriculture – a popular pastime that often proclaims good intentions yet can either extend domination or symbolize resistance. He notes how urban gardens have 'played an important role in delimiting race and space' (McClintock 2018: 5), requiring an openness to deconstruct their history and claim to place.

Finally, the question of who the city is for has long concerned urban geographers, political ecologists and planners. They draw out the processes of exclusion and marginalization generated by the urbanization of nature, also known as green gentrification: intentionally or not, bringing more nature into the city can create 'enclaves of environmental privilege when low-income and minority residents are excluded from the neighbourhoods where new green space is created' (Anguelovski, Connolly and Brand 2018: 10).

Sensing and Living the More-than-Human City

Once relegated to the realm of the private or demonized as expressions of the 'unreasonable' or 'irrational' (Velicu 2015), senses and emotions have gradually become a vital part of the conversation on human–nature relations. So much so that, for instance, Farhana Sultana (2015) talked about an 'emotional turn' in political ecology (see also González-Hidalgo and Zografos 2020), and a growing number of theorists are now acknowledging the emotional toll of the Anthropocene: the study of emotions such as distress, anxiety and grief in relation to forecasts of environmental doom has gained increased scholarly salience. Present and expected extinctions of both human and nonhuman life (van Dooren 2016), caused by climate change, unhinged extractivism, pandemics and ubiquitous injustice, have an impact on the way we live and sense the city. Indeed, as we hear climate change reports and their predictions for the future of Earth, many of us may feel a sense of déjà vu regarding the sad outcome to this story (Head 2016; Richardson 2018). This sickening feeling resonates with what Ann Kaplan (2016) calls 'pre-trauma' – the traumatic imagining of catastrophe to come – which functions like a sort of 'memory of the future' (Kaplan 2016, cited by Richardson 2018: 2). Several chapters in this book document experiences of trauma and loss produced by socio-natural urban malaises. This sense of dread is sometimes made visible in the shape of rituals of grief and memorialization (Chapter 16), emotional bursts and tensions with regards to how nature is 'managed' in the city (Chapter 18), and as acts of frustration and resistance (Chapter 17).

How do cities matter in this context? The concept of 'solastalgia' anchors the diffuse sense of end of the world in concrete sites: scholars have identified elements of grief in the loss or change of loved places, and the disruption of life patterns, with climate change transforming the geographical, human and more-than-human components of urban sites (Farbotko and McGregor 2010; Cunsolo 2012; Galway et al. 2019). Cities become such places of grief as the urban denizens are directly af-

fected by the rise of the sea in coastal towns, by raging fires and by water scarcities. They are also at the receiving end of indirect effects of the environmental crisis, as planning fixes may create unwanted consequences: gentrification, displacement, homelessness, conflicts, and the erasure of local identities (Robbins 2012; Anguelovski, Connolly and Brand 2018).

The effects are dire on both the individual and the community:

> Collective trauma is a blow to the basic tissues of social life; [it] damages the bonds attaching people together and impairs the prevailing sense of communality. . . . [I]t is a form of shock . . . a gradual realization that the community no longer exists as an effective source of support, and that an important part of the self has disappeared. 'I' continues to exist though damaged, and maybe even permanently changed. (Erikson 1976, 153–54; quoted in Velicu 2022)

Yet, 'end-of-the world' discourses are not without criticism. For instance, Erik Swyngedouw denounced that apocalyptic imaginaries about the environment are depoliticizing. As an integral part of the cultural politics of capitalism, these narratives manage to 'create a consensual setting where environmental problems are generally staged as universally threatening to the survival of humankind, announcing the premature termination of civilization as we know it' (Swyngedouw 2010: 217). 'It's a catastrophe, relax!' says the physicist ironically, in Ian McEwan's novel *Solar* (quoted in Velicu 2022).

However, this post-political argument may be obscuring innumerable instances where nature is mobilized politically in collective actions for instituting disruptive ways of being together in the city. According to Lesley Head, hope can be traced back to *practices* rather than particular emotions. The depoliticizing effect of apocalyptic dread on the one side, and the blind faith of technocratic optimism on the other (see Habermas 2015), can be compensated if hope is kindled in 'localised, vernacular understandings and practices . . . indigenous engagements, gardens, suburbs, farms, domestic homes' (Head 2016: 24). In this sense, hope 'savours the life and world we have, not the world as we wish it to be' (ibid.: 21). Importantly, in the face of depoliticized imaginaries, hope is interpretable as a fundamentally political stance. To use Jacques Rancière and his followers (see Velicu 2015), the 'return of the political' means the disruption of the established 'partitioning of sensible' (the dominant, what is acceptable to our senses) and the enunciation of the principle of equality by 'those who have no part', those marginalized (Rancière 1999). This book documents several such occurrences of hope. Fragile and incomplete as they are, the alternative practices of being with nature in the city hold the potential to interrupt the dominant apoca-

lyptic imaginary (see, for instance, the chapters by McKenzie and Stein; Ojani; Popartan et al.), while 'unveiling the contradictory/ambiguity of selves/identities as sites of social transformation' (Velicu 2015: 847). One such frame that disrupts conventional tropes and is particularly pertinent for human/nonhuman relations is that of 'care'.

Emphasis on care and kinship in the context of relationality, interdependence and co-constitution that entangles human and nonhuman worlds is core to Indigenous scholarship and ontologies (Bawaka Country et al. 2019; Tynan 2021). Bawaka Country et al. explain that when humans care for Country and Country cares for them, it is in both cases not about caring for something separate. Rather, it is a process of co-constitution, co-becoming and caring *as* Country. For 'Western' practices and technocultures, such understandings clearly represent a break. In the words of Donna Haraway: 'Technocultural people must study how to live in actual places, cultivate practices of care, and risk ongoing face-to-face encounters with unexpected partners' (Haraway 2011: 9). *Presence* in Country is needed for it to flourish; not perfection but ongoing, effective care.

Care, often devalued in capitalist, neoliberal societies (Fisher and Tronto 1990) is considered important for thinking and living in interdependent, more-than-human worlds (see Puig de la Bellacasa 2012, 2017). In recent years, care has been explored in many different contexts, including the urban. Maria Puig de la Bellacasa points out that care per se is a relational concept, and it contributes to the subsistence of living beings in more-than-human entanglements. She underlines this by pointing to Joan Fisher and Berenice Tronto's much-cited definition of care: '[A] species activity that includes everything that we do to maintain, continue, and repair our "world" so that we can live in it as well as possible. That world includes our bodies, ourselves, and our environment, all of which we seek to interweave in a complex, life-sustaining web' (Fisher and Tronto 1990: 40, in Tronto 1995). As Puig de la Bellacasa (2012, 2017) shows, however, when exploring the implications of thinking with care, these are ambivalent terrains, impure and fraught with tensions.

The emphasis on ongoing processes of care can also be seen in examples of conceptions of care in the context of cities. Ash Amin, for example, outlines the elements of an urban ethic for the good city, formulating an ethics of care based on the four registers of urban solidarity: 'repair', 'relatedness', 'rights' and 're-enchantment' (Amin 2006). Wendy Steele builds on these by decentring humans to address the urban greening agenda and how it tends to reproduce dualistic understandings of natural and built space by framing nature as a mode of urban purification. In turn, envisioning cities as modes of human belonging in more-than-human worlds can be transformative, as we see them not by placing the

focus on 'the profitable sanitising of technology by nature, but as spaces of dirty more-than-human care and solidarity' (Steele 2020: 245).

Hence returning nonhuman natures to cities – both physically and symbolically – requires a complex (re)thinking, (re)sensing and (re)living of who and what cities are for. Rather than assume that one or a few approaches should dominate, abundant narratives are required to decolonialize current perceptions of how to express ways of knowing the world (de Leeuw and Hunt 2018). The next section explores methods towards knowing the more-than-human.

Mapping More-than-Human Methods

More-than-human approaches must go beyond the limits of human assumptions, needs and desires as far as possible to comprehend the many worlds of nonhuman others. To study these relationships, new tools and strategies with which to better understand nonhuman worlds in an ethical way must be developed.

Returning to anthropology, multispecies ethnography offers one such approach. Coined by Eben Kirksey and Stefan Helmreich in 2010, multispecies ethnography seeks to acknowledge the 'interconnectedness and inseparability of humans and other life forms' (Locke and Muenster 2015: n.p.). Multispecies ethnography departs from the epistemologies of biological anthropology to consider emergent relationships between human and nonhuman encounters, producing diverse entanglements at times described as mutual ecologies, coproduced niches, new genetic technologies and symbiopolitics. Furthermore, as Eduardo Kohn asserts, multispecies ethnography 'should not just be to give voice, agency or subjectivity to the nonhuman – to recognize them as others, visible in their difference – but to force us to radically rethink these categories of our analysis as they pertain to all beings' (cited in Kirksey and Helmreich 2010: 562–63). Hence, by making them visible, scholars are also repoliticizing urban natures, welcoming them back as equal players in the shared city.

In addition to applying ethnographic techniques to understand nonhuman others, anthropologists are mimicking human-centric multi-sited approaches to instead follow 'genes, cells, and organisms across landscapes and seascapes' (Kirksey and Helmreich 2010: 556). These approaches often also embrace affective and sensorial elements in their attempts to bridge human/nonhuman worlds – both in correspondence to the affective states of the nonhuman other and through the anthropologist's self-reflection on their affective experiences (Latimer and Miele

2013). For example, Ferne Edwards (2021) describes how the senses can inspire, engage and educate beekeepers in a reciprocal process as they tend to their hives, while beekeepers are able to convey beekeeping knowledge to others through embodied learning, such as through mentorship. However, problems of translation and representation persist in interspecies research, prompting questions: How can anthropologists learn from other disciplines to understand and speak for nonhuman others? What new insights and understandings of diverse nonhuman natures can be revealed through inter- and transdisciplinary approaches?

Other disciplines are also thinking urban nature differently. In landscape architecture, 'environmental stewardship' seeks to foster mutually beneficial interactions. Science and Technology Studies (STS) perspectives such as actor-network theory have stimulated new ways of approaching relations to nonhumans, from landscapes to technologies (Whatmore 2006; Forlano 2017). Others, such as Heather Paxson and Stefan Helmreich (2013), have taken a 'microbial turn' to explore more-than-human health relations.

Efforts to decentre humans, bridge worlds and broaden participation can be seen across design-related fields, under different headings. Weisser and Hauck (2017) propose Animal Aided Design (AAD) as an approach to the design of open urban spaces, as it integrates conservation into planning and makes planning inclusive of animals. Within animal-computer interaction, scholars place animals at the centre of iterative development processes, as users and design contributors (Mancini 2013). Researchers working on design and evaluation are, for example, encouraged to go beyond ethnomethodology to explore sense-making mechanisms, or to support multispecies ecologies by 'designing with' other species (Mancini et al. 2012; Mancini 2013). Focusing on other species' needs and rights does not necessarily address ecosystem interdependencies but can help to move beyond human-centredness (Clarke et al. 2019). Emerging design research further disrupts binaries and decentres humans. Scholars engage with posthumanist or more-than-human approaches to tackle environmental issues and socio-technical systems transformation, or with decolonial theory to address issues of equality and justice (Forlano 2017). Focusing on relations to dynamic technologies, Giaccardi and Redström (2019) argue, for example, that more-than-human design implies a shift from human-centredness, distinctions between design and use and a focus on ensuring the best outcomes possible, to continuous negotiation and cultivation of multiple relations, perspectives and responses in dynamic interplays between humans and nonhumans; a shift from a concern with what should be to what might become. In the context of participatory design and neigh-

bouring fields, emerging research explores topics ranging from how nonhumans participate to co-creation with ecosystems, interspecies design and multispecies place-making based on artistic methods (Rice 2017; Pettersen, Geirbo and Johnsrud 2018; Clarke et al. 2019; Roudavski 2021; Olsen 2022).

STS provides innovative and experimental enactments of technological natureculture hybrids, whereas more-than-human participatory research seeks 'to support the inclusion of marginalised actors and to make research accountable to those it affects' (Bastian et al. 2017: 5).

Cross-/interdisciplinary approaches – such as those that combine anthropology, environmental humanities and bioartists – provide illuminating, species-shifting food for thought. For example, the multispecies salon, an exhibition held for several years at the American Anthropology Association, juxtapositioned the agency, beauty, danger and complexities that lie between human and nonhuman entanglements (Kirksey 2014). Recognizing the power of visuality and other senses to convey emotional connection and alternative ways of thinking, one chapter in each book part (chapters 3, 7 and 13) explores urban nature by taking a visual and/or narrative form. Similarly, contributors span from anthropology to disciplines of art, architecture, urban planning, design, engineering, philosophy and geography. These inter-/transdisciplinary approaches are evermore needed when putting human/nonhuman learnings into policy and practice.

We hope by showcasing, describing and reminding others about such possible actions that greater care and conservation practices can be galvanized to overcome the extinction of experience (Schuttler et al. 2018; Soga and Gaston 2016). Urban centres – where we can learn to see nature once more all around us – are ideal places to (re)connect, care and act with such other worlds.

From Theory to Practice

In recent years, the enrolment of 'Nature' in urban sustainability policies has reached unprecedented levels, driven by the doxa of green, resilient and smart cities (Connolly 2019). The ecomodernist discourse on 'win–win solutions', bridging environmentalism and economic growth, is the orthodoxy of our days (Anguelovski and Martinez Alier 2014). Therefore, the map of practices in urban sustainability would be mostly occupied by 'system-affirming tools' fuelled by the neoliberal growth imperative (Kotsila et al. 2020). The concept of Nature-based Solutions (NBS) is a case in point, as it currently dominates environmental

discourse in cities, especially in the Global North. This shift in European Union policy vocabulary from terms such as 'green infrastructure' and 'ecosystem-based assessments' to NBS reflects interest in achieving 'co-benefits' for both people and nature in cities (Raymond et al. 2017). This shift aligns with the conceptual framework adopted by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), which has a considerable focus on 'nature's contributions to people' (Castellar et al. 2021). The notion has gained extraordinary popularity amongst environmental scholars and practitioners, incentivized by extraordinary European funding: in 2021 the European Commission calculated that its Horizon 2020 research and innovation programme had invested 292 million euros in NBS projects.

The concept of NBS was first used as a policy instrument by scientifically oriented non-governmental and finance organizations such as the International Union for the Conservation of Nature and the World Bank (Cohen-Shacham, Walters and Janzen 2016; Faivre et al. 2017). It is an all-encompassing term that frames debates and proposals on climate change adaptation and mitigation, sustainable resource use, biodiversity conservation, and circular economy in cities (Frantzeskaki 2019; Stefanakis, Calheiros and Nikolaou 2021; Castellar et al. 2021). From small-scale interventions such as green walls, to large-scale interventions such as the creation of artificial urban ecosystems, NBS are the latest environmental 'silver bullet' that can 'simultaneously provide environmental, social and economic benefits' (European Commission 2022). From a more-than-human perspective, this current fetishization of NBS is problematic for its unapologetic anthropocentrism. The concept is mainly focused on outcomes and benefits for humans, dismissing the nonhuman species and ecosystems that might be affected, 'no matter how minimal or invisible they may be perceived to be' (Maller 2021: 2).

The accent falls on nature's traits and services, obscuring the value of non-replicable human–nature interactions: trees and greenery are treated solely as 'physical' elements that can be managed and moved around, and that offer 'advantages' such as carbon dioxide capture, flood regulation and heat relief. In turn, 'situated socio-natural systems – such as the irreplaceable memories and associations with a specific tree in a specific space – are often erased or deemed irrelevant' (Kotsila 2020: n.p.). Moreover, even as NBS discourse is littered with references to 'co-creation' and 'co-design', the participatory enthusiasm does not extend to nonhuman 'stakeholders', thus ignoring increasing knowledge about interconnection and dependencies between humans and other life forms (Atkins 2012; Narayanan 2017; Maller 2021).

From a political ecology perspective, NBS are also a target of critique, as 'selling nature to save it' (McAfee 1999) remains the leitmotif of mainstream nature-based practices in our cities, furthering the neoliberal agenda, while suppressing conflicts and dissent (Swyngedouw 2014). In this sense, NBS offer yet another idealized vision of 'nature' to replace genuinely emancipatory political issues, thereby evacuating the political from the public arena. Instead of addressing the inequalities and injustices produced by global (neo)liberal capitalism, political energies are channelled into technomanagerial solutions to environmental problems (Swyngedouw 2014; Woroniecki et al. 2020). The overwhelming positive discourse around the benefits and co-benefits of NBS as a cost-effective instrument sidelines unintended consequences such as green gentrification followed by an amplification of inequality, displacement and loss of habitat (Anguelovski, Connolly and Brand 2018; Sekulova and Anguelovski 2017).

The only way out of this impasse lies in the power of the imagination to construct 'radical ... spatio-temporal utopias' and 'demanding the impossible' (Swyngedouw 2011: 273). For instance, Rachel Clarke et al. 'demand the impossible' by advocating for a more-than-human participatory approach in design that challenges the 'technologically driven, human-centred, and solution-optimizing' smart cities approach to solving environmental problems (Clarke et al. 2019: 60). They propose an exploration of more-than-human temporalities and alternative wisdoms, including Indigenous epistemologies and ontologies, and development of pedagogics and curricula that nurture skills in alliance and partnership-building with more-than-human worlds. Elsewhere, the Barcelona Lab for Environmental Justice documents urban projects that follow environmental justice principles, and help planners to implement new green spaces in ways that 'benefit rather than displace local residents' (BCNUEJ 2021).

This book itself offers a glimpse of concrete utopias and variegated alternative practices that challenge established discourses and manage to politicize nature. They capture human/nonhuman entanglements, tensions and conflicts, while acknowledging their dilemmas, contradictions and complex assemblages. Below we offer an overview of this vision.

An Overview of the Book Sections

Part I: Making Visible Diverse Urban Natures

Abundant diverse natures often go largely unnoticed in the city or are managed, contained, restrained and even vilified through regulatory,

conceptual and infrastructural devices (Philo 1995; Philo and Wilbert 2000; Brinkley and Vitiello 2014). There is increasing demand for recognition that many types of nature – including the 'untamed' – exist, can add value, and have a right to the city. Furthermore, as cities are continually changing due to increasing pressures, such as climate change, consumption and densification, where the arrival of new species, in turn, catalyses new human/nonhuman relationships, needs, benefits and conflicts (Schilthuizen 2018).

Part I recognizes the presence of diverse nonhumans and more-than-humans that pervade, influence and integrate within human-centric cities, 'making visible' calls for the need to look beyond dualisms and stagnant categories of 'good' and 'bad' natures in order to recognize the existence of diverse natures. By calling for urban more-than-human worlds to be 'made visible', this part acknowledges their presence and exposes the reasons why such natures may remain ignored, demonized and misunderstood.

The chapters in Part I 'make visible' urban natures in a variety of ways. Nick Dunn (Chapter 1) engages with temporality to explore multispecies life in the nocturnal city. He applies nightwalking to comprehend the multisensory qualities of urban nature, seeking to contribute to urban design by better encompassing the realities of nocturnal urban natures.

Noting that 'to make visible' is a popular call across urban nature scholars, Ferne Edwards (Chapter 2) questions how 'making visible' can or should be done. From interviews with map makers and organizers of eco festivals and citizen science events through to examining the outcomes from her self-organized nature walks with students, Edwards takes as her muse the insect to draw out key reflections on how best to reveal, remind and reconnect people to nature in cities.

Hannah Cowan and Sam Knight (Chapter 3) explore boundaries, borders, edgelands and in-between spaces as they journey out of the city during the pandemic. In their travels, they sense nature differently through shifting proximities to, within and from urban space. Their experience raises questions of safety and security, distribution and access. For them, 'nature' both remains in and surrounds the city, represented by rolling hills and landmarks that have been shaped by a long cultural history left to go wild, whereas pastoral plains are continually manicured by both human and nonhuman forces, such as sheep and cows. By trespassing hemmed spaces, Cowan and Knight recognize how 'cities are so often focused inwards'; instead, they seek 'towards reorientating cities to look out to the peripheries, to make safer spaces for humans/nonhumans alike'.

Chima Anyadike-Danes (Chapter 4) explores how members of the Mongolian community assert their right in Los Angeles by forming unlikely relationships with nonhuman beings; the bed bug and the California grizzly. By making visible human/nonhuman relations, other hidden human conditions are revealed and bestowed, namely citizens' rights and territory in the settler-colonial city.

Clare Qualmann and Amy Vogel (Chapter 5) discuss how through urban foraging tours (called 'East End Jam') as a social practice artwork they make visible the edible abundance of London's urban environment. Through East End Jam, participants can learn how to use local resources differently whilst 'tasting' their neighbourhood, producing outcomes for nature interaction, communal knowledge production and sustenance. Furthermore, such embodied and guided practice connects to political strategies to (re)claim public and other urban spaces.

Lisa de Kleyn, Brian Coffey and Judy Bush (Chapter 6) take a collaborative autoethnographic approach to question how the positionality of researchers influences research outcomes, and ask how a reflexive approach could contribute to urban natures research practice. To achieve this aim, they make visible the frames of enquiry by presenting a narrative based in a specific place to reveal influences of their understanding of nature. Their analysis demonstrates diverse ways of knowing, and how each approach can reveal or challenge assumptions.

Hence urban natures can be made visible in a variety of ways: by expanding the day to engage with nature at different times, as unique and shared experiences, through embodiment and the senses, and through reflection to question what perspectives of nature may emerge.

Part II: (Re)Connecting Urban Natures

This part explores the need to (re)connect and (re)centre 'human–nature' relations in cities; to move beyond binaries dominant in much thinking, writing and practice, and in turn to guide different ways of living in and governing cities. The need to (re)connect with 'nature' is becoming increasingly important in times of climate change and biodiversity loss. Relational perspectives recognize the interconnections between human and nonhuman actors and the specific contexts they inhabit and create.

Connection, coexistence and care are themes that run through the chapters in Part II. In these contributions, the authors re-centre human–nature relations to 'think with', 'become with' and 'design with' nonhuman others. Doing so allows them to explore the potential in more-than-human or multispecies coexistence, but also to address troublesome sides of such encounters.

In a layered account of her own personal and artistic development, Tracey Benson (Chapter 7) explores relations to place through stories of connection, engaging with topics such as personal identity, Australian colonial history and belonging. Benson shows how active, lived experience – walking, listening deeply, and noticing the connections that are there – can make it possible to break with dominant narratives and binary understandings, and thus to reconnect, live and act with care and respect.

Monique Wing and Emma Sharp (Chapter 8) take soil and composting as their topic. They draw on neo-materialist theory that decentres and reframes humans as co-producers. Composting then becomes an entry point to explore more-than-human entanglements and interdependencies, and the co-flourishing that reimagining composting can open up. They do this guided by questions about the values associated with compost and doing composting. Examples from individuals involved in community composting in Auckland, Aotearoa New Zealand, demonstrate that it can contribute to the understandings and embodiment of circularity and interconnectedness.

In Chapter 9, Jan van Duppen turns to community gardens in London, exploring the ambivalence of care but also the possibilities for reconnecting through play. Here, van Duppen presents an ethnographic study of relations between urban gardeners and urban foxes, involving medication, feeding and play. Through these stories, the author shows the ambivalent and contested nature of interspecies encounters and interactions of 'becoming with' foxes. The chapter illustrates how these interactions are negotiated and can disrupt binary understandings as contradictions and tensions may arise – for instance, between gardening work, care and play.

Drawing on personal experiences and creative practices as a way of reconnecting to place, Dominique Chen (Chapter 10) addresses the underresearched topic of Indigenous peoples' relations to place in urban environments. This chapter is thus not so much about 'reconnecting' as about 're-emplacing' already relational practices. Chen explores how Aboriginal agricultural practices can be reimagined and revitalized in Australian cities and allow practitioners to reconnect with Country, away from their ancestors' homelands. This is done by drawing on two practice-led case studies with examples of creative relational practices and their potential, focusing on the topics of bushfood and bushfood knowledges. Here, relationality is important in different ways: it highlights the embodied, generative, dynamic and multi-modal aspects of culture, learning, sharing, and reconnecting to Country, and how that can be possible even in urban spaces dominated by colonial history.

Care, belonging and related paradoxes are also themes in Jeannine-Madeleine Fischer's chapter (Chapter 11), which clearly illustrates how ethics and politics are always interwoven in care, and in judgements of what constitutes good care (see Puig de la Bellacasa 2017). Through ethnographic field research on unwanted urban nature – weeds and weeding in Auckland, Aotearoa New Zealand – she looks at how people can 'care' for nature in problematic or damaging ways, and how weeding practices relate to both colonial history and contemporary discussions about human migration and belonging to the city.

In the final chapter of Part II, Jolein Bergers, Bruno Notteboom and Viviana d'Auria (Chapter 12) take more-than-human understandings and approaches out of research settings and into real-life urban planning and design. They do that by focusing on the urban transformation area Friche Josaphat in Brussels, Belgium, where plans are criticized by citizen movements for destruction of nonhuman habitats. Here, the authors seek to bridge the gap between citizen collectives' situated knowledges about wild bees, and the expert knowledges of public administrations. They experiment with innovative more-than-human urban design approaches that allow for tracing, articulating and mobilizing wild bee knowledges in urban planning and design.

Part III: Politicizing Urban Natures

This part takes its cue from political ecology to recognize that human–nature (re)integrations may catalyse human–nonhuman and human–human conflicts; while some may lead to new beginnings, others may reveal the impossibility of founding or healing political communities on the remains of injustice. The section interrogates where power lies, and how relations of power and domination affect outcomes for creating convivial and just multispecies cities. Where is the political in the more-than-human city? How is it construed, imagined and supressed? The chapters navigate across different imagined natures – disciplined, emancipatory, utopian, pure, invasive – seeking to ground theoretical perspectives in the reality of the concrete attempts to bring nature back within urban centres. The ambition of this part is to consolidate the engagement between political ecology and more-than-human literatures.

Part III opens with an image-based chapter by Andrew MacKenzie and Ginny Stein (Chapter 13), who take us to the wreckages of the COVID-19 pandemic in Vanuatu. As the pandemic crippled the tourism-dependent economy, many Ni Vanuatu (the vernacular name for indigenous citizens) living in the capital, Port Vila, were left unemployed. For those who could not return to the rural areas, gardening became a necessary survival

strategy. This chapter combines aerial images of disciplined natures with close-up shots of local vegetable markets to convey the dynamic interactions and tensions between those who organize urban natures through legal tenure and those ordinary practitioners who, through their own spatial tactics, opportunistically shape urban nature, particularly during disaster.

Urban gardening is also the subject matter of the next chapter (Chapter 14) by Lucia Alexandra Popartan et al., narrating the creation of an 'edible neighbourhood', Menja't Sant Narcís, in Girona, Spain. It is a very different story, where gardening is recuperated for a white, middle-class neighbourhood, split between neoliberal utopias of the municipal state and the desire of local activists to create new urban commons. The authors discern the tensions between groups and actors, and how (current and historical) 'imagined communities' shape the evolution of the project. The chapter documents the difficult task of creating and taking care of the commons, trapped between idealistic pursuits and inherent exclusionary dynamics, and between commoning and un-commoning.

Chakad Ojani's chapter (Chapter 15) illuminates another facet of the entanglement between imagined natures and imagined communities. He shows how in Lima the fog oasis conservation movement paints the city's poor occupying the outskirts of the city as 'invasive' and ecological threats. This way, they reproduce deep-seated imaginaries about informal urbanization. The chapter constitutes a call for the 'return of the political' in urban nature preservation by considering social asymmetries in these analyses.

The policies and representations of nature-based urban development is the focus of Mariya Shcheglovitova and JH Pitas and their case study in Baltimore, Maryland (Chapter 16). There, sustainability agencies claim that greening is a step towards righting the effects of past racist housing measures such as 'mortgage redlining', which was the practice of denying home loans to applicants based on their race. This attempt to employ nature to heal past trauma is not welcomed by black residents, who remain 'haunted' by legacies of injustice. Greening as a resolution to racial injustice pursues a vision of an 'equitable and just city', but in fact cannot escape a white spatial imaginary. The authors propose the concept of 'haunted urban natures', which reveals how past entanglements between public space, urban nature and white supremacy still loom as spectres in places where these struggles unfold.

The last two chapters of Part III also look at how urban nature, specifically urban trees, can represent a source of conflict between different views and practices involved in urban design and planning. Are trees

a mere furniture, or do they have the right to exist, move and expand within cityscapes? Who decides – and according to which imaginaries and hierarchies of (human) concerns – if and how trees are to be planted, moved or uprooted? In Mathilda Rosengren's chapter (Chapter 17), the transplanting of Gothenburg's mature urban trees presents a situated example of how to begin to interrogate such philosophical and conceptual propositions of multispecies cohabitation. She reveals how an urban nature intervention can become an event of political subjectification for those involved, whereby a more-than-human urban politics can emerge, predicated upon continuous multispecies negotiations. In turn, Hanne Cecilie Geirbo and Ida Nilstad Pettersen (Chapter 18) employ drawing as methodology to explore the politics of street trees within and across social practices, inviting practitioners to represent their profession through sketches. Drawing thus becomes a way of capturing the very different imaginaries of the urban held by planners, engineers and architects, but also a way of engaging stakeholders, negotiating conflicts and reimagining urban spaces.

Our Aims

This book applies three distinct yet overlapping lenses – making visible, (re)connecting and politicizing – to investigate how existing nonhuman natures can be 'seen' and 'sensed', to determine what strategies of (re)connection can be established and maintained to care for them, and to reveal the political frames governing urban natures that may hinder their expression. While based in anthropology, this volume welcomes perspectives and approaches from other disciplines to open up, experiment and ground such inquiry. Importantly, the book takes a step towards closing the gap between political ecology and more-than-human geographies, following the call for 'a more-than-human urban political ecology' (Tzaninis et al. 2021: 232), to explore the intersection between urbanization and nonhuman nature (see also Connolly 2019: 2; Gandy 2021).

We, the editors, see the more-than-human city as relational, political, diverse and shared. Moreover, it has potential to be convivial, and 'not just to exist in the same time and space but actively and conceptually [to] cohabit, interact and engage with other species as part of the practice of everyday life' (Untaming the Urban 2016: n.p.; Hinchliffe and Whatmore 2006). The direction that cities, human and nonhuman natures will take – towards or away from conflict or peace, homogeneity or diversity, greater human dominance or decolonization – remains unclear.

We argue that a critical approach needs to be applied to examine urban greening histories, politics, discourses and ecologies to sharpen their approach, and to specify where improvements can be made.

Conclusion

This Introduction has outlined the story of both the disappearance and potential reappearance of nonhuman natures in cities. The city, in its many forms, represents a key site in which human/nonhuman relations are increasingly compressed, producing tensions and disruptions. However, cities also offer excellent sites in which to lead and demonstrate alternatives for human/nonhuman coexistence. In this book, we argue that nonhuman natures must first be 'seen' and 'sensed' to next consider diverse strategies for (re)engagement. Importantly, we argue that this process of bringing nature(s) in and out the realm of the senses, while constantly opening and suturing its meanings, is an essentially political process. This Introduction has mapped the landscapes of more-than-human theory to unpack the understandings of 'living with' other natures, to also consider the affective impacts from grief and loss, where humans are grieving the potential lost opportunity to connect with a wider world. An overview of diverse, innovative and experimental methods has been presented in response to the need for numerous narratives to displace dominant discourses. We have then interrogated the application of theoretical knowledge to the real world, to go beyond assumptions to question who benefits, how and why; and we have ended by providing an overview of the book sections, depicting diverse approaches, cityscapes and, of course, natures. We hope this array of case studies adds to an increasing body of literature to provide inspiring insights for how we can live better with nonhuman nature in cities.

Ferne Edwards has conducted research on sustainable cities across Australia, Venezuela, Ireland, Spain, Norway and the UK. Her books include the edited volumes *Food for Degrowth: Perspectives and Practices* and *Food, Senses and the City* (both Routledge, 2021), and the monograph *Food Resistance Movements: A Journey into Alternative Food Networks* (Palgrave, 2023). She is based at the University of Surrey, UK.

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Introduction

The Greatness and Misery of Science in a Toxic World

Soraya Boudia and Nathalie Jas

> Most of the necessary knowledge is now available but we do not use it.
> —Rachel Carson, *Silent Spring*

Twenty-five years after the Chernobyl disaster, the Fukushima catastrophe once again brings into sharp focus the risks imposed on all of humanity by certain technologies. An earthquake, followed by a tsunami, triggered a major international crisis, arousing fears of an unprecedented technological disaster. The nuclear explosion ultimately did not take place, and the worst seems to have been avoided. But significant quantities of radioactive material, iodine 131 and caesium 137 in particular, were released into the atmosphere by three of the six reactors that partially melted. Moreover, large quantities of seawater that had served to cool down the reactors were released into the environment. This event highlights a number of problems linked to the dangers of technoscience. It shows that even in one of the richest and safest countries in the world—and one of the most economically and technologically developed ones—in a high-tech sector that mobilizes a large community of experts and is subject to a whole range of very strict international regulations, and in spite of decades of experience, the management of technoscientific risks—particularly environmental contamination by dangerous chemical substances—is still a major scientific, technological, social, and political problem.

Fukushima is a perfect illustration of the observation that underpins this book and that presents itself as a paradox. Throughout the twentieth century, scientific knowledge and expertise were constantly mobilized to develop public policies designed to prevent or manage the effects of toxic substances on health and the environment. Science has thus served as the guarantor of the effectiveness of systems regulating dangerous chemical substances and physical agents. Yet today, in spite of decades of development in research on toxicants, along with the growing role of scientific expertise in public policy making and

the unprecedented rise in the number of national and international institutions dealing with environmental health issues, problems surrounding contaminants and their effects on health are far from being resolved. Indeed, they are often at the heart of new public crises and advocacy movements denouncing the shortcomings or even failure of policies implemented. These problems therefore remain a major issue for Western societies and international institutions. However, while scientific knowledge has not made it possible to truly protect populations, it has retained a key position within all public debates—particularly because it is still essential in the identification and characterization of toxicants as well as in public legitimization of different policies related to toxicant-related issues. Scientific knowledge and techniques thus have played and continue to play a determining role in rendering the toxic world visible and in making the resulting issues public.

This statement calls for a reconsideration of the roles of scientific knowledge and expertise in the definition and management of toxicant-related health issues. That is the aim of this book, which seeks to shed light on the way environmental health problems posed by toxicants have been conceived and governed since the 1940s. The different chapters analyze the historical, social, and political trajectories that have structured and continue to structure the statuses and functions of scientific knowledge in toxicant-related issues, whether in toxicant regulation regimes or in the different advocacy movements surrounding them.

The analysis in this book is founded upon three methodological choices. First, it encompasses various approaches, both in its questions and methods of investigation, stemming from environmental history, science and technology studies, political science, sociology, and the philosophy of law. By drawing on very different yet complementary perspectives, we can highlight a much broader range of mechanisms, which have governed and organized the production and use of scientific knowledge, expertise, and counter-expertise for the management of problems posed by toxicants. Second, together, the contributions in this book cover a sufficiently long period of time to account for the important transformations of the role of knowledge in the regulation of toxicants, as well as for the diversity of ways in which knowledge has been produced and mobilized in toxicant policies since 1945. Third, the proposed analysis considers several spatial scales, namely, local, national, and transnational, with a diversity of case studies covering different geographic areas.

As a result, this book analyzes the official and alternative statuses and uses of scientific knowledge in the social and political handling of the issue of toxicants at different times from the late 1930s until today, at different levels, from the most local level to international institutions. A significant part of the chapters are focused on the United States, as that is where the design, experimentation, and transformations surrounding the ways toxicants have been governed

historically took place, to then spread to the rest of the world. However, that is not to say that we neglected other parts of the world; we selected case studies through which a much broader host of configurations could be addressed. Thus the Italian case, that of a country that industrialized rapidly in the 1960s and 1970s and witnessed a substantial number of major industrial incidents, the best-known one being Seveso, offers a national configuration very different from that of the U.S. case. The presence at the time of a powerful left wing and trade unions that had found original ways of integrating health and environmental concerns also produced forms of mobilization and counter-expertise worth discussing. Finally, we selected Taiwan in Asia, as it offers yet another configuration, insofar as the contaminated sites result from a long history, related to both colonialism and Western industrial relocations, that further complicates both the production of knowledge on contaminations and advocacy. Through these choices, this book thus offers original perspectives and renewed insights into the issues and processes involved in the management of toxicants.

This book is organized into three parts. Each of them explores a particular aspect of the roles of science in the definition and management of toxicant-related health issues. In this Introduction we discuss each of these main themes. First, we present the various changes in the scientific conceptualization of toxicants since the 1940s, and the ways in which these changes have shaped expertise on and the regulation of toxicants and the problems they pose. We thus show how the production of scientific knowledge and expertise on toxicants and their effects evolved alongside the modes of toxicant regulation. In the second part, we examine the production and uses of scientific knowledge in advocacy movements and in the gradual construction of counter-expertise. We analyze the appearance of counter-expertise in the 1970s and describe the different forms it took on, whether stemming from scientific academia, from the work of scientists working for regulatory agencies, or from lay persons involved in advocacy movements. We identify the diverse roles that the different forms of production of scientific knowledge have played and continue to play in social and political movements surrounding toxicant issues. We emphasize the complex, nonmechanistic relations that subsist between advocacy, nonadvocacy, and knowledge—whether extensive or poor—or ignorance about toxicants. In so doing we highlight that while advocacy movements may involve dynamics of production of knowledge, the existence of significant knowledge on contamination does not necessarily ensure the success of movements, nor even the strengthening of movements.

Finally, in the third part, we consider the role of the social sciences and humanities in the production of knowledge about the ways toxicants have been regulated and as resources for action, whether for regulatory systems or as part of advocacy movements. We first turn back to the main frameworks of

analysis that have been developed, such as the propositions formulated by the social sciences and humanities since the end of the 1960s—when they began to consider ways in which toxicant regulatory systems could be improved. We then present a series of current approaches emanating from the social sciences and humanities after decades of toxicant policies and at a time when regulatory systems in Europe, the United States, and international organizations are being reconfigured. The propositions made seek to define the conditions of production and mobilization of knowledge in regulation, so as to develop systems that can deal more effectively with the public health and environmental problems generated by toxicants.

Knowledge, Expertise, and the Transformations in Regulatory Systems

The issues underlying the problems posed by environmental health risks have a long history that has significantly shaped their role in current expert and decision-making communities, as well as in the public sphere. The current ways of managing the environmental health problems posed by toxicants and the roles that scientific and technical knowledge have played in these are the result of an historical accumulation of actions, responses, and institutional configurations and reconfigurations that are rooted in long-term processes about which more needs to be said (Boudia and Jas 2007; Boudia and Jas 2013).

The scientific understanding and study of environmental health problems and the regulatory and public policy systems dealing with them are the product of changes that began back in the nineteenth century and that are closely intertwined with the history of capitalism. Already in the nineteenth century, galloping industrial change profoundly altered the environment, at the cost of chemical pollution, technical accidents, and the poisoning of the bodies of workers, residents, and consumers alike. These multiple effects were not overlooked. They triggered numerous debates and controversies as well as the implementation of a wide range of management mechanisms: expert commissions, especially within academia, court cases, insurance policies, compensation, improvements to technical systems to limit emissions or their effects, the development of sets of regulations to frame the use of toxicants, and new administrations dedicated to the management of potentially dangerous substances (Young 1986; Bernhardt and Massard-Guilbaud 2002; Dessaux 2007; Fressoz 2012; Massard-Guilbaud 2010). Regulation of the activities generating pollution found itself caught up between contradictory logics with, on the one hand, the struggle against visible environmental damage and long-term concerns regarding such damage, and, on the other, the desire to legitimate

sustained industrial growth by states concerned first and foremost with ensuring economic development.

Holding these contradictory logics together has constituted a major issue for the administrations in charge of managing pollutants and the dangers caused by industrial activity. These administrations primarily resorted to science and technology as solutions to hold often contradictory imperatives together: to simultaneously ensure industrial and economic development and manage the concerns and protests that could arise—and to provide forms of health and environmental protection. A doctrine of management of industrial excesses developed in the nineteenth century. It elaborated a logic and rhetoric of intervention that gave scientific knowledge and expertise a central role. Thanks to these, it was possible to regulate the dangers posed by industrial pollutants, by precisely determining danger thresholds and elaborating tools of effective control, management, prevention, remediation, and reparation. As a result, the constant progress of science and technology also allowed for regular improvement of the systems regulating the deleterious effects of industrial activities.

Although laws in this respect were inherited from the early nineteenth century, from 1870 on the implementation of regulatory systems accelerated. This corresponded to a period during which, in general, the state was expanding its ambit and simultaneously changing its methods, notably by developing new administrations in which scientific expertise played an essential part. The last third of the nineteenth century and the early twentieth century was thus a period in which the foundations were laid for many national regulatory systems, namely, with regard to foodstuffs, medicines, professional medicine, toxic substances, and industrial pollution. Science played a crucial role in these changes, in several respects. From the growth of chemical analysis to the rise of the hygienist paradigm, and from the development of toxicology to the increasing normalization and security standards on technological facilities, science and technology, through the knowledge and instruments they produce, contributed to building and ensuring the functioning of systems regulating dangerous activity. But although these regulatory systems became stronger during the interwar period, they failed to prevent sanitary scandals resulting from the development of certain sectors of activity: pollution through industrial accidents and collective poisoning through pesticides, medicines, cosmetics, paintings, foodstuffs, etc. (Kallet and Schlink 1933; Whorton 1974; Sellers 1997). These numerous scandals pointed to regulatory systems' incapacity to prevent the dangers posed by the unfolding Chemical Age. They sometimes brought to light regulatory systems' functioning mechanisms and showed their limits. In most cases the regulatory policies implemented seemed to result from negotiated compromises that were acceptable for industrial actors, not from a desire to encourage the production of scientific expertise on the health and environ-

mental effects of toxicants with the goal of elaborating regulatory measures centered on the protection of public health.

Right at the end of the 1930s, these repeated scandals led to the creation of a movement to amend legislation on toxic substances, which remained active throughout World War II and after it ended. The transformations of regulatory systems that took place between the late 1930s and early 1950s gave an even more explicit role to scientific knowledge and expertise. During this period, the principle of toxicity evaluation prior to issuing a product license, namely, was imposed in a number of countries and for a number of substances (medicine, pesticides, food additives). The aim of these evaluations was to decide whether the substances could be authorized or not, and to set the conditions for their use so that they did not present a danger for public health. The designers and promoters of these new regulations argued that the objective was the complete elimination of "hazards." The Food, Drug, and Cosmetic Act passed by the U.S. Congress in 1938, discussed in the first chapter of this book by Nancy Langston, offers a paradigmatic example of this new approach. Langston shows that this law was based on precaution, but that that was not enough to prevent the dissemination of a substance that is as dangerous as diethylstilbestrol (DES). She analyzes how during the 1940s, three instances of industrial lobbyists' political work achieved the reversal of a decision by the Food and Drug Administration (FDA) that, for precautionary reasons and within the framework of the 1938 Food, Drug, and Cosmetic Act, had demanded that DES be banned.

Among other things, the emblematic case of DES, discussed by Langston, shows that laws on toxicants in the late 1930s, the 1940s, and the 1950s, while theoretically very protective, were not able to deal with the radical change of scale in the problems posed by toxicants from the end of World War II on. First, the numerous biases toward industry did not disappear with these new regulatory systems, and the development of economic activity remained a major concern that justified public health protection systems being virtually systematically bypassed. This was made all the more easy by the rise of potentially dangerous industries like the petrochemistry, synthetic chemistry, and nuclear industries, which stood as emblems of a modernity that promised wealth and a new well-being. These industries developed at such speed that regulatory systems, with far more limited means, could hardly be effective. These industries were socially, economically, and politically far too powerful for public health or environmental protection to have been considered by political authorities as a sufficient reason to restrict their expansion. As a result of the development of these industries, the world witnessed an unprecedented increase in the quantities of chemical substances put into circulation and onto the market, and some of those substances started to be found in the atmosphere, the soil, and water. Although the regulatory systems did rely on scientific expertise,

they did not have the means to carry out in-depth examinations of the numerous new substances brought onto the market (Davis 2001; Ross and Amter 2010; Vogel 2012). In fact, most of them were not evaluated or regulated in any way whatsoever.

This book shows that it is crucial to understand and analyze the changes that took place between the late 1960s and the early 1980s if we are to make sense of the way the regulation of toxicants is structured and functions at present. The most significant change during this period was the unprecedented growth of environmental issues and the long-term inscription of environmental health issues within the different public and professional arenas (Hays 1989; Brooks 2009). At the end of the 1960s, in the wake of the social and political movements of the time, the environment gradually became a major theme of radical criticism. There was a proliferation of environmental health issues making their way onto the political agenda: various types of chemical pollution, air pollution, water contamination, and food contamination were denounced and associated with an unrestrained capitalist economic development.

There was a shift in the way the nature of the issues raised was represented, as evidenced in several chapters of this book. The crisis of the 1970s brought to light the rise of problems whose scale and potential consequences were unprecedented. These new problems were partly defined by the greater scales of space and time within which they existed. Pollution was no longer local but could affect the entire planet. It affected not only health but the entire ecosystem. The consequences were not only immediate; they could be felt decades after exposure or contamination, and over several generations. Due to their unprecedented scale, from the infinitely small to the infinitely big, health and environmental issues raised a host of new questions that experts and institutions had to deal with. Various types of answers were provided. They were both political and administrative, involving regulatory and institutional reconfigurations. At national level, in the United States and certain European countries, this translated into the creation of agencies to manage environmental problems, and/or the reconfiguration of systems regulating toxicants, as symbolized by the creation of the Environmental Protection Agency (EPA) in the United States in 1970 or the development of environmental regulations by the European Economic Community and in European countries from the late 1960s on. At transnational level, new initiatives proliferated. The United Nations Conference on the Human Environment held in Stockholm in 1972, for instance, was organized to discuss the general state of the environment and to identify problems requiring international collaboration. One of the memorable initiatives to come out of this conference was the creation that same year of the United Nations Environment Programme (UNEP).

These different transformations that took place in the late 1960s and early 1970s reflect, and themselves induced, important changes in the role and

place of scientific knowledge in dealing with toxicant issues. In the context of questioning, criticism, and activism, science, along with its actors, products, and methods, came to occupy a central position. The keener attention paid to environmental issues gave a whole new standing to researchers working in the field of environmental health. In the alarms that they sounded these researchers identified the extensive presence of chemical contaminants in the environment as being responsible for the development of new health problems, such as genetic mutations and effects on reproductive problems, which thereby acquired unprecedented public visibility. A large volume of scientific work was produced. After studies on carcinogenesis came those on ecotoxicology and environmental mutagenesis (Frickel 2004). Hence, for a whole host of substances, the lack of greater precautions surrounding their use and regulation in the 1970s could not be explained by uncertainty or a lack of knowledge regarding their pathogenic effects. The absence of significant mitigation of the problems caused by toxicants, following the explosion of knowledge production in the 1970s, began to highlight the fact that, contrary to the public discourse developed for decades, "science alone cannot solve the problems posed by contaminants"—to take Langston's words.

With the proliferation of substances in circulation and the multiplication of denunciations of their effects by activist movements, the screening of dangerous substances and the precise definition of their effects became a core part of the work of researchers, experts, and new institutions in charge of managing contaminants. The U.S. agencies, such as the Environmental Protection Agency and the Food and Drug Administration (FDA), and international organizations like the International Agency for Research on Cancer, created in 1968 under the World Health Organization (WHO), all took on the role of leaders in the field. The multiplication of regulatory and expertise agencies allowed for the growth of research on testing and screening methods. Another feature characterizing the work that developed in the 1970s was the classification of chemical substances' effects. As shown in Angela N.H. Creager's and Jean-Paul Gaudillière's chapters, several research projects and institutional initiatives were dedicated to identifying a relationship between carcinogenicity and mutagenicity or reproductive effects.

Creager's chapter evidences the rise of research focusing on the screening and characterization of chemical substances' toxicity during the 1970s, an explosion that has so far been studied very little. Creager studies the evolution of the work of biochemist Bruce Ames to show the importance given to the development of dangerousness tests, both by industrial actors and by regulatory agencies and environmentalists. In 1973, Ames devised a test to determine the carcinogenicity of chemical substances, which generated strong interest given the possibility of applying it to a host of chemical substances on the market. The test stirred real enthusiasm among environmentalist groups and was rapidly

adopted by industrial actors due to its simplicity and the lower costs involved compared to animal testing. It was based on the assumption that any carcinogen was a mutagen, and that a microorganism was an adequate model for testing mutagenicity as it can develop in human cells. Since the 1970s, the nature and results of this type of test—those by Ames and many others that have been put forward over the years—have played and still do play a crucial role in the definition of regulatory systems. They generate stormy controversies among scientific experts, which are visible to varying degrees in the public sphere. The movement that developed in the 1970s around the Ames test is currently at the heart of proposals to overhaul and elaborate a "new toxicology," formalized in a 2007 report by the U.S. National Research Council (NRC), and seeks to ensure that regulatory toxicology no longer relies essentially on animal testing, but on in vitro tests and computer modeling.

Research on the relationship between carcinogenic effects and toxic effects on reproduction is addressed in Gaudillière's chapter. Since both look at the DES case, comparing Langston's and Gaudillière's contributions sheds light on the nature of the transformations that took place between the 1950s and the 1970s. Gaudillière analyzes the multiple transformations, both legal and scientific, that took place throughout the American court cases on DES in the 1970s. He shows how the confrontation of experts over the course of the court cases led to the production of new knowledge on toxicants. Although this chapter contributes to highlighting an important phenomenon of the transformations that took place starting in the 1970s and that is analyzed in detail in the second part of this book, that of the diversification of the sources and places of production of knowledge on toxicants with the rise of counter-expertise, it also contributes to another very important aspect. It allows us to grasp the crucial issue of the categorization of dangerous substances in regulatory systems. While in the 1950s carcinogenic substances motivated continued investigation and classification work, in the 1970s two other categories of particularly hazardous substances were formalized: mutagens and reproductive toxicants. Later on the CMR category (Carcinogens, Mutagens, Reproductive Toxicants) was developed with a view to adopting a more holistic approach to effects, to establishing links between them, and to classifying chemical substances according to their effects. This classification comprised the substances considered to be the most dangerous, in terms of both their effects and their capacity to have a delayed effect in low doses. It has formed the basis for the development of systems of regulation of toxicants since the 1970s and, in modified versions, is still highly influential in current regulatory systems. Gaudillière's account shows how during a court case, through the confrontation of experts, some of the characteristics of DES which did not fit in with the then prevailing conceptions of toxicants' effects were highlighted. The deleterious effects of DES could be more significant in low doses than in

higher doses, and the timing of exposure could play a crucial role in the type of effects obtained. Gaudillière ultimately shows how instrumental the DES case was in the early 1990s, as during the Wingspread Conference (1991) scientists linked to U.S. health and environmental activism formulated the endocrine disruptors (EDs) hypothesis, and with it a new category of highly hazardous chemicals. Activists currently use EDs characteristics to call for the overhaul of the CMR classification system and for regulatory systems implemented in the 1970s to be scrapped. They consider these both out of date and incapable of protecting populations from the deleterious effects of what they see as the "new toxic substances" (Krimsky 2000; Vogel 2012).

As well as the transformations in the scale of the problems and in the way toxicants were conceptualized and categorized, this book highlights another type of change in the 1970s. It pertains to the ways in which public policies on contaminants are managed and legitimated, as analyzed by Soraya Boudia in this book. Her chapter shows that the growth of work and the accumulation of data on contaminants and their effects led to the challenging of the threshold paradigm that had structured the perception as well as the regulation of toxicants since the end of the nineteenth century. To fully grasp these changes, it is useful to remember that environmental health problems were approached essentially through the dogma of toxicology, which holds that "the dose makes the poison," in other words, that for each toxicant it is possible to determine a threshold below which no deleterious effect is observed, or below which risks are perfectly negligible. Until the 1970s, all regulations on toxicants were based, officially at least, on this dogma. This meant that from the 1940s on, threshold values were increasingly used, with denominations specific to each domain and the creation of a host of labels, such as tolerable dosage, permissible dosage, Maximum Allowed Concentration (MAC), or Acceptable Daily Intake (ADI). These threshold values made it possible to use substances without their having—at least in theory—too significant or irreversible an effect on health. Nevertheless, from the early 1970s on, suspicion began to grow regarding this approach, through discussions on the effects of low doses of radioactivity and many carcinogens. The accumulation of results concerning the effects of exposure to carcinogens in the workplace or in the environment, along with a number of experimental studies, tended to show that, for numerous substances, nothing permitted the definition of a threshold below which no deleterious effects could be observed.

The question of low doses was a major political issue. It cast doubt on a host of activities that until then had been considered safe or seen as presenting negligible risks. Raising this issue amounted to claiming that innovations could have negative sanitary and environmental effects not only in exceptional situations like accidents, but also in "ordinary" situations, in their normal use. This was inherently a critique of various scientific and industrial domains: without

generating major threats, they contributed to spreading in the air, water, and ground proportions of toxicants considered negligible. The issue of exposure to low doses undermined regulatory systems, for which defining thresholds and threshold values was a major activity. The recognition of the potential problem of exposure to low doses of pollutants de facto generated a contradiction in the practices of regulatory systems. On the one hand, this meant admitting that there is no threshold below which one can assert the innocuousness of a substance; on the other, setting threshold values remained central to regulatory systems (Bächi 2010).

As a result, starting in the 1960s the discourses legitimating regulatory policies began to change noticeably (Jasanoff 1990). To overcome the contradictions generated by the issue of low doses, the procedures used to determine these threshold values were increasingly presented as seeking not to guarantee the absolute innocuousness of the use of certain substances under certain conditions, but to establish "socially acceptable" levels of risk. It was thereby recognized that exposure norms did not result from a scientific decision only, but incorporated economic and political considerations as well. The institutional changes in the 1980s and 1990s fully took into account this new dimension, which was expressed in the desire to separate the "assessment" of substances from their "management." This was formalized in the NRC's Red Book on risk management published in 1983, as Boudia points out in her chapter of this book. The separation between "assessment" and "management" subsequently became widespread; it was adopted in both national and transnational regulatory institutions. A paradoxical situation was thereby officialized in the second half of the twentieth century, in which the way toxicants are governed is still rooted. Regulatory systems recognize that standards of exposure, and more generally, the regulation of toxicants, result from scientific as well as economic and political processes. Yet at the same time, expertise and scientific knowledge are still publicly referred to in order to legitimate decisions on toxicants and their effects.

Activism and Nonactivism: Alternative Uses of Knowledge

The rise of environmental concerns, the unprecedented accumulation of scientific work on the effects of toxicants, and the multiplication of regulatory systems as sophisticated as the ones implemented in the 1970s have not led to the disappearance or significant decline of contaminants' impact on health and the environment. On the contrary, the number and quantities of toxic or potentially toxic chemical substances disseminated since the 1950s has continued to increase, resulting in a proliferation of contaminated sites and the growth of a broad range of deleterious effects on an unprecedented scale.

The lived experience of this materiality, be it in terms of environmental degradation or damage to human health, has played a large part in the transformation of social movements surrounding the issue of toxicants and their effects since World War II. Like environmental health problems, these movements are the outcome of a long history. Industrial pollution and its effects on human health, forests, agriculture, and animal husbandry generated multiple forms of protest throughout the nineteenth century and between the two world wars, ranging from trade union movements to court cases initiated by locals, or press campaigns. In the United States in the 1930s, in the middle of an economic crisis and following numerous scandals triggered by collective toxic contamination, the chemical industry was even accused by the first consumer movements, using a highly successful book, *100,000,000 Guinea Pigs* (Kallet and Schlink 1933). From the mid 1950s on, the idea that human beings had contributed to making their environment toxic consistently gained currency. Following the wave of controversies on the effects of radioactivity, chemical pollution—particularly that linked to pesticides—became a widely debated issue. These concerns originated from certain professional circles, particularly those of cancer specialists, but also from the everyday experiences of the middle classes settling in rapidly expanding suburbs, close to fields where pesticides were used on a large scale. During the 1960s, scientific and civil society actors in the large movements of the time fully embraced the issues underpinning environmental health. The publication in 1962 of *Silent Spring,* which soon became a best seller worldwide, by a marine biologist, Rachel Carson, effectively marked the beginning of a movement that gained importance in the second half of the 1960s (Carson 1962).

The environmentalism that developed from the late 1970s highlighted a number of new questions being raised regarding the place of human beings in the biosphere, the depletion of natural resources, and environmental pollution and its immediate and long-term effect on humankind. These themes were recurrent in a number of actions and movements, led by figures such as Ralph Nader. Health was a pivotal and even structuring dimension of their interventions and a recurrent feature of activism at the time. This movement was supported by activist organizations that later became important, such as the American Environmental Defense Fund, created in 1967 to support anti-DDT movements (Dunlap 1983). These activist organizations did not spring up only in the United States. The numerous preparatory conferences between 1969 and 1972 leading up to the United Nations Conference on the Human Environment held in Stockholm in June 1972 also show the existence of this type of activism in countries of northern Europe. During the 1970s and 1980s, local and national organizations expanded their activities outside their territories of origin, as in the case of Friends of the Earth created by David Brower in the United States, which spread to 76 countries, or Greenpeace, founded in Vancouver, Canada, in 1971 by a small group of anti-nuclear activists.

The growth of these large activist organizations in the 1970s and 1980s went hand in hand with the rise of other types of organizations for which issues of environmental contamination were a major concern. Older organizations that previously focused on nature conservation reoriented their activities. In North America at least, movements for women's health engaged with the issue of the effects of toxic substances on health, initially with the question of synthetic hormones. Local victims' associations were created in long-term struggles against industrial actors responsible for the contamination of certain sites (Brown and Mikkelsen 1990; Kroll-Smith et al. 2000; Allen 2003; Brown 2007). Certain scientists involved in the production of official expertise, outraged by certain practices, founded independent research and expertise institutions, as in the case of the toxicologists and epidemiologists who founded the Italian Foundation, the Instituto Ramazzini. With a view to forming alliances, pooling their resources and increasing their capacity for action, some national organizations also federated and developed large transnational networks. Thus, over the last four decades, extremely complex webs of activist organizations have formed, including small and large organizations wielding varying degrees of power, with varied and sometimes contradictory objectives. All agree, however, on the existence of unacceptable threats to health and the environment caused by the uncontrolled excesses of the chemical era (Pellow 2007).

Scientific knowledge has played a growing role in the actions of the different advocacy movements (Ottinger and Cohen 2011). With industrial actors and political and administrative authorities denying the existence of problems related to toxicants, it became necessary to provide scientific proof of the existence of dangerous effects and to assess the extent of environmental pollution. Alternative production of scientific knowledge and counter-expertise therefore began to grow in the second half of the 1960s. The aim of such production was and still is not only to prove the existence of contaminations and deleterious effects, but also to reveal them and make them visible. It was expected that this would trigger or strengthen mobilization, thus prompting industrial actors and government authorities to deal with the problems at hand. This alternative production of scientific knowledge and counter-expertise unfolded in three interdependent processes.

The first was the involvement of established scientists—some of whom were renowned—in environmental causes in the name of science. Based on the results of research that they or others had carried out, several scientists became whistle-blowers. They decided to make facts and concerns public and to call for the implementation of prevention and remediation policies. During the 1960s and especially the 1970s, the number of renowned and less-known scientists adopting this kind of attitude multiplied. Apart from emblematic figures such as Rachel Carson (Lear 1997) or Barry Commoner (Egan 2007), many scientists, presented in a number of chapters in this book, embraced the issue of the effects of toxicants. The generalized contamination of the environment, the

fauna, and human beings by PCBs (Polychlorinated Biphenyls) was revealed for instance through the relentless work of a Swedish researcher, Soren Jensen, between 1966 and 1968. His work was rapidly circulated within international arenas and contributed to launching an important movement, particularly in the United States, to reveal numerous contaminations from these substances. Despite massive lobbying by the company producing them, Monsanto, and those that used them, such as General Electric (McGurty 2009), this movement achieved a total ban on PCBs in 1979 in the United States, and in the mid 1980s in most European countries—but the ban did not resolve the problems caused by these very persistent substances.

This unprecedented involvement of scientists, whether they were well-known or not, was accompanied by a move toward the redefinition or even the creation of new disciplines to address the wide range of questions raised by the breadth and complexity of contaminations. From the 1970s, the rise of new fields such as "chemical mutagenesis," "environmental hormones," and ecotoxicology reflected the desire to articulate the promotion of new research subjects and approaches not yet recognized in the academic world, with the need to bring to light and study the problems generated by the massive circulation of potentially toxic chemical substances. This involvement motivated by professional concerns may have been complemented by a more political type of involvement. Laura Conti's scientific work in Italy in the 1970s, discussed in Stefania Barca's chapter in this book, is a particularly interesting illustration of the different types of scientific and political activism. A doctor by training and a communist, Conti developed a form of environmentalism that placed toxicants and human beings at its center. This environmentalism insisted on the multiple and complex relationships between the living and the nonliving, and showed the irreversible effects of the constant release of petrochemical waste into nature, which could not be controlled by simply resorting to thresholds on toxic concentration. Conti's scientific work was therefore nurtured by her political commitment, just as her political involvement was deeply influenced by her scientific work.

Other forms of knowledge production emerged in addition to the production of new knowledge on toxicants by academic researchers or researchers working for activist movements. Local action surrounding contaminated sites, studied in this book by Paul Jobin and Yu-Hwei Tseng as well as by Barbara L. Allen, increased exponentially starting in the second half of the 1960s, first in the United States and then in other parts of the world. The administrative and legal proceedings that took place as part of these mobilizations, providing scientific evidence of contaminations and their deleterious effects, proved to be a significant factor of success. Calling on academic researchers—even specialists able to demonstrate the existence of deleterious effects—has not always proved easy or effective. Some scientists, such as the Taiwanese epidemiologist Lee

Ching-Chang, described by Jobin and Tseung, refused to reveal their results beyond narrow academic circles. Others, such as the epidemiologist Patricia Williams, a chemical contamination specialist discussed by Allen, were first and foremost concerned with conforming to the scientism criteria of their professional community. Yet the time frame of academic research that eliminates any possible bias and the time frame of protest mobilization do not always coincide, and results can be made available too late to support the cause of activists. Moreover, the expectations inherent in academic research do not always correspond to activists' expectations, as each world has its own motivations.

Due to the inappropriateness or shortcomings of academic research in producing sufficiently conclusive scientific evidence, activist or victims' groups began developing other types of knowledge production, sometimes turning to actors other than established academic researchers. The victims themselves, relatives, and doctors or scientists who were not too concerned about their careers were able to organize themselves, identify patients, and gather data on exposure to finally show correlations between local exposure and the abnormal increase of certain serious pathologies. Patients' organizations and the cartographic work carried out at many contaminated sites gave rise in the 1980s to what Phil Brown calls popular epidemiology (Brown 2007). This is based on the elaboration and implementation of techniques that differed from those used by government authorities and regulatory bodies. It has allowed scientists allegedly less specialized in a certain subject, doctors without a research activity, retired engineers, laborers, office workers, mothers, etc., not only to produce data, but also to become experts on certain health and environmental problems. In this perspective, Allen discusses the case of Gabriele Bortollozzo, a worker from 1956 to 1990 at the highly contaminated site of Montedison in Italy, while Jobin and Tseng consider that of former workers from the Taiwanese factories of Radio Corporation of America. Both cases are highly representative of this bottom-up knowledge production by the victims themselves or their relatives—with the support, over time and depending on the locations, of activist organizations and committed scientists.

From the early 1990s and with varying time frames in different countries, a third form of change occurred through which the development of counter-expertise within local movements and national and transnational organizations, by scientists and nonscientists, took on a new dimension. From the early 1980s, the supposedly profound transformation of systems regulating toxicants that took place at national and international level during the 1970s following environmentalist activism proved to have been a failure. During the 1990s, the multiplication of highly visible issues and scandals surrounding the deleterious effects of technoscience stressed the fact that science was not in a position to provide clear answers and precise information on the dangers incurred. Yet in situations of uncertainty, decisions concerning the regula-

tion of technoscientific practices had been taken behind closed doors by small groups of experts. Strong mobilization, defiance of certain innovations, and the discrediting of certain administrative and statal systems led policy makers to develop new modes of government, underpinned by new systems under the banners of "participation" and "transparency" (Pestre 2008). In this new context, activist organizations and committed scientists were encouraged to participate as "stakeholders," or even as experts on certain committees in order to represent "citizens'" point of view. While the shortcomings of participatory systems had become fully visible by the late 2000s (Irwin 2006; Pestre 2008), the presence of civil society representatives and alternative scientists as "experts" or "stakeholders" in current official expertise processes seems to be a given in many national and international contexts. This is closely monitored and activist organizations' representatives have a say in decision making, or have means similar to those of other interest groups—particularly industrial lobbies. But, apart from the context of the 1990s, which opened a window of opportunity for counter-expertise to get closer to official expertise processes, what made activist organizations legitimate experts within these committees was their grasp of the cases and scientific competences that they had developed in various ways, over the previous two or three decades.

While the resulting production of alternative knowledge in various contexts played a significant part in shaping the development of movements around toxicants over the last four decades, many difficulties were encountered. Providing evidence that meets scientism criteria of damage or potential damage, even serious damage, has often not been enough to obtain the compensation, remediation, or prevention demanded by activist movements or victims' organizations. The chapters in this book offer more nuanced positions regarding the role of scientific knowledge and counter-expertise in mobilizations surrounding problems related to toxicants. Numerous cases show that balancing health-related and environmental risks with the disappearance of economic activities that are essential to certain regions presents an important dilemma that even the production of irrefutable scientific knowledge cannot resolve (Auyero and Swistun 2009). In other situations, legal and administrative systems function in such a way that the production of knowledge on contaminations is far from sufficient to produce a decision in the victims' favor, or the decision provides far less than the victims had expected. Laura Centemeri's analysis of the inhabitants of the Seveso site that was contaminated by dioxins following a major industrial accident in 1976 highlights how knowledge is not sufficient motivation for taking a stand. Even though this site attracted much attention in the study of the effects of dioxins on human health, and the research results tended to show the extent of the damage caused, these data did not spur the inhabitants of this Seveso region into action. Centemeri identifies many factors to explain this paradox, including the inhabitants' attachment to

the territory in which they live and their refusal to see it stigmatized by activists and scientists highlighting major pollution. The overall context made it impossible for the necessary alliances to form in Seveso to mobilize the most affected people. Thus, certain movements have failed in spite of undeniable proof of the contaminations and their effects, while others that rested on far more tenuous and debatable causality links have succeeded. This points to the fact that the success of activist movements is contingent upon their capacity to build effective alliances and apply political pressure. From this perspective, alternative scientific knowledge and counter-expertise are indeed essential but certainly not sufficient; sometimes they are not even indispensable to the success of a social movement against toxicants.

Ultimately, the important movements that have developed since the 1960s have certainly not managed to reverse the trend that began in the late eighteenth and early nineteenth centuries, which saw Western societies choosing a capitalist model of development relying on ever-increasing industrialization at the expense of the environment and human health. At the local level, however, they have managed to win trials, to prevent the creation of a rubbish dump or a waste management center, to close a factory, to clean up contaminated sites, or to compensate victims. At national and international level, they have obtained lower standards of exposure, bans on polluting substances and technologies, amendments of laws, and overhauls of regulatory systems. They have even managed to highlight unanticipated toxic effects and to introduce new issues within scientific and public arenas. The alternative production of scientific knowledge and expertise may have been essential to these achievements, but it has never been the only determining factor. The effective use of this production was possible only because it was embedded within political strategies that, for various reasons, have allowed "subrogate interests" to, at least temporarily, override "dominant interests" (Bosso 1990).

Putting Knowledge, Ignorance, and Regulation into Perspective

The multiple health and environmental problems posed by toxicants are not behind us—far from it. The number of chemical substances in circulation continues to grow. To the toxic legacy of banned or regulated substances like DTT and PCBs as well as the many unregulated ones, new substances whose effects are still relatively unknown, such as nanocarbons, are being added. Faced with this situation, many actors are currently calling for a profound reform of expertise systems and modes of regulation surrounding toxicants. Many social scientists, without all sharing the same point of view, are directing severe criticism toward existing expertise and regulatory systems, some adding their voices to different nongovernmental organizations to demand an overhaul of

these systems. This attitude is not new. Since the 1970s, when many social movements highlighted the significance and the extent of contaminations that existed since the end of World War II, certain fields within the humanities and social sciences, namely, law, sociology, political science, history, anthropology, and psychology, have taken an interest in the functioning of scientific expertise and systems regulating toxicants and the technosciences and, since then, have been offering different types of analyses that have sometimes led to normative positions proposing given types of change.

Certain cross-country comparative studies have sought to bring to light the social, institutional, and cultural factors explaining the nature of the expertise produced and the way regulatory systems are organized (Brickman et al. 1985; Vogel 1986). In doing so their aim has been to define norms and strategies to improve the functioning of these systems. Extensive work in the humanities and social sciences has called for greater transparency in the procedures underpinning scientific expertise and decision making. One of the concepts that has stemmed from this work and has been taken up in the different public policies is "sound science." Such analyses, produced mainly in the 1980s, were based on the more or less explicit assumption that science is able to effectively inform public decision making, provided that systems of expertise offer experts the means to draw on "state-of-the-art science" and to make the different points of view public.

Starting in the 1980s this approach was heavily criticized by other researchers whose work insisted on two interdependent issues. First, there are many moments of significant scientific uncertainty in processes of expertise, for which no "sound science" is available. Second, drawing on several case studies, these researchers stressed that in these situations of uncertainty, experts tend to make decisions that are rather in favor of industrial actors, at the expense of consumers, citizens, or patients (Hood and Rothstein 2001; Abraham and Reed 2002). In other words, a bias in favor of industrial actors and economic imperatives exists in expertise and regulatory systems. These authors argued that reforms of systems of expertise were needed, not to guarantee the use of a "sound science," which did not necessarily exist, but to reduce the bias in favor of industrial actors and to ensure that the interests of consumers, citizens, and patients are taken into account.

Work stemming from a different perspective has also sought to promote lay or alternative knowledge as opposed to expert knowledge. It emphasizes that "lay people" have knowledge, interests, and concerns other than those of "scientific experts" regarding important issues about technoscience and its sanitary, environmental, and social impacts (Irwin and Wynne 1996; Wynne 1996; Pestre 2008). Their knowledge, interests, and concerns are no less valid; they stem from different perspectives that deserve to be taken into account in the production of expertise and in public policy making. If science, especially

in situations of uncertainty, is not able to provide sure answers to the problems raised by technoscience, then it is important for public decision making to rely not only on expert claims, but to fully integrate the knowledge, concerns, and interests of "lay people." To promote a more democratic management of technoscience and the problems it poses, these researchers have often been involved in the development of participatory procedures encouraging the growth of counter-expertise and its integration into regulatory systems.

These various sets of works have gradually shown the limits of scientific knowledge in resolving the issues raised by toxicants and the often political nature of decisions regarding these substances. These two features have been emphasized in four types of work. First, certain studies, namely, in environmental history or the history of environmental health, have emphasized the materiality of the problems of environmental degradation and pathologies (Markowitz and Rosner 2002; Blum 2008). In doing so, they have highlighted the numerous instances of reductionism and downplaying in official expertise. Indeed, a deep rift exists between the materiality of damage and the existence of exposure norms, between the reality of chemical cocktails to which certain populations are exposed and substance-based approaches, between the years of illness, the individual, family or collective tragedies, and the slow pace of court cases and regulatory processes, and between situations of potential or immediate danger and the time needed to validate scientific knowledge. These studies have also shown how different social movements—economic and/or political interest groups—have sought to mend or maintain this rift, triggering numerous confrontations. A second type of work in the fields of law and political science has paid attention the construction of systems to regulate toxicants as a whole (Bosso 1990; Cranor 1997). By showing both the complexity of these systems and the extent to which they are shaped by political choices, this type of work has helped bring to light how little weight science and expertise may have in decision making—even though more often than not these systems claim to be "science-based." Such work, which often has normative objectives, has contributed to many analyses since the 1970s, analyses that have a view to inventing other, more effective, regulatory systems and that have also involved rethinking the place and role of science and expertise in systems of expertise. A third type of work, stemming from sociology and political science, stresses the impossibility of building consensus and public policies based on scientific knowledge alone. These works consider that in most risk situations, technical uncertainty is too great for robust social consensus to be built. They therefore call for new modes of discussion, decision making, and policy making to be imagined and implemented, based on the aim of building consensus between the different actors concerned. These works, looking at consensus conferences, participatory democracy, or hybrid forums, have been very successful with policy makers, namely, in Europe (Callon, Lascoumes, and Barthe 2009).

Many sociologists and political scientists thus play an important role in advising and defining regulatory policies. Developing compromise among different actors is central to this literature, which praises the many benefits of participatory systems, including overcoming profound social asymmetries through debate. A fourth and last type of work, "environmental justice studies," is particularly developed in the United States. Openly contributing to research for action, it seeks to highlight that the burden of toxic contamination is primarily borne by certain social groups that are particularly poor and discriminated against: black minorities, Mexican migrant workers, "native" populations. In so doing, this type of work associates social inequality—based on race, class, gender—with greater toxic contaminations, and the struggle against these contaminations is presented as a source of empowerment and as attempting to implement a failing social justice. To do so, it seeks to identify the most effective advocacy strategies and ensure the success of movements. In this context, particular attention is paid to the production of knowledge, whether that production is academic, stems from regulatory systems, or comes from grassroots movements ("street science"). One of the important objectives is to counter efforts that official systems may pursue to make contaminations and their effects invisible and to identify ways of transforming these systems so that they may contribute to making toxicants and their consequences more visible.

Thus for several decades now, the humanities and social sciences have not been working from an exclusively analytical perspective, but one that is also normative and aiming at transforming regulatory and expertise systems surrounding toxicants. Following several reconfigurations and attempts at transforming these systems, certain analysts are currently shifting their positions, sometimes significantly, from what their colleagues or they themselves may have proposed in the past. Carl F. Cranor's chapter offers a perfect illustration of this shift. From a philosophy of law perspective, Cranor has contributed to a lot of reflection on the use of scientific evidence in legal decisions and how society might approach the regulation of toxicants. Through his chapter in this book, Cranor's approach clearly seeks to influence public decision making in the context of the current U.S. reform of the Toxic Substances Control Act (TSCA). He tries to explore not what science is unable to know or do, but what law and regulatory systems have been or are unable to achieve. More importantly, Cranor looks at science and what it is able to show, to emphasize the ineffectiveness of law and to shed light on how inhabitants of the United States are "legally poisoned." Cranor's work shows the shift of position that some of its representatives have made. While the objective of these studies is always to think about and propose a legal framework and regulatory system with the aim of protecting human health and the environment, an explicitly activist dimension is emphasized.

The idea that the strengthening of expertise and regulatory systems does lead to greater protection can be questioned from several perspectives. One of these could point, as researchers studying the tobacco industry have done,

to the importance of the economic interests at stake, and to the significant political and public work that contributes to invisibilizing or minimizing the ensuing problems. Several strategies have been studied from this perspective, from lobbying to instilling public doubt. The weight of economic interests is of course a crucial parameter in issues of expertise and regulation. And this weight is what leads certain actors to call for greater regulation. However, more regulation does not necessarily mean that toxicant problems will be resolved. The major problem is a systemic one, which lies in the very functioning of these systems. Through the long-term analysis offered in this book on the role of science in expertise and regulation, one aspect stands out: despite the immensity of the activity they have generated, these systems have not allowed for the production and accumulation of real knowledge on toxic substances, as, on the contrary, through their very functioning they have contributed to producing and disseminating ignorance. Producing ignorance does not just involve hiding certain knowledge, ignoring certain questions, minimizing certain effects, or deliberately producing public uncertainty (Proctor 1995; Oreskes and Conway 2010), even when knowledge is available to form a verdict. It is another type of production of ignorance that some of the authors of this book are concerned with. In their chapter, Scott Frickel and Michelle Edwards, through a detailed analysis of the risk assessment process for soil contamination in New Orleans after Hurricane Katrina, reflect on expertise in terms of its ability to produce not knowledge but ignorance. They also show that this ignorance then circulates and not only forms the basis of certain political decisions but is also integrated into other types of expertise. The two authors thus offer a new perspective on expertise and regulatory systems that invalidates the idea of an optimization of knowledge production in current settings. The significance of this perspective reversal is twofold. First, it is embedded in and contributes to an important theoretical shift in science studies, known as the New Political Sociology of Science, to which Frickel is an active contributor and which seeks to reposition the political at the heart of the analyses produced by science studies (Frickel and Moore 2005). Second, this reversal allows for new perspectives to shed light on processes that have not been noticed or studied much until now, and through which science-based regulatory systems are not able to protect public health and the environment.

This book therefore points toward a conclusion with important consequences: not so much a call to strengthen expertise and regulation but a call to profoundly overhaul the world of knowledge production in these systems. For such an overhaul to take place, particular attention should be placed on a careful and multidisciplinary examination of the instruments and modes of production of knowledge and rules. Yet this does not mean that scientific knowledge should form the core basis of decision making. This raises the question of knowing what should be at the heart of these systems. This book explores several possibilities that seek to subvert the very logic of these sys-

tems. Thus Sheldon Krimsky's chapter suggests the importance of working in a precautionary framework. The chapter's starting point is the study of scientific production through an analysis of the way the effects of low doses of endocrine disruptors are scientifically studied. He identifies many factors, ranging from the complexity of the issue to the actions of industrial actors, which cause a number of questions to remain without a stable answer. While the argument that science's incapacity to produce the expected knowledge has already been widely discussed, Krimsky's analysis makes two different contributions. First, as other works have done, this study shows the value of delving into the production of scientific knowledge and analyzing both the potential and the limits of such production. Second, this analysis leads to a valuable consideration, both in heuristic and political terms: if science is not able to provide the expected answers, how can we make sense of its role and of the constant rise of "science-based" regulatory systems? Krimsky's answer is unequivocal: if science cannot provide all the answers expected from it, then it should no longer be the only central frame of reference of regulatory systems; these systems must also rely on other approaches. The shift he calls for is one that grants less importance to scientific knowledge and expertise and more to other approaches, such as precaution. It is central to a current broader movement involving both scholars and activists.

What thus becomes apparent is that reinforcing expertise and regulation, without calling for a profound overhaul of all the foundations of expertise, is necessarily bound to fail. However, it is no easy task to simply enumerate what should be done. This is the difficult exercise Jody A. Roberts tackles in his chapter. His contribution is an analysis of what could be an effective regulation of the chemicals that he qualifies as "unruly technologies." Roberts first looks back on half a century of chemical regulation and reviews the reasons why these regulations never really worked. From the materiality of chemicals that never behave as anticipated, to the practices of industrial actors, through the limits of science and technology: a host of combined factors has ultimately led to the recurrent failure of regulatory systems. Roberts then discusses what could be an effective regulation of chemicals: for him, the answer lies in the diversity and multiplication of approaches. He thus explores solutions such as encouraging economical consumption, substituting, and developing green chemistry, while also recognizing their limits. Like all the other authors in this section, Roberts insists on the need to shift the center of gravity of regulatory systems. He suggests placing justice, not science, at the heart of regulatory systems as a means of guaranteeing their effectiveness in terms of health and environmental protection. In doing so he draws on and points to the value of work studying environmental justice movements. As well as opening this new perspective, Roberts's contribution reminds us just how important it is to integrate a historical dimension into any reflection on the future of the regulation of toxicants.

By showing that expertise within current regulatory frameworks rests more on ignorance than on knowledge, by offering to place precaution and social and environmental justice at the heart of policies on the management of toxicants, these chapters both reject the centrality publicly granted to science in regulatory systems and call for a reconsideration of the past and current implications of upholding this centrality. This type of approach does not discredit science in any way. On the contrary, it seeks to give it its rightful place in our societies. Above all, it seeks to remind us that while the toxicants and environmental contaminations that a society produces do constitute scientific and environmental issues, they are first and foremost political issues, involving economic and societal choices.

Conclusion

The problems caused by environmental contaminations and their effects on health are currently a major concern for many actors: scientists, activist organizations, policy makers, regulatory agencies, and industrial actors. They all stress how important these questions have become for research as much as for public policy and for the way industrial activity is performed. Reforms and new public policies like Registration, Evaluation, Authorisation and Restriction of Chemical substance (REACH) in Europe, the TSCA in the United States, or the creation of a Global Chemicals Regime, as well as industrial actors' growing references to sustainable and responsible development and to ethics, all provide an indication of unprecedented awareness and a collective desire to finally break away from past practices (Sachs 2009; Selin 2010). However, analysis of the production and use of scientific knowledge in the regulation of toxic issues as well as in advocacy movements paint a much more contrasted picture, which departs from the sometimes naive optimism demonstrated by certain social scientists. On the contrary, they call for a review and in-depth examination of past and current policies and movements and of their contributions and impasses.

The conclusion reached in this book is very dire: while science plays a determining role in defining dangerous health and environmental effects and making them visible, and while it has sometimes provided resources for advocacy movements and contributed to the adoption of new regulatory systems offering greater protection, it has also largely contributed to developing situations of invisibilization and accommodation. It has done so by conferring upon these the seal of objectivity, by producing and putting forward certain results at the expense of others and by giving the policies adopted the air of choice when in fact renouncement was primarily at stake. As result, science contributes to the development of regulatory systems producing and spreading ignorance and scientizing and legitimizing public policies that naturalized

the asymmetries between those affected by the contaminations and those benefiting from them—whether financially or in terms of comfort of living.

This conclusion does not discredit science in any way. On the contrary, it seeks to give it its rightful place in our societies. Above all, it seeks to remind us that while the toxicants and environmental contaminations that a society produces do constitute scientific issues, they are first and foremost political issues, involving economic and societal choices. The new wave of regulatory reforms currently taking place makes this observation all the more important. These reforms—from REACH in Europe to the reform of TSCA in the United States—are taking place during a period of intensification of a global economic crisis, which can only make the economic dimension of the governance regarding toxic issues more significant—a dimension that played a structuring role throughout the twentieth century. Just like the climate change policies that led the way, health-environmental policies must also deal with dilemmas that are difficult to resolve. In a society where asymmetries of power and of situations are strong and play a structuring role, science is also caught up in these asymmetries it is not able to overcome—and which in many cases render it powerless. However, recognizing these difficulties, attempting to identify and enumerate them, does not mean refraining from criticizing the choices made, and certainly not giving up on the long-term transformation of a society slowly poisoning itself.

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INTRODUCTION

Protecting Nature in Africa and Asia

Towards a Small-Scale Global History

Guillaume Blanc

This book addresses two histories, both ongoing. The first may be followed over the course of its twelve chapters. These focus on different times and spaces, from the conservation of the imperial forests in Singapore to those in Ali Bongo's Gabon, from Captain Ritchie's colonial career in Africa and Asia to the postcolonial African itinerary of the agronomist Arthur Bunting, without forgetting the mythicised bestiaries of independent India and Tanzania. Each chapter thus acts as a gateway to the global history of tropical nature conservation from the late nineteenth through to the early twenty-first century – in other words, they are thirteen pieces of a far from complete puzzle.

But its pieces have not been positioned by chance. It would have been impossible to retrace these small-scale histories without also apprehending the African and Asian history in which they take place. That is the paradox of the discipline. One has to already know one's field of enquiry to formulate a plausible general hypothesis, but one needs to start from a solid hypothesis in order to correctly investigate one's field. In other words, 'to raise a historical question, one has to already be a historian'.[1] This first chapter therefore goes over a second history, that of our enquiry into global nature conservation in an area covering Asia and Africa. It addresses how it originated, the objectives pursued, the hypotheses envisaged, the resultant reflective framework and our initial findings – which, far from bringing our research project to a crowning close, mark the enthusiastic beginnings of our joint venture.

A Starting Point: From Histories of Encounters to Histories of Circulations

The starting point for this book took place in Ethiopia. It is the history of the 2,500 inhabitants of the village of Gich, who in 2016 were displaced by the wardens of Simien National Park. They settled with their livestock and finan-

cial compensation on the outskirts of the little town of Debark, 32 kilometres west of the park. This brought the history of Gich to a close. But where did it start?

First, this displacement occurred during the very contemporary period of global nature governance. Consultants working for the IUCN (International Union for Conservation of Nature) and the WWF (World Wildlife Fund), operating under UNESCO mandate since the 1980s, argued on several occasions that agro-pastoralism posed a threat to the natural values of the Simien mountains, listed as a World Heritage Site. UNESCO thus downgraded the park in 1996, placing it on its List of World Heritage in Danger. Since then many conservation professionals – working for the African Wildlife Foundation based in Tanzania, the German development bank KfW (Kreditanstalt für Wiederaufbau), – or the IUCN – have worked to safeguard the place, providing the technical and financial support needed to displace populations 'voluntarily' and to preserve the *walia ibex*, an endemic species of wild goat. For Ethiopia's leaders, this naturalisation of the places in the park was a way to boost its international profile, which it planned on leveraging to become a leading player in East Africa; it also stoked state capitalism fuelled by the tourist industry, making it easier to control a region of scrubland like Simien Park. Inhabitants' reactions were mixed. On being stripped of the land they had maintained for decades, and deprived of their mutual support networks, most sank silently into poverty, though some sought to cling to the coat-tails of international heritage actors, a potential source of revenue, prestige and power within their community.

The displacement of the Gich villagers also reaches back to the more distant days of national parks. From the mid-1930s through to the late 1970s, the Ethiopian emperor, Haile Selassie, turned to European 'advisers' from neighbouring East African colonies, then to Western 'experts' sent by several international conservation institutions. These biologists, agronomists and ecologists helped create the Ethiopian national parks, including Simien Park. Their guiding principle was to save the Simien's exceptional wildlife, flora and vistas. In an international context conducive to neo-Malthusian theories, this meant evicting populations: this is what East Africa's colonial administrators and then Western experts told Haile Selassie, and it is a policy he sought to implement in the Simien mountains. But the inhabitants resisted. They regularly clashed, rifle in hand, with representatives of the empire; they even tried to kill every single *walia ibex*, whose disappearance would scupper any plans for a 'national park'. The more the state drew on the global heritagisation of nature to build a centralised national administration, the more the inhabitants used nature to resist first the empire, then the nation state.

The displacement of the Gich villagers takes us back, lastly, to the time of game reserves. In early twentieth-century sub-Saharan Africa, the European

powers, working in league with colonial foresters and botanists, spread the myth of a *previously* untouched African 'nature' that had since been damaged. This myth legitimised the expropriation of the colonised and the colonial exploitation of resources. It was against this backdrop that Emperor Menelik II of Ethiopia called in German zoologists to create the Simien game reserve, a move serving various purposes. The Ethiopian administration was seeking to leverage international cooperation to obtain a seat at the table of the great powers of the period. Granting a monopoly on game rights exclusively to imperial military officers was also a way of signifying the administration's superiority over the region's local chieftains. To impose their power on Simien communities, the officers granted themselves a monopoly on trophy and game hunting; but it was the emergent nation's representatives in Addis Ababa who henceforth determined land use.

There are two possible interpretations of this Ethiopian history. The first is that of exceptionalism, according to which contemporary Ethiopia, as the only African country not to have been colonised, was following a singular trajectory as the continent's first nation state. This hypothesis is not wholly wrong: each country does indeed follow its own path. However, the North–South circulations marking this Ethiopian history suggest we should consider a larger history: that of the (post)colonial space-times of global nature governance.[2] Rather than focusing on a *before* and *after* of colonisation, Ethiopia suggests we should envisage '*interlocking*' time frames: far from emerging one after the other, the rationales for turning the land into a park accumulated on top of one another.[3] Instead of seeing North–South relations solely through the prism of domination, it is more useful to think of power in terms of circulations, transfers arising from 'perpetually extending the remote links binding ever more people together over an ever vaster space'.[4] And to do that, it is of course necessary to expand the enquiry, that is, to move from individual work on Ethiopia to a group research project.[5] The first stage was to call in three colleagues.

First, research by Mathieu Guérin has shown that throughout South East Asia, heritage invention was marked by worldwide encounters, whose chronology spills across the colonisation–decolonisation watershed.[6] In Malaysia, for instance, nature management changed over the course of negotiations involving different protagonists: colonial administrators then leaders of the Federation of Malaysia, Malay sultans then regional leaders, and colonial conservation experts like Theodore Hubback, some of whom switched to being international experts in the wake of independence, such as James Hislop. From the 1930s to the early 1970s, these conservation practitioners debated, agreed or clashed, especially over the place populations were to have in protected areas.

Above and beyond these relations between (former) imperial metropoles and their colonies, historian Violette Pouillard has examined the circulation of

people and ideas within continents.[7] At the turn of the twentieth century, the British hunter and game reserve advocate Edward North Buxton was active in Sudan, Uganda and Somaliland. Then from the 1970s to the 2010s, the British zoologist Kes Hillman Smith, an IUCN consultant employed by the Institut congolais pour la conservation de la nature, worked in parks in Congo, Kenya and Ethiopia. Whether at the beginning or end of the twentieth century, these conservationists seem always to have worked closely with the colonial then national authorities, with imperial then international conservation institutions, as well as with the wardens and inhabitants of protected areas.

Lastly, these nature professionals were at the centre of transcontinental circulations. Archives collected by Grégory Quenet show, for instance, that members of committees regulating hunting in Cochinchina (in southern Vietnam) in the 1920s took direct inspiration from earlier work by some of their members in French West Africa.[8] Other archives indicate that the broad lines of forest conservation policy in Tanzania, the Seychelles and Suriname were all drawn up by John Procter, a British forester and ecologist, over periods stretching from ten years before these countries became independent to several years after.

These hypotheses, stemming from our initial comparison of our fields and archives, led us to devise a research project (PANSER, *PAtrimoines Naturels aux Suds: pour une histoire globale à Échelle Réduite*, or Natural Heritage in the Global South: For a Small-Scale Global History). This project ran from 2018 to 2022, with funding from the Agence française nationale de recherche, and was headed by Mathieu Guérin, Grégory Quenet and me. It sprang from three observations: first, in the twentieth century, nature professionals circulated in and between Africa and Asia; second, the time frames of these circulations followed a chronology other than that of colonisation–decolonisation; and third, these histories of global encounters always took place at the village level. It seemed to us that following the trajectories of these conservation professionals moving from one protected area to another offered a way of exploring the history of global environmental heritage interventions. Studying this history at the heart of the territories where it occurred – from Equatorial Africa to the China Sea – provided a way of envisaging, on the ground, the encounters, negotiations and conflicts that, over the course of the twentieth century, fashioned an Afro-Asian heritage area.

Our Objective: Placing the Global South in Its Specific World History

To produce a history of the Global South from its own perspective, we need to relinquish any opposition between 'colonial' and 'postcolonial' periods, and

also move beyond any separation into 'international stakeholders' and 'local populations'. The histories of science, of heritage and of the environment show how hard it is to encompass the various times and protagonists at work in conservation in the Global South in a single account. Concerning colonial times, certain works have revealed the role played by members of a genuine diaspora of scientists working in tropical nature heritagisation,[9] while others have flagged the need to embrace the ways that nature policies are negotiated at a local scale.[10] Conversely, concerning postcolonial times, while some historians have noted how 'local forms of resistance and creativity' may influence the social spaces of natural heritage in the Global South,[11] others have called for greater attention to the role played by the international professionals defining conservationist practices as they moved between North America, Europe, Africa and Asia.[12] The difficulty is thus to reconstitute a genuinely contemporary and truly global history. Doing so entails combining at least two approaches.

A first approach consists in focusing on the 'assemblage vectors' involved in constructing nature policies.[13] Once aspect is to examine how conservation knowledge was built up during missions to explore Africa and Asia, and then standardised in scientific institutions based mainly in the West. Another aspect is to analyse how nature professionals shared this knowledge (at international conferences) and how they disseminated it (through correspondence, scientific journals and official publications). Various works have emphasised the validity of this approach. Several French researchers have thus studied 'imperial trajectories' to throw light on a spatial history of colonial phenomena. This has enabled them to abandon the centre–periphery model to instead envisage colonial territories as functioning in a network, and so apprehend 'the hybridisation of knowledge and of action rationales'.[14] This approach, applied to the history of conservation, seeks to identify nature professionals and to map the networks they built up across Africa and Asia over the course of a long twentieth century.

This idea of hybridisation also encourages us to adopt a second approach. In building up knowledge to define right and wrong usages of nature, foresters, economists and ecologists conducted field studies. Admittedly, their findings were often shackled by their prejudices concerning tropical environments and their inhabitants. Nevertheless, these findings stemmed directly from their interaction with local agents.[15] As several historians of the colonial period have shown, heritage expertise was far from being a closed system of ideas and practices, and we hence need to examine the 'interactions and interpenetration of action and knowledge'.[16] This second line of enquiry leads us to study how, during and after colonisation, heritage knowledge and norms were both imposed and negotiated, constructed and reconstructed on the ground. Conducting situated case studies, from Côte d'Ivoire to Malaysia, throws light on the contacts, negotiations and clashes making heritagised nature a place of

conflict and conflicts to build a territory, impose a representation and define rights to access and use resources.

To do this, we need to combine analysis of international archives with in-depth field studies. We hold that such an approach may help show that 'the modern world was not simply born in Europe', while also ensuring that the countries of the South have *their own* contemporary chronology: that of a lengthy twentieth century marked by the history of *their specific* world, driven by both exogenous and endogenous processes.[17]

Our Hypothesis: The (Other) Space-Times of an Afro-Asian Area

In 1950, the Society for the Preservation of the Fauna of the (British) Empire changed its name, becoming the Fauna Preservation Society (FPS). Several international conservation institutions did likewise; new organisations were also founded, such as the World Wildlife Fund. These all emphasised the need to reconcile development and conservation requirements in independent Africa and Asia. Several historians who have studied their statements and programmes argue that the 1960s marked a radical shift in global environmental policies: preservationism – isolating nature under a protective dome and driving out its occupants – is said to have given way to conservationism – protecting resources to use them sustainably.[18] According to this account, the shift really got under way in September 1961, when the IUCN – with the support of UNESCO, the FPS and the FAO (Food and Agriculture Organization) – held a 'Conference for the Conservation of Nature and Natural Resources in Modern African States' in Arusha (Tanzania). This was attended by international experts and leaders of independent African states, and resulted in the founding of the WWF, conceived of by several experts – such as Julian Huxley, the former head of UNESCO, and Max Nicholson, from the (British) Nature Conservancy – as a bank to finance conservation. According to them, and to certain historians, 1961 also marked the end of colonial preservationism and the beginning of developmentalist conservation, backed by international institutions.[19]

But field studies bring a different story to light.[20] International conservation institutions, with the enforced yet opportunistic cooperation of independent leaders, conducted projects in Africa planned by former colonial experts.[21] Research conducted with Mathieu Guérin and Grégory Quenet further suggests that from Africa to South East Asia, similar heritage practices were conducted by the same heritage makers: scientists who had worked in colonies and switched to being international experts, some of whom retained their positions – and even their offices – through to the mid-1970s.

This led us to abandon the chronology that tends to be used to describe societies in Africa and South East Asia: the imperial construction of colonial

states through to the 1960s, followed by the formation of nations, then, after the 1990s, the federal recomposition or collapse of neoliberal states. The history of conservation brings a different chronology to light, that of *game reserves* (the 1900s to the 1930s), *national parks* (the 1940s to the 1980s) and *community conservation* (the 1990s to the present day). We shall return to this chronology, but for the moment let us note that it has the advantage of leading us away from a Eurocentric approach. When former colonies acceded to independence, this undeniably marked a historical watershed for imperial metropoles: they lost their empire, and with it the resources and networks bolstering their wealth and power. But any such historical break was less clear-cut for the colonies. Colonised independentists became postcolonial leaders, who both reconfigured and perpetuated policies and power structures, and the 'issue of "colonial legacy" became that of the context of action shaped by the colonial past'.[22]

This intermingling of colonial and postcolonial times is common to all societies in Africa and South East Asia. Interdisciplinary studies have shown how the conservationist model devised at the beginning of the twentieth century was reproduced from country to country,[23] before being generalised by international institutions during the 1950s.[24] However pioneering this approach may be,[25] and though still relevant,[26] it does not explain why policies drawn up in a colonial context continued to be implemented after independence. Yet by following the trail of nature professionals, we may place this Afro-Asian area in the history of the specific world of which it is a part. Whether called 'scientists' (the 1900s to the 1930s), 'experts' (the 1940s to the 1980s) or 'consultants' (the 1990s to the present day), nature professionals were omnipresent; this may well explain why, after decolonisation, conservationist practices continued to be globalised, a phenomenon that in fact only intensified. But because no single scheme can encompass the singularities of the socio-environmental dynamics in, say, Mozambique, the Seychelles or Vietnam, we need to relinquish the dream of a 'totalising' global history,[27] to instead try to conduct a 'small-scale global history'.[28]

A Reflexive Framework for Apprehending Global Encounters

This project would not have been feasible without the extensive body of literature in which to immerse ourselves. Practitioners of the human and social sciences have noted that 'nature' is both an object of study and a way of studying societies: 'Because parks are supposed to be, but aren't, the antithesis of how nature is treated in the rest of society, they end up being very clear expressions of that society.'[29] From this perspective, conservation areas need to be viewed as one of those topics that, though seemingly 'wholly minor, even slightly derisory', in fact reveal dynamics that cannot be otherwise apprehended.[30] By

studying how public authorities use the governance of natural things to organise their governance of people, our ultimate purpose is to apprehend how nature is made, and thereby how the colonial then national state was built.

Environmental history has contributed to this history for the United States,[31] Canada[32] and then Britain's former empire in Africa and Asia.[33] We now need to further explore lines of enquiry opened up for Kenya and Tanzania, for example. We also need to expand the field to countries that have been little studied either because they were colonised by a power other than Great Britain (Algeria, Mozambique, Syria and Vietnam) or because their archives are little known (the Seychelles and Malaysia). The purpose of this dual approach is hence also theoretical. As stated earlier, we need simultaneously to examine whether the Afro-Asian area actually forms a single whole, and to look at the continued existence of colonial nature policies in postcolonial times.

A convenient explanation of this would be neo-imperialism conducted by Western institutions. This would however postulate the reproducibility not of a model but of situations, thereby setting to one side the dynamics driving transnational yet always locally grounded circulations.[34] That is why it is important to view conservation agents as mediating between different natures: nature became progressively decontextualised from its inhabitants, and so a single universal and borderless nature emerged, which thereby needed protecting. How could such a definition of nature coexist with solidly rooted social realities? Only because of certain arrangements, and because of a dialogue between European powers, international organisations, (formal and informal) public authorities and local communities making a living from (and living in) the environment. Though asymmetrical, these relations had to benefit several groups in order to last. We thus need to study these connections from the bottom up to detect the transactions and oppositions binding together all those involved in producing nature: agronomists, biologists and ecologists turned administrators, experts and consultants; nature journalists and film-makers; agro-pastoralists, tourist guides and local development brokers; local officials and regional or national leaders. And to do so, we need to go back to the chronology.

The era of game reserves started in the early twentieth century. The Germans were the first to create a reserve in German East Africa, in 1896, followed by the British in the neighbouring colonies, then other European colonial powers. They all convened in London in May 1900 where they drew up the Convention for the Preservation of Wild Animals, Birds and Fish in Africa. The practice of placing wildlife in reserves subsequently spread from colonies in Africa to those in Asia. And in each empire, the process involved hunting elites, botanists or foresters, and colonial officials, as well as colonised subjects. It would be easy to view the former as quite naturally allying against the latter. But quite frequently colonists' interests diverged. Hunters generally sought to

appropriate then dominate nature. Many naturalists were inspired by a dual representation, that of a nature that had been lost in Europe and (re)found in the tropics, and that of inhabitants who would destroy this still untouched Eden. As for colonial administrators, they could be convinced both of the benefits of their 'civilising mission' and of the need to govern by force. Shaped by these various contexts and circumstances, alliances were built up around nature. Some viewed it as a tool for controlling unruly spaces,[35] others as a place of knowledge and preservation of the wilderness,[36] and others still as a territory for collecting trophies and becoming a sportsman.[37] And so in Asia and Africa from 1900 to the late 1930s, the rise of game reserves meant that inhabitants were increasingly expropriated and criminalised. This process thus needs to be studied in the light of the institutionalisation of sciences within the state, the invention of an Edenic tropical nature and the role of so-called 'native' protagonists: on what endogenous nomenclature of nature did the authorities draw to learn about and (re)name the landscape and animal species? And did the inhabitants clash with the new wildlife managers, or did they negotiate how to use their territory? These questions provide a way of shedding light on how all these protagonists played a part in the colonial construction of nature, in a context of intensifying contacts between ever closer worlds.

Then the second era started, with reserves being converted into national parks. Once again, the destroyers were also the protectors. The beginnings of colonisation had triggered or at least accelerated deforestation and a drop in wildlife specimens, prompting European and North American hunters to call for game reserves. Faced with the exponential collapse in big game, these hunters-turned-'penitents' urged the colonial states to create wildlife sanctuaries.[38] And once again, the European authorities used nature the better to control inhabitants and exploit the land. Some also truly sought to protect gorillas and large herds of savannah herbivores. The first park was created in the Belgian Congo in 1925 when two game reserves were merged. Then in 1926 the South African Transvaal reserve became Kruger National Park; in 1928 Western conservationists circulating between empires created the International Office for the Protection of Nature (IOPN); and then in 1933, once again in London, the Convention Relative to the Preservation of the Fauna and Flora in their Natural State was drawn up.[39] Since then, in both colonial and postcolonial contexts, heritagisation has led to the introduction of national parks and socio-ecological models to help manage humans and nature, mainly in lands home to semi-nomadic peoples, 'ethnic' minorities or mountain dwellers, all of whom tend to oppose ruling powers.[40] Once again, these spaces were largely outside the states' hold, and nature there was considered less 'spoiled' by mankind. Paradoxically, states therefore set about extending their grasp over these lands so as to protect them. As for the narrative underpinning the process, it was mainly conveyed by the agronomists, ecologists

and ethologists who succeeded the botanists and foresters. Dreading erosion in the 1930s, and then alarmed at the prospect of overpopulation in the 1960s, nearly all of them were convinced of the need to expel or at least constrain the occupants of tropical nature, viewed as *previously* untouched but *now* under threat. These men of science thus helped turn these colonies into an experimental laboratory. Then, after independence, they became advisers to national leaders who reappropriated their "Foucauldian" discourse of degradation and turned it to their own ends. Both before and after independence, protecting nature was thus also a way of wielding power.[41]

Lastly, the 1980s saw the beginning of the era of community conservation. In terms of texts, this period is symbolised by great international charters, such as the 1980 World Conservation Strategy drawn up by the IUCN, the WWF, UNESCO and the FAO, or the United Nations Convention on Biological Diversity ratified in Rio in 1992. The spirit behind this new conservation was thus based on sacralising the twin principles of 'parks for people' and 'local community' representation. Local people were cast as saviours who would convert the 'preservationist fortresses' of national parks into zones for protecting biodiversity and boosting economic development.[42] And, alongside ecologists who were still active in protected natural areas, international consultants now played a central role. Trained in 'development', 'international cooperation', 'participatory governance' and 'participatory economics', they asserted their capacity to 'drive the circuits of power where normative frameworks were produced, knowledge conveyed, and resources distributed'.[43] Given the increasingly technical nature of conservation, we need to examine how consultants' actions responded to the societies in which they intervened: were they instrumentalised by the public authorities, with the occupants of protected areas being increasingly coerced by wardens? Or on the contrary, did inhabitants and consultants form mutually beneficial alliances to profit from the heritagisation of nature, perhaps at the expense of national authorities? Answering these questions provides a way of exploring the recent history of 'global green governmentality'.[44] This stems from multiple factors: the recent articulation between the state, society and the market; accelerating contact between ever more varied and numerous actors; and the persistence of colonial representations of an Edenic tropical nature now under threat. In other words, to understand this governmentality, we need to view it through the prism of knowledge agents' increasing involvement in heritage actions.

Findings

This approach guided Mathieu Guérin's, Grégory Quenet's and my investigations between 2018 and 2022, looking at Malaysia, Indonesia, the Seychelles,

Vietnam, Ethiopia and the European headquarters of international conservation institutions. The reason for pooling our research was to identify circulations within and between continents, and then observe how they played out locally. And to do this, it was essential to broaden the enquiry once again. We thus assembled a small team of colleagues to explore the global yet situated histories of the governance of tropical nature.

The sources used vary depending on the periods and the thirteen fields of study: in some cases, the documentation was produced by foresters, veterinary surgeons, biologists or agronomists; in others, the material came from archives left by colonial, national and international administrators; in other cases, the research focused exclusively on correspondence, first-person accounts and photographs. But whatever the nature of our sources, we adopted a common framework of enquiry. First, in order to identify the heritage chronologies that built up over time, we sought to apprehend: for the colonial period, the 'knowledge machinery' fashioned by scientists working in the colonies;[45] for the time of independence, their repositioning as 'foot-soldiers for international conservation institutions';[46] and for the subsequent era of community conservation, the 'atypical relation between the government and the "specialist" – a relationship stemming from the colonial legacy'.[47] Second, to gauge the social depth of the networks and circulations shaping nature governance, we looked for intersections between the situated practices of (colonial or national) state employees and the deterritorialised practices of the representatives of (imperial or international) conservation institutions. Lastly, to assess the role local populations played in building these global bio-policies, we read the archives against the grain to see how the protected areas were, if not contested, then at least negotiated by those living there and in the surrounding areas.

The matter of archives turned out to be crucial for this common framework, and also, ultimately, for each of our individual lines of enquiry. From West Africa to South East Asia, from the headquarters of UNESCO (Paris) to those of the FAO (Rome), the FPS (Kew, in London), the IUCN and the WWF (Gland, in Switzerland), the sheer volume of the archives, and their dispersal, thwarted any attempt to retrace a situated Afro-Asian history of 'the global situation'.[48] Indeed, studying the local situation in depth frequently meant neglecting the international dimension; conversely, extensive analysis of international conservation networks implied neglecting the local level to a certain extent. The only way to make up for this lopsidedness, which is inherent to our historical question, is to conduct collective research over time, punctuated by intermediate conclusive phases. This work is intended as the first such phase.

Our first conclusion relates to the very essence of tropical conservation: this policy is, in itself, contradictory. Richard Grove has already shown how, in the early modern period, ecologism and capitalism emerged concomitantly in tropical islands colonised by Europeans.[49] Yet this link between predation and

protection kept on growing stronger. Timothy Barnard points out that in the late nineteenth century, when British colonisers were creating the first forest reserves in Singapore, they sought to combat the deforestation caused by the very farming practices for growing pepper and gambier that they had themselves developed on the islands. The reserves thus served two contradictory objectives: planting trees to protect soil and water resources; and cutting down trees to provide wood for the colony and for export. What mattered was to protect and so exploit, and on other occasions it was a matter of exploiting so as to protect. This was notably the case in East Africa, between 1955 and 1965, during a vast 'wildlife cropping' project devised by biologists and ecologists with the backing of the IUCN and the UK-based Nature Conservancy. This project was implemented in Queen Elizabeth Park (Uganda) and Tsavo Park (Kenya), the former being home to hippopotamuses and the latter to elephants. Among others, Raf de Bont has looked at this 'conservation by culling': raising wild animals, killing some of them, selling their meat to replace cattle in the African diet and thus replacing the sheep- and goat-rearing economy, seen as ecologically destructive, with a supposedly conservationist wildlife economy. This programme failed to produce any tangible results, but it is a particularly striking illustration of the inherent contradiction still affecting conservation policy today.[50] Geographer Johan Oszwald thus notes that in eastern Côte d'Ivoire, during French colonisation and then once Félix Houphouët-Boigny was president, export agriculture led to such over-exploitation that the protected forests of Béki and La Bossématі were the last remaining wooded territories in the region. And so by the early twenty-first century, while no exploitation was authorised within these park spaces, the surrounding land was exhausted in the wake of an influx of farmers who had left the over-exploited countryside looking for any remaining arable land. Protection on the one hand, predation on the other. This paradox is part of the very nature of conservation: it does not exist *alongside* destruction, but *in tandem with* it.

However contradictory it may be, conservation is nevertheless rational. Indeed, tropical nature governance seems constantly driven by the global production and circulation of knowledge about human–nature relations. Raphaël Devred shows this via the history of merino sheep raised at the Rambouillet agricultural station from the late nineteenth century to the 1930s, then sent to Algeria, Madagascar or French West Africa to be crossed with 'native' sheep. This project, backed by the industrial sheep lobby, was devised by livestock experts who theorised the 'degenerative' nature of African sheep and proposed this cross-breeding strategy to return them to 'their former balance'. This operation sought to regenerate African wool-producing breeds; it further sought to perfect the African 'race' by sedentarising nomads and converting them to a value-generating export economy. Managing tropical nature was thus primarily a matter of transforming it, of turning it into what it 'ought' to be, and

then conserving it 'as it was'. This absolute confidence in science's capacity to improve nature and tropical societies developed during the colonial period, and lasted after independence, as did the careers of those championing it. Joseph Hodge points this out concerning the career of Arthur Hugh Bunting, a British agronomist and biochemist. From the 1930s to the 1970s, Bunting circulated between Africa, Europe and Asia. As a communist, he was convinced poverty could be solved by societal change, and to his mind science was the best tool for bringing this about. It was with this in mind that he worked for the Colonial Office in Gambia and in Sudan. Then after independence, as a professor in agricultural botany at Reading University, he established a global network of professionals working in rural development and agricultural science. From India to Nigeria, these employees of foreign affairs ministries or United Nations agencies disseminated knowledge and know-how promoting the tropics' agricultural 'development'. Science was thus central to transforming rural societies in general, and conservation areas in particular. In this respect, Simone Schleper emphasises the ever-important role played by technology. In Serengeti Park in Tanganyika, for example, scientists employed various techniques to study the migration of gnus, zebra and gazelles. Over time, this enabled them to assert their authority over wildlife management. But depending on the technologies available, and without necessarily being aware of it, their perceptions of human–nonhuman relations shifted, and they consequently applied different conservation policies. Thus in the 1950s and 1960s, aerial monitoring of ungulates showed seasonal migration, and local hunting that was likewise seasonal. This was deemed reasonable, and authorised. Then in the 1970s, aerial photography captured static landscapes. Where populations used to alternate between hunting and agro-pastoralism following the seasons, conservationists now saw the two activities lasting all year round: this was deemed destructive, and curtailed or sanctioned. Lastly, from the 1980s to the early 2000s, computer modelling pushed park managers to reason in mathematical terms: since the number of ungulates was stable, but human populations were increasing, hunting had to be banned. In the absence of the qualitative studies required to analyse the sociopolitical factors pushing certain populations to practise illegal hunting, conservation policies were now based on computer projections; these led to social exclusion due to the way human–nature relations were perceived and managed.

This link between representations of nature and nature governance leads us, thirdly, to the key influence of discourse and images. Historians of the environment have noted the extent to which imposing 'correct' usage of nature has involved assimilating 'correct' visions of this nature. But because representations engender new ontologies, they are also direct drivers of socio-environmental change. William Beinart demonstrates this in his study of the book and film about Elsa, the Kenyan lion of George and Joy Adamson (the

author of *Born Free*). As the colonial era drew to a close in the 1960s, the Adamsons scuttled imperial hunting culture by publicising a human relationship with wild animals based on empathy, affection and non-utilitarian protection. This shift had got under way with the increasing number of African national parks, responding to the need for nature of increasingly urbanised Western societies. But the success of the Adamsons' photographs and tales did not stop there. By fashioning new global attitudes towards the wilderness, they played a part in 'reimagining postcolonial modernity'. The Kenyan government was for that matter involved in the process. Indeed in independent Asia and Africa, after having been placed in the service of colonial power, nature was now put to use for the political ends of new leaders. Grégory Quenet tracks this through the Seychelles archives. From the 1960s to the present day, thus spanning independence in 1976, two parallel processes may be observed. On the one hand, the British deliberately placed the most remarkable parts of the territory under the oversight of autonomous conservationist foundations in order to prevent the Seychelles people from taking control of these conservation sites. But on the other hand, in reaction to this, the authorities of the young country produced and disseminated the idea of a specific form of Seychelles environmentalism, drawing on a French tradition reinterpreted as a Creole figure in which nature was both inhabited and harmoniously exploited. Despite drawing publicly on this representation to combat dominant conservationist ideology, the Seychelles state cooperated with various international conservation institutions to implement it on the ground. Images of nature thus served power, while revealing its mechanisms. Or rather, power struggles, as anthropologist Meera Oommen shows for India, where the postcolonial recycling of British representations of nature has brought two societies into conflict: rural dwellers episodically hunting big game to protect their lives and fields have sparked the ire of town dwellers living far removed from wild animals that they wish to protect at all costs. Thus since the 1980s, tigers, Asian elephants and saltwater crocodiles have played a dual role, acting as 'flagships' for international conservation, yet also as 'battleships' in Indian social conflicts. In concrete terms, their protection now depends on power struggles involving the national administration, nature professionals, animal movements and village groupings. More fundamentally, conserving these species seems to clash with 'correct' usage of nature since, by definition, only one of the two groups has the 'correct' representation.

This global Indian history leads to our fourth conclusion: the need to accept the profound complexity of social relations to nature. Each author contributing to this work would have preferred to present analysis showing conservation policies to be a success. But the archives do not lie: most of the time, conservation fails to attain its objectives. That is why we believe it useful to apprehend the global conservation of tropical nature through the prism not

of a model, but rather of situations determined by the eminently complex interlocking of different scales. First, spatial scales. Mathieu Guérin points this out in his study of the career of Captain Archibald Thomas Ayre Ritchie. After fifteen or so years as head of the Wildlife Department in British Kenya, Ritchie was sent by the Colonial Office to Malaya in 1937 to set up its Game Department and to draw up wildlife protection legislation. His intention was to take the conservation policy he had developed in Africa – based on the principles of culling big game to regulate conflicts with reserve inhabitants, and opening reserves to tourists – and transfer it to Asia. But he was hindered by three factors: the political influence of Malay sultans; horizontal power relations between colonial administrators and colonial subjects; and the singularity of European and 'native' hunting practices. So though he did professionalise the new Game Department in his fifteen months in Malaya, he left the colony without having fulfilled his objectives, recognising, despite himself, that above and beyond (or below) an empire and an imperial policy in the singular, there were also colonies and conservation territories in the plural. In this case, the spatial scales overlap; in others, time frames accumulate. The case of Mozambique is a good example. In 2000 a law was passed transforming all the country's protected areas into 'conservation areas for tourist purposes'. Since then, there have been continual clashes between nature managers and local users on the one hand, and national administrators on the other, decrying from the capital that 'use' now wins out over 'conservation'. So while the year 2000 marks a clear break, political scientist Rozenn Nakanabo Diallo shows that to understand it, we need to see how the colonial past weighs heavily on the present. Indeed, the Portuguese left a legacy of many practices and representations. Since independence in 1975, nature has been conserved 'for the benefit of the Mozambican people'; but the narrative of environmental deterioration persists, the state continues to view parks as tools for controlling territories and the private sector remains a major player not in 'enhancing' but in 'developing' them. Thus far from following one after the other, conservation ethics accumulate: exclusion practices specific to the conservation fortress period of the 1930s were overlaid with those from the community era starting in the 1980s, to which have been added, since the 2000s, principles relating to the financialisation of nature. This mixing of conservation times and spaces explains why local dynamics still predominate in global conservation. Human ecology specialist Pamela McElwee and geographer Diana Davis each point this out in their own way in their studies of conservation or, rather, of its partial and biased implementation. In early twentieth-century Vietnam, a series of measures was introduced in response to fears about a collapse in big game numbers in the colony. But these measures seem to have been dictated in Paris, not Hanoi. They were selectively introduced depending on the territory, imposing greater constraints on the Vietnamese population than on European tourists;

more generally, the colonial farming lobby and 'resident' elites put pressure on the colonial administration to prevent regulations drawn up in France being applied in the colony. In this instance, it is the colony–metropole dynamic that explains why conservation was ineffective. The history of Syria and Lebanon enables us to build on this hypothesis. In the interwar period, the new French administration brought in colonial agents from Morocco to implement a forestry policy. As in North Africa, they were convinced by the declinist theory that inhabitants had destroyed previously extensive dense forests. Unlike in Algeria and Morocco where these nature professionals had used reforestation as a tool in their civilising mission, forests in Syria became an instrument for economic development by improving agriculture, while in Lebanon they were used to boost tourism. As in Vietnam, using the land won out over protecting it. Only this time, the lack of conservation stemmed from objectives drawn up in Paris rather than in the colony. For France was not looking to build a colonial society in the Middle East, but above all to increase the profits extracted from the two territories placed under its 'mandate' while awaiting sovereignty. Above and beyond the colony–metropole dynamic, the explanation lies more generally in the tension between the general and the situated.

Global nature conservation in the Global South has changed in tune with the fluctuations in a permanent contradiction between predation and protection. Yet to some extent this contradiction has been toned down by knowledge and images circulating within an Afro-Asian area in which territories have overlapped, time frames accumulated and centre–periphery dynamics been recomposed in various ways throughout the twentieth century.

These are the initial findings of our joint research. They need to be tested in other fields to be confirmed or invalidated, and in any case developed. But there are four firm beliefs underpinning the following chapters that seem, to our minds, to be definitive.

The first is that there is an undeniable gap between standardised imperial and international conservation models and the many ways in which they have been applied in colonial and postcolonial societies. This observation leads us to our second belief: studying the contemporary history of conservation in Africa and Asia always entails revisiting the history of colonisation and decolonisation. This (post)colonial history does not follow a binary logic opposing local societies to empires and then to international institutions: there is a kaleidoscope of situations in which conservation is, to varying degrees, violent and exclusionary, and this violence is associated with the colonial order, its postcolonial legacy and the context in which these take shape. Our third belief, then, is that to understand conservation policies we need to go beyond an approach focusing solely on protected areas, which are only one way of governing people and things. It is thus important to consider the entire set of laws, practices and representations seeking to order the natural world by regulating

hunting, establishing and turning tracts of land into parks and managing access to so-called natural spaces, together with agronomy, the domestication of animals and the process by which culture fashions the categories of town and nature, of 'local' and 'global'. Lastly, however indispensable it may be, a historical approach cannot suffice on its own. This book, devised as the first step in an ongoing enquiry, hopes to demonstrate this over the course of its thirteen chapters, combining history, anthropology, human ecology, political science and geography. It is only by being open to other social sciences that we may truly decipher and understand the relations binding human societies to the nonhuman world on which they depend.

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Notes

1. Antoine Prost, *Douze leçons sur l'histoire* (Paris: Seuil, 1996), 80.
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5. See in particular: Guillaume Blanc, 'Governing Nature and Ethiopia: Struggles around World Heritage, Nation-Building and Ecologies (1963–2012)', *Northeast African Studies* 18(1–2) (2018), 137–64.
6. See in particular: Mathieu Guérin, 'Conserver la faune sauvage de la péninsule malaise: De la Malaya britannique à la Malaisie indépendante', *VertigO* 17(1) (2017), http://journals.openedition.org/vertigo/18503.
7. See in particular: Violette Pouillard, *Histoire des zoos par les animaux: Impérialisme, contrôle, conservation* (Seyssel: Champ Vallon, 2019), 250.
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The Mutual Dynamics of Cultural and Environmental Change: An Introductory Essay

Michael J. Casimir

> What surrounds humans does not affect only them, they too react upon it. By allowing themselves to be modified, they again modify what surrounds them. (Johann Wolfgang von Goethe 1775–6, translation mine)[1]

The Many Meanings of Environment and Nature

The picture that won the first award at the annual international competition for photo journalism in Amsterdam on 11 February 2005 shows a grieving Indian woman who had lost her family in the recent tsunami. For days the Western media in particular devoted much space and time to the 'Century's Catastrophe', the 'Killer Waves' of 26 December 2004 which left in its wake well over 200,000 dead or missing. Was the devastation wrought by these 'cruel forces of nature' inevitable, or was it itself partly a result of the interplay of environmental and cultural agency and change? This introductory essay considers the various aspects of this basic issue of mutuality. The chapters that follow examine from different disciplinary perspectives the nature of such interplay over time in a variety of cultural and environmental contexts.

Some Conceptual and Terminological Considerations

Influenced primarily by concepts that evolved within the Judeo-Christian traditions and then through Cartesian thinking, the unique positioning ascribed in Western thought to humans led early to a cognitive distinction into the categories of 'humanity' and 'nature', 'humans' and 'animals'. These categories were, perhaps, not 'consistent dichotomi[es]', but were rather part of what Strathern (1980: 177) refers to as a 'matrix of contrasts'. Yet, under the influence of Cartesian thinking which separates body and soul/mind, only humans were increasingly believed to be endowed with capacities and qualities such as mind/spirit, reason and free will (e.g., Damasio 1994), and considered capable of attributing meaning to all phenomena. Not realising that these phenomena themselves are products of human cognition, these attributed meanings were then related to different values attached to specific types and clusters of phenomena. Accordingly, the environment and environmental phenomena were also imbued with value-meanings, and classified in clusters, such as those of 'animate' and 'in-animate'. Whereas the so-called 'inanimate' category was subdivided into a multitude of sub-categories, such as soil, water, rocks, climate, etc. (each of these being broken down into yet more sub-categories), the so-called 'animate' category was broken up into fauna and flora, comprising animals (including hominids) and plants respectively, and these two sub-categories were, in their turn, divided into various 'families', 'genera', 'species' and 'sub-species'. Another set of constructed categories was that of 'wilderness', and 'nature' – thought to be opposite to human 'culture'[2] – with its 'natural resources' (for an overview see for example Delaney 2001).

It is only more recently that such classifications have been questioned,[3] partly because of our knowledge of the way in which all organisms depend on one another, tied together as they are, directly or indirectly, into food webs of varying dimensions. Modern science has shown how all animals, including humans, as part of such food webs, depend on the intake of other organisms, either plant or animal, or both (with the omnivorous human positioned at the top of the trophic levels), and how only green plants can use the sun's energy to transform the soil's nutrients into their species-specific tissue with the help of the biocatalyst chlorophyll. Notably, however, Cartesian thinking in this realm has also been challenged by a growing awareness and knowledge of a variety of non-Western systems of classification that do not make such distinctions.

One of the very first and most influential studies that brought together these issues of categorisation, cognition and practice is the volume edited by Ellen and Fukui (1996). In his comprehensive introduction to this volume Roy Ellen rightly observes that dichotomies such as nature-nurture may be useful or misleading, but not true or false, and that 'opposition of nature and culture is … a pseudo-problem arising out of reflexive symbolic constructs … within culture itself (Ellen 1996: 31). Ingold (2000: 40ff.) also convincingly deduced that if

'nature' is a category constructed by humans, then the category 'culture' must also and equally be a construct. Quoting MacCormack (1980: 6) Ingold argued that 'Neither the concept of nature nor that of culture are "given"…'. The same is true of many other 'scientific' bio-concepts and categories, such as 'genus', 'species', etc. The constructed category 'nature', however, must be based, he argued, on what he calls the 'really natural' – which, to paraphrase Heidegger, can only be experienced through our bodily 'being in the world'. We thus face the dilemma of dealing with two different categories of nature – the 'really natural' and the 'culturally perceived nature' (Ingold 2000: 40–43).

Keeping these issues and perspectives in mind, in the following I shall use the term 'environment' to denote the contemporary Western scientific concept of what Ingold refers to as the 'really natural'; the term 'nature' will be restricted to mean the culturally constructed category of the animated or unanimated world, or parts thereof, and are imbued with meanings that are more or less culture-specific. However, as the following pages and the individual chapters show there are few clear boundaries between these concepts, only broad frontiers.

A Short History of Human Environment Interaction

> Historical Ecology may be defined as the undertaking of a diachronic analysis of living ecological systems, with the view to accounting more fully to the structural and functional properties. Historical ecology, more an approach or a research strategy than a paradigm, addresses a central question: 'How does environmental change relate to the historical development of human societies?' (Rival 2006: 79)

Since the days of the first hominids our species, like every other, has been a part of food webs, and has hence directly or indirectly influenced every other species in its habitat and has in turn been differentially influenced by them all. The dynamic interaction between all members of a habitat (understood as interactions in a predator-prey system) has always led to changes of varying pace and degree in the environment as a whole, either in terms of demography or of the composition of species.

Due to their omnivorous and cognitive capacities, early hunting and gathering peoples adapted rapidly to different environments by niche-learning, and

> the first population consequence from [this] niche-learning of which we have clear evidence was the occupation of virtually all geographic regions of the earth by hunter-gatherer peoples. Ways of life suited to places as different as .African rain forest and Siberian tundra were found for this species by niche-learning before 20,000 years ago … (Colinvaux 1982: 394; cf. also Bellwood 2001; Bennett 1976)

Early foraging societies left traces of their influence on the environment, and in some regions even transformed environmental conditions. In parts of the high Arctic ecosystem the quality of certain lake water changed. When, for example, about eight centuries ago incoming Thule Inuit whalers from Alaska built their winter settlements on Somerset Island in northern Canada, the nutrition-rich bowhead whale bones used for construction reached the lakes, drastically changing the composition and amount of micro-organisms, specially diatoms. This also led to the expansion of a moss substrate (Douglas et al. 2004).

In more favourable environments where early hunter-gatherers settled and built more complex societies, they gradually domesticated plants and animals (for an overview see Levin and Foley 2004: 500–10). A more sedentary lifestyle and the concomitant social change were a driving force towards domestication and the beginning of agriculture and animal husbandry. This shift from an incipient economy to a food-producing one led to changed dietary patterns, as described recently for a case in Britain (e.g., Richards et al. 2003), and this once again led to rapid population growth. Some 12,000 years ago, when cooler and drier conditions returned after the last glacial period, with its warm, wet winters and hot, dry summers, Nutufian foraging communities in southwest Asia replaced their incipient economy with new labour-intensive subsistence strategies of plant cultivation and animal husbandry. This led to population growth, craft specialisation and even class formation (Weiss and Bradley 2001: 610; see also Bökönyi 1976). However, coping with the climatic deterioration of the younger Dryas they returned to a more mobile way of life (Grosman 2003). But the search for a single unifying model explaining the beginning of all plant and animal domestication throughout the world appears futile. Rather it seems that various mechanisms in different combinations operated more or less simultaneously in different parts of the world, leading to Neolithic transformations, accelerating population growth, spurring human cultural development and with it, growing impact on the environment.

With the onset of the Neolithic, human populations grew and great stretches of land were transformed into agricultural areas (Redman 1999). Impacted by the grazing and browsing of domesticated ungulates, meadows and shrublands changed into various pasture-plant communities (Dasgupta 2001: 127–31; May et al. 1992). Until recently it was believed that humans had only a local or regional influence on the environment, but there is good evidence now for a global influence on the world's climate ever since the onset of the Neolithic. As Ruddiman (2003) showed, the anthropogenic greenhouse effect developed as early as about 8000 B.C., when, with the beginning of forest clearance and extensive agriculture, CO_2 concentrations rose. With the introduction of rice irrigation roughly 5,000 years ago, the concentration of CH_4 in the atmosphere also rose. Since then increasing climate change has taken place and the temperature has risen by about 0.3°C to 0.8°C. There is no doubt now that in

> less than 200 years, human activity has increased the atmospheric concentration of greenhouse gasses by some 50% relative to pre-industrial levels … At about 372 ppm, today's atmospheric carbon dioxide level is higher than at any time in at least the past 420,000 years. (King 2004: 176)

But in these early times humans were not alone in influencing the environment. Recent investigations show that the extinction of the Beringian Steppe Bison (Shapiro et al. 2004) took place long before large human populations were present on the continent. Changing environmental conditions themselves often had a dramatic influence on the development of human culture. Not just short term events like floods, earthquakes and volcanic eruptions, but also drastic long-term climatic changes – for example the ice-age(s) and the subsequent warm periods – forced humans to change their cultures, especially their economies, in order to cope with changing environmental constraints. Indeed, relatively sudden and drastic climatic changes effecting large regions over a long period of time have been the driving force for cultural change in the Old World (cf. Fagan 2005). For example, after a short but severe drought, a wetter phase around 3200–3000 B.C. enabled

> politically centralized and class-based urban societies [to] emerge and expand across the riverine and dry-farming landscapes of the Mediterranean, Egypt, and West Asia. The Akkadian empire of Mesopotamia, the pyramid-constructing Old Kingdom civilization of Egypt, the Harappan C3 civilization of the Indus valley, and the Early Bronze III civilization of Palestine, Greece, and Crete all reached their economic peak at about 2300 B.C. This period was abruptly terminated before 2200 B.C. by catastrophic drought and cooling that generated regional abandonment, collapse, and habitat-tracking. (Weiss and Bradley 2001: 610)

In fact, wherever vast empires arose, anthropogenic environmental changes took place on a large scale for military and economic reasons. The Romans decimated the cedar forests of Lebanon in order to build their enormous fleets, and in Imperial China forest cover slowly disappeared from about 1500/1000 B.C. onwards, and again during the Song dynasty after about 1000 A.D. With more and more land being brought under agriculture, relentless deforestation continued, and by the eighteenth to nineteenth centuries most parts of China were transformed into an anthropogenic landscape with widespread shortage of wood (Elvin 2004).

For long periods of time most human environments may have remained close to an equilibrium – or, in terms of resilience (Holling 1973), influenced by internal or external disturbances, they may have shifted to a new state, oscillating around a new equilibrium. Some disturbances may have been caused by climatic changes to which certain species could not adapt rapidly enough, or by the invasion of a new predator species whose extent of predation some species could not survive. Both situations would, within a given region, have led to a change in

the entirety of a habitat's species – in short, to the formation of a new, relatively different biotope. From the subjective, anthropocentric perspective of humans, such situations are catastrophes or disasters, terms which can, following Oliver-Smith (1996: 303), be defined broadly as

> a process/event involving the combination of a potentially destructive agent(s) from the natural and/or technological environment and a population in a socially and technologically produced condition of vulnerability. (cf. also Hoffmann and Oliver-Smith 2002)

Such dangerous situations are not recent, they have always occurred wherever humans have lived. But a diachronic review of the negative effects of human-induced local environmental changes and catastrophes shows that with increasing and widespread industrialisation, exponential demographic human growth and finally globalisation, many local disasters have begun to impact the entire world. Today the magnitude of human-made catastrophes is infinitely greater and is threatening vast populations and eventually all humankind.

Towards Modernity

It was only around the sixteenth century, with emerging Western colonialism that human influences on the environment began to effect large stretches of land and even entire continents. In many regions biodiversity was drastically reduced. The arrival of European colonists with their exotic predatory mammals led to the extinction of hundreds if not thousands of avian species in Oceania (Blackburn at al. 2004).This general trend was exacerbated with the onset of the Industrial Revolution. With the exploitation of 'natural resources' across different world regions by Western colonial powers, with intensive coal mining in the West and than the emergence of the post-Second World War oil industry, human impact began to be felt at global levels. Today with growing industrialisation and globalising markets, many of the still fairly localised human-induced ecological changes and creeping disasters are assuming global proportions.

With extreme overpopulation in the world as a whole, the overexploitation of all natural resources and the impact of chemical agents in intensive agriculture, the resilient capacity of ecosystems in several parts of the world has come to an end and climatologists, political economists and geographers are warning of the growing probability of global catastrophes. Their warnings are based on the scientific analyses of the proximate causes of local or regional environmental degradation; alternatively, they deal with the causes of global climate change and its repercussions on the world's ecosystem at large or on its various ecological sub-systems. However, the human factor, the different and complex motivations behind individual and group actions in different cultural settings that lead to

ecological transformations and disasters are rarely analysed and understood. The variety of world-views that impel the different attitudes that people have towards their environments, the varying and changing culture- and habitus-specific needs and wants that regulate the gamut of behaviours towards the habitat, have been largely ignored while examining the complex causal interconnections that lead to often irreversible local and even global environmental change.

Western environmentalism has a long history (Grove 1992; Little 1999). But it was only with Rachel Carson's (1962) study, *Silent Spring*, that social, political and scientific consciousness about the impact of human over-exploitative behaviour and environmental pollution at the local (cf. Kasperson et al. 1995) and global levels really developed. Public discourse about the effects of ecological mismanagement or industrial pollution which transcends locality and endanger the global commons (cf. WBR 2002: 87–105) is a relatively recent phenomenon. It seems that only with catastrophes such as that of Chernobyl which threatened the well-being and lives of peoples far and near, we at last 'woke up' and started seriously pondering over the causes that led to such disasters and how to prevent them in future.

Disasters which had a global impact are brought about primarily by the 'late modern' industrialised Western societies which Beck (1992) describes as 'risk societies' where, 'the proliferation of risks as a consequence of technological innovation has got out of control' (Lupton 1999b: 13). Although 'environmental disasters' seem to have increased greatly over the last decades, it is not their frequency that has risen but rather the number of people affected, mostly the poorest. Hence also the classification of these events as 'disasters'.[4] Once again the blurring of distinction between 'purely environmental' and human-made disasters becomes obvious. Whereas in Cuba an efficient disaster response system enabled the evacuation in the 2004 cyclone of two million people with no deaths, the lack of policy in Haiti left 5,000 dead and 300,000 affected. The recent tsunami not only highlighted the ineptitude of the Indian government to deal with recurring disasters, but also the extent to which environmental laws are violated along the costal regions where habitation is banned within a 500m broad strip. Similar violations of building laws caused innumerable deaths in Turkey's earthquake in August 1999. In other words the impact of major and sudden environmental events is intimately linked to political systems, structures and their efficiency. Undoubtedly, the problems 'relating particular rates of [environmental] change and management methods to political dispensations are … considerable' (Grove et al. 1998: 14). In their papers in this volume Casciarri and Schlehe also discuss such issues. But any change in restructuring of power and the enforcement of new laws must lead to insecurity that environment related transactions which had thus far been successful, may now fail; in her paper here Göbel analyses this problem.

The blurring of distinctions between 'purely environmental' and 'human-made' disasters often translates at the local community level of perception into

cause and effect explanations. While in many industrial societies this blurring may lead, as Nerb et al. discuss in their paper here, to environmental damage being attributed to human agency, in more 'traditional' societies perceptions of cause and effect often draw on cosmological theories in which no basic distinction is made between 'environmental', 'natural' and 'social'. This evidenced by the fact that many Western survivors of the recent tsunami have gone to court against a variety of organisations, charging them with negligence leading to loss of life. In their experimental studies in Germany and Tonga Nerb et al. analysed how people react to similar environmental damages. Their theoretical assumption is that a causal analysis of a negative event is often a necessary first step in implementing a coping strategy. They found that in Germany people have a strong tendency to attribute the cause of environmental damage to human agency, even though it was explicitly mentioned to them that the event was caused by purely natural forces. In coping with negative events it is essential, their study suggests, to identify the agent responsible for the damage because this enables one to prevent the agent from repeating further transgressions. In contrast, their respondents from Tonga see the negative event as more inevitable and beyond their control. It is interpreted as an 'act of God', who has caused the problem, but will also solve it. Sadness, rather than anger, is the main emotional reaction here.

In different societies and cultures the 'environment' is indeed attributed with different 'values' and connotations. Innumerable religious beliefs and descriptions across cultures refer to specific actions with regard to the environment. 'Sacred groves' everywhere embodied both religious and political power (Ramakrishnan et al. 1998), and Minangkabau scholars stress the closeness of local custom (*adat*) and nature: 'adat is sacred because it is a primordial aspect of nature' (Sanday 2002: 24). Yet such beliefs, prescriptions and theories are not even implicitly concerned with environmentalism, which is everywhere a fairly recent episteme.[5] They are concerned rather with the trespassing of social and/or religious norms that structure the social fabric (see the paper by Schlehe, this volume). Every extraordinary environmental event – earthquakes, volcanic eruptions, floods, eclipses, comets, etc. – are perceived as omens or warnings, and a variety of cultural practices are set in motion to mitigate their impact and ask for pardon. The biblical Deluge, the Egyptian Plagues, the destruction of Sodom and Gomorra and Haley's Comet were all seen as divine punishments. Today for some Islamists in Aceh, the recent tsunami was 'a warning from Allah' (Aglionby 2005), just as it symbolised 'the birth pangs of the Apocalypse' for some American Evangelists (www.rapture-ready.com). Judith Schlehe's chapter here discusses examples of the ways Indonesian people have explained volcanic eruptions (of Tambora and Krakatau) in former times. Schlehe then explores the reactions to the recent eruptions of Mount Merapi. The perceptions, interpretations and rituals of the villagers living on the slopes of Merapi and of the inhabitants of the nearby city of Yogyakarta are at odds with the government's interests. Mythical and mystical traditions are revitalised by eruptions, imbued with new meanings

and directed against transmigration programmes and, more generally, against those in power. Her analysis shows how the cultural appropriation of volcanoes can be seen as a field of discourse, important for dealing with the unpredictability of the environment and significant for political struggle; that it can serve either to legitimise political power in a conservative manner, or provide inspiration for rebellious behaviour.

It is from such partly culture-specific but dynamic baseline that the synchronically and diachronically varying perceptions, attitudes and value-related motivations and actions impinging on the environment must be understood, if behavioural changes towards it are to be encouraged in order to reduce the growing danger of a global ecological crisis. If we wish to apply the 'act local, think global' perspective, we must first understand this variety and diversity of specific behaviours, meanings and related cognitions and attitudes towards specific environments, together with the dynamic culture-specific needs and wants. In his study of the modalities of knowledge change among fisher-communities of southern India, Götz Hoeppe examines how the fisher folks' knowledge, embedded in decades of environmental and socio-economic change is dealing with external 'global' knowledges. Such often mutually contradicting epistemological and ontological knowledges are often today at the heart of much conflict about 'development' and environmental change.

The recognition of local ecological knowledge and experience, sometimes reflected in ancient land and sea-tenure systems and in negotiations between community-based interest groups and local and state institutions, or sometimes even global interest groups, can prevent major conflicts. This recognition can help lead to compromises, which preserve the 'self-regulation' of the human-environment interplay, while also allowing room for subtle and carefully planned rural and urban development schemes (for an excellent example see Hviding and Baines 1994). As Skewes and Guerra (2004) have shown, political movements which resist the threats and dangers of environmental pollution can successfully integrate scientific ecological knowledge with local transcendental meaning. In his paper in this volume, his comparative study of northern Australia and central Namibia, Thomas Widlok analyses problems in this process of incorporating social institutions of local cultures with reference to external experts. In northern Australia government experts for arid land management and agriculture attempt to revive Aboriginal patterns of controlled burning of the Bush as a strategy to avoid the risk of large-scale, destructive bush fires. In central Namibia non-governmental organisations encourage indigenous people to maintain their long-established seasonal patterns of harvesting wild fruits as a strategy to maintain a fragile ecosystem, namely the !Khuiseb area, a linear oasis in the Namib desert. But reviving cultural patterns of behaviour which have been previously suppressed, or maintaining such patterns in a rapidly changing world, is not unproblematic. One recurring dilemma arises from the fact that the external ecologists and development workers seek to establish 'expert systems' or 'coping

strategies' from a host of different indigenous practices. But indigenous cultural practices may provide sustainable uses of resources through general routines of creating well-being, which are sometimes more akin to gambling or diffusing the effects of individual action than to strategic planning. Such unresolved dilemmas, Widlok argues, account for much of the standstill and insufficient impact of ecological programmes in Third World countries.

The 'Values' of Environment

Human habitats, or parts thereof, are usually considered to be natural resources and values are attributed to them. Dasgupta (2001: 124) differentiates between those that are natural resources which are of direct use in consumption (e.g., fisheries), those of indirect use as inputs in production (e.g., oil and natural gas) and those of use in both (air and water). With their biodiversity, many of these habitats possess, he suggests (p. 137), three types of mutually related values: 1. *utilitarian* (e.g., as a source of food) known among economists as 'use-value'; 2. *aesthetic* (e.g., places of scenic beauty), and 3. *intrinsic* (i.e. non-human species, like the great apes, which are 'intrinsically valuable … because they should have no other value [and] … are an end in themselves, not a means to anything' (Dasgupta 2001: 137; Krutilla 1967; cf. also Hayward 1994).

The Utilitarian Value: Interdependence and Exploitation

As Baviskar (2003: 5053) observes in a recent paper, the very expression 'natural resources' indicates how 'something that is not an artefact of human making … invoke[s] utility, culturally produced use and exchange values, something to be efficiently managed. Linking these antinomies are notions of property and possession, stewardship … the right to use and appropriate'. A second expression underlining this basic attitude and now much in vogue in the realm of participatory eco-management is that of 'stakeholder'. Whether then as sources of subsistence or pleasure, habitats are spaces that are culturally inscribed in terms of power and profit. And at the core of every environmental legislation is the notion of transaction costs conceived of both in political (e.g., 'public' or 'national' interest) and economic (e.g., efficiency) terms. Not surprisingly, also, this utilitarian thinking leads to conceiving of natural resources in terms of increasing competition.

The Myth of the 'gentle savage'

Yet, at no times it seems have humans consciously renounced the use-values of their habitat. Undoubtedly, prior to modern industrialisation human influence on the habitat remained largely localised, on the whole affecting relatively small areas, few populations and species. But the 'noble and gentle savage' who willingly and consciously employed strategies in order to live in equilibrium and harmony with other species is a figment of our imagination, with little basis in reality. Archaeological records have identified various 'overkills' (Kay 1994; Krech 1999; Liebersohn 1994), though, as the case of the Beringian Steppe Bison shows (Shapiro et al. 2004), not all animal populations have been decimated by the human hand (see also Barnosky et al. 2004; Broughton 2003). Yet, early in human history landscapes were changed and biodiversity reduced by human activities in many parts of the world (Bird 1995; Butzer 1992; Denevan 1992; Levy 1999; Lewis 1989). Many, mainly animal species, became extinct as they were hunted for meat and for producing goods for subsistence or exchange (Saul 1992). Many early burgeoning populations often mismanaged their habitats to such an extent that their civilisations declined drastically. Sometimes overexploitation, mainly massive deforestation, even led to their own extinction (cf. Flenley and Bahn 2002; Malone et al. 1994; Pain 1994; Runnels 1995; Zizka 1989: 21–38, but see Hunt 2006). As Rolett and Diamond (2004) recently showed, certain Pacific Island societies collapsed due to both environmental and cultural factors that led to massive deforestation, while others who retained their forest due to different environmental and attitudinal reasons survived.

Often, even when a 'harmonious' togetherness exists between a human population and other species within a habitat (this is mainly thought to be the case for foraging societies), it is not the result of conscious conservation efforts or an ethical thinking reinforcing conservation mechanisms (Alvard 1993; Casimir 1994; Ellen 1993; Stearman 1994; but see also Gottesfeld 1994; for a comprehensive discussion see Hunn et al. 2003). If conservational effects are observed, they appear to be mainly due to one or both of two reasons. First, given their 'inefficient' extraction technology, these small, mainly foraging populations simply did not have the means to overexploit their habitat (Low 1996). Second, as optimal foraging theory (e.g. Smith 1983; Smith 1991) suggests, foragers cease to hunt/collect different animals or plants when they are reduced in quantity to such an extent that the energy spent in foraging exceeds the energy gained. The forager now mainly looks for other food items, but the depleted populations are still large enough to recover and, after a while, again approach the carrying capacity of their habitat. Also, if a foraged produce can not be transferred into symbolic or other forms of capital, it makes no sense to collect excessive amounts. Why, for example, would a hunter take the trouble to trap two hundred polar foxes if only twenty are needed to keep him and his family warm, provided, of course, that owning two hundred furs increases neither his prestige nor enables

him to exchange the excess for other goods or services – as happened when, with the onset of the fur trade, the sea-otter of the northwestern coastal areas of North America became nearly extinct in a relatively short period (for an other example see Nietschmann 1987). Here, as everywhere, with innovations and new inducements older norms and values lost their power and clashed with actual attitudes and behaviour (cf. also Gottesfeld 1994).

All this does not in principle, however, contradict the attitude found in many 'traditional' northern hunting societies where the hunted animal is perceived by the hunter not as the prey in a predator–prey relationship, but as part of a relationship of sharing in which it gives itself to the hunter as a gift (Ingold 1986: 243–76; Ingold 2000; see also Harrod 2000; Nadasdy 2007). Thus among the Huna Tlingit of southeastern Alaska, their '"Respect for everything provided by the Holy Spirit" is understood as to require that one not harvest fish or deer, for example, in excess of one's needs' (Hunn et al. 2003: 80; cf. also Moss 2003: 97).

Romantic images of people living in harmony with their natural environment are, however, not restricted to hunter-gatherer societies alone. Such images are conjured up for most pre- and non-industrial societies which have been seen by many as entirely different, if not opposed to, highly industrialised contemporary Western societies, and whose members often appear to urban Westerners as living in fond intimacy with their 'natural' environment. This has been the image of pastoral nomads (for a discussion see Ruttan and Borgerhoff Mulder 1999) and many peasant societies as well (e.g., Norberg-Hodge 1991; for a critique see Wiley 1997). As so often, the truth seems to lie somewhere in between. In many cases 'conservation' can be an epiphenomenon of an optimal foraging strategy (sometimes also including an emic moral epistemology); in others overexploitation, followed by species extinction and/or environmental degradation may take place. In yet other contexts a 'real' conservationist ideology, based on the recognition of an intrinsic value of species and environment, may lead to a long-term sustainable situation. Each case has to be analysed carefully and judged independently to avoid sweeping statements, meaningless watertight categories and ideologically grounded generalisations and orthodoxies (cf. Broughton 2003; Hunn et al. 2003).

Water as a Natural Resource: From a Free Good to an Economic Commodity

Water has always been perceived as a natural resource, but it has not always been an economic commodity. Indeed, certain religious traditions such as Islam make access to water mandatory for all, and in many other traditions water symbolises a variety of social relationships. For instance, in the Thar Desert in western India historical documents and oral traditions show that there water was transformed in the villages from a mythical source to a communal property and then to a public resource. There water is remembered and constructed and access reflects the continuities in perception and behaviour between seasonal, temporary,

sporadic and long-term environmental changes. Whereas earlier access to water was a continuous problem only for people in arid regions, today it is much more restricted. Water has become scarce the world over. The annual withdrawal of water from the world's lakes, rivers and underground aquifers has doubled over the latter half of the last century to an estimated annual 3,800 km^3. It has been predicted that by the year 2025 some 3.5 billion people will be living in water-stressed countries (WCD 2001: 2f.), and that future armed conflicts in many parts of the world will revolve around water scarcity (cf. Gleick 1993; Haftendorn 2000; Scheumann and Schiffer 1998; Townsend 2002; for useful websites see W1–W6).

Water, which was always perceived of as a free good and resource is now valued as a limited commodity and an economic good. The final ministerial declaration issued at the conclusion of the 3rd World Water Forum in Kyoto in March 2003 made this clear: 'Water has to be treated primarily as an economic good, not only as a social good.' The follow-up Camdessus Report (2003) concluded that the solution to water financing, notably in poorer countries, was to privatise it. Such conclusions contravene a UN declaration of 2002 which declares that 'Water should be treated as a social and cultural good, and not primarily as an economic good'. Yet, poor countries like Bolivia, Ghana, Mexico and India which signed the GATS agreement under the aegis of the WTO have been obliged to begin putting this conclusion into practice and treat water as a 'service'. In the poorest parts of central India, for example, fishermen and peasants have lost access to long stretches of the River Mahanadi, sole rights of access to which have been sold by the provincial government to private companies (Krishnakumar 2003). The river which for centuries was common property has overnight become private property, access to which is too heavily priced for most of the local population. Today a large percentage of global water is in the hands of a few multinational corporations, but these firms are not always interested in investing in poor countries, as the dividends are low and people's resistance high.

Resistance to another ubiquitous aspect of water management is also increasing: dams. For thousands of years dams have been a major means of supplying people with water for drinking and irrigation, thereby reducing the impact of unpredictable and erratic rainfall. Drawing on this logic in modern times, it was thought that large dams would solve both water and electricity shortages. Thus, between the 1930s and the 1970s big dams became synonymous with development activities, progress and modernity (WCD 2001: 2), and since the 1950s 45,000 large dams have been constructed in different parts of the world. Many of these huge projects date back to plans drafted much earlier: the Epupa in northern Namibia for example, planned by the South African government in the 1960s, followed concepts formulated during the German colonial period. Similarly, the construction of the Sudanese dam at the Fourth Cataract of the Nile goes back to planning by the Anglo-Egyptian administration in the 1940s. After decades during which much else has changed, these freshwater

resources are being tapped in the hope of stabilising and increasing national economic growth in these arid lands.

In the past decade southern Africa has seen a massive extension of large scale dam-construction for hydro-electric purposes (see also Turton and Henwood 2002). Existing structures like the Kariba Dam in Zimbabwe/Zambia and the Cabora Bassa Dam in Mozambique have been refurbished with World Bank money, while many new dams have also been built. The huge Katse Dam in Lesotho is only one of ten dams of the Lesotho highland scheme which produces electricity for internal consumption and the needs of the wider Johannesburg area. Together with Angola, Namibia has planned a dam on the Kunene river (Heyns 1995). This would have a major impact on the local ecosystem and on northwestern Namibia's pastoral population, and resistance against it has gained international publicity. Indeed, while nearly half the world's rivers now house at least one big dam, many of these projects have increasingly led to disastrous side-effects for the environment and ruin for major sections of local and regional populations. Chinese dams across the Mekong, for example, are causing devastating droughts in the downstream riparian regions of Laos and Kampuchea (see also Berkoff 2003).

Increasing humanitarian problems are attached to the construction of mega-dams (McCully 1996; Thukral 1992; see also Loker 2003). In many countries various organisations have warned against such projects, and in some instances, such as that of the Arun River in Nepal or the Narmada in India, the World Bank finally withdrew its financial support (Gyawali 2003). Typical for such conflict situations are the three current largest projects – the Kemal Attatürk Dam in Turkey, the Sardar Sarovar Dam in India (Bavadam 2004; Baviskar 1995; Baviskar 2003), and the Three Gorges Dam in China (Heming et al. 2001). The highest priority for these states lies apparently in the production of hydro-electric energy, flood control and navigation requirements coming next. In all these cases hope has been held out that thousands of square kilometres of fertile rain-fed or pasture land could be made irrigable for the benefit of poor peasants who could then be settled there. However, as in India, tens of thousands of the poorest are often evicted from their lands, with no compensation worth the name to add to the millions of homeless in the name of 'national interest' and 'development' (cf. Sharma 2003). The various organisations warning and protesting against the construction of such big dams put forward numerous arguments that range from the extreme risk of uncalculated negative environmental effects on the entire region, through the irretrievable loss of ancient archaeological sites, of scenic beauty, to the often catastrophic fate of tens of thousands of families who will be displaced from their deluged homes and lands and either not compensated at all, or only very inadequately so.

During the last decade large-scale inter-basin transfer schemes have also been implemented, in order to transfer water from one river basin with an apparent abundance of water to another river basin less endowed with water, or to urban

areas where water consumption levels are high (Heyns 1995). As the director of Water Affairs in Namibia Heyns regards the development of large regional water transfer schemes as the major infrastructural development in SADC countries over the next twenty years. South Africa already has numerous water-transfer schemes and Namibia currently depends on the working of two of these schemes: a major part of the population of former Ovamboland lives off the waters of southern Angola's Calueque Dam on the Kunene (with a capacity of 3.2 m^3/second) and the Okavango-Swakop carrier (with a capacity of 2 m^3/second). Further major transfer schemes are now being planned: a giant project is to connect the Kasai/Congo, the Kavango and the Lualubala/Congo with the Zambesi, with a total capacity of up to 150 m^3/second. In northeastern Africa only a few projects are of similar magnitude, but the supply of artesian water to coastal towns through a water carrier from the Lybian oasis Kufra and from several dams on the Nile are of importance.

In Asia major projects are also being developed. China plans to divert the Brahmaputra northwards from Tibet (e.g. Tso 2004), thus leading to the devastation of the ecosystem of the world's longest and deepest canyon and furthermore to the desiccation of the Ganga- Brahmaputra riverine network and great parts of northern India. While India protests against this plan, it is itself trying to dam several rivers that are part of the Indus system, thus depriving Pakistan of essential irrigation facilities. It is also planning to link its major rivers (Bandyopadhyay and Perveen 2004; Divan 2005; see also the websites W7–W9). These plans are grounded on the concept of 'surplus' river basins from which water can be transferred to 'deficit' water basins, and on that of water being 'wasted' when a river flows out to sea. In other words they are based on purely utilitarian notions of both 'surplus' and 'waste'.

Aesthetic and Numinous Value: From Wilderness to Nature

'Wilderness', 'nature' and 'landscape' are terms whose connotations have varied across cultures and over history. An opposition between the 'pure', 'unspoiled' beauty of the 'wilderness/nature' and the 'civilised', refined town, especially the royal court, is the central theme of Kālidāsa's classical Sanskrit drama '*Śakuntalā and the Ring of Recollection*' dating back to the fourth century A.D. – a piece of Indian literature that had an enormous influence on European, and specially German, Romantic literature (for a detailed analysis see Thapar 2000, see also Inden 2007). Paraphrasing Sherry Ortner (1974), the equation 'woman to nature – man to culture' is central to this story about the love of a cultivated king, Dusyanta, for the 'naturkind' (child of nature) Śakuntalā, who grew up in the forests as the daughter of a sage and a celestial nymph. From the Classical period of Greece and Rome onwards into the Italian, Spanish and English traditions (Gregg 1906) 'wilderness/nature' also had romantic connotations, as is obvious

from the whole genre of pastoral poetry and drama. These pastoral themes, however, had little or nothing to do with the real life of shepherds; as Gregg (1906: 4f., 7) observed:

> At no stage in its development does literature, or at any rate poetry, concern itself with the obvious, with the bare scaffolding of life: whenever we find an author interested in the circle of prime necessity we may be sure that he himself stands outside it … It was left to a later, perhaps a wiser and a sadder, generation to gaze with fruitless and often only half sincere longing at the shepherd-boy asleep under the shadow of the thorn, lulled by the low monotonous rustle of the grazing flock … Only when the shepherd-songs ceased to be the outcome of unalloyed pastoral conditions did they become distinctively pastoral … As a result of this contrast there arises an idea which comes perhaps as near being universal in pastoral as any – the idea, namely of the 'golden age'… I have said that a sense of the contrast between town and country was essential to the development of a distinctively pastoral literature.

Indeed, at least since Henry David Thoreau (1817–1862), the father of environmentalism, we know that the various meanings of environment and parts thereof are, following the specific Zeitgeist, culturally semantisised aspects of what Ingold (2000) termed 'the really natural'. Thus, even within Europe connotations have varied over time and across regions (for a comprehensive historical analysis see Schama 1996). In the centuries prior to the Enlightenment and even thereafter, 'wilderness' was opposed to 'culture' and uncultivated environments were usually perceived as more or less dangerous spheres (cf. Düwel 1994). In European painting, for instance, the landscape merely served as a backdrop for religious themes or secular activities. It was only with the onset of the Romantic period that in the West 'wilderness' and the 'landscape' became a theme in itself, and now came to be understood as 'nature' – the paintings of J.M.W. Turner and Caspar David Friedrich are good examples of this development. In the twentieth century numerous illustrated books and magazines, as well as poetry, continued to project romantic and often nostalgic images in which the countryside is a metaphor for the 'beloved homeland' (e.g., Conyngham Green 1932). This romantic attitude towards the countryside and the 'simple life' projected on to the space outside the larger towns and cities has remained a theme in prose and poetry right down to our days, albeit in modified forms, suited to the political and economic Zeitgeist of the particular epoch.

'Nature' served as a metaphor for the 'pure', the 'uncorrupted' and as a projection in Christian Europe of the longing for a Paradisical state. The use of Edenic terminology in the cognitive and official construction of botanical gardens and botany classes in Renaissance and Post-Renaissance Europe mirrors this development (Prest 1981). This was reflected also in Jean-Jacques Rousseau's philosophy and his theory of education as expressed in *Emile*, which opens with: 'God makes all things good; man meddles with them and they become evil. He

forces one soil to yield the products of another, one tree to bear another fruit. He confuses and confounds time, place, and natural conditions.' (Rousseau 1933: 5). And Friedrich Schiller (1830: 1277), in his *Über naive und sentimentalische Dichtung* of 1795/6, noted that 'In the same way that nature slowly began to vanish from human life as an experience and as an (acting and feeling) subject, we see it emerging in the world of poetry as ideal and as tope' (translation mine). Thus nature was glorified in a romantic, sometimes even mystified, pantheistic manner, as in the Shaftesbury hymn: 'O glorious Nature! Supremely Fair, and sovereignly Good! All-Loving and All-Lovely, All-divine!' and in Alexander Pope's *An Essay on Man* (1733) – 'All are but parts of a stupendous whole, whose body Nature is, and God the soul' (Epistle i, l. 267; cf. also Binde 2000: 18–21) – where he expressed his view of the oneness of the hand of God and the natural: 'Nor think in NATURE'S STATE the blindly trod. The state of Nature was the reign of God' (Epistle iii, l. 147f.; quoted after Warnock 2003: 447). A similar attitude towards nature can be observed in sixteenth-century German vernacular literature where numerous prints indicate a widespread curiosity about the natural world. They too 'reveal a pervasive sense of nature as divinely created and deep conviction that contemplation of the natural world would lead to greater piety' (Crowther-Heyck 2003). In England such contemplation was provided from the middle of the eighteenth century onwards by the institution of gardens and parks.[6] The ideal in laying these out changed from the formal Perso-French to the imitation of the 'natural landscape' (cf. Hennebo and Hoffmann 1963: 15ff.), whereby a somewhat modified, 'improved natural environment' could mirror the perfect and harmonious creation of God's world.

But the contemplation of 'untouched nature', and even an exhilarating and secret, individual bond with it, came to full bloom in the Romantics: 'There is a pleasure in the pathless woods / There is a rapture on the lonely shore / There is society where none intrudes' (Lord Byron). In Germany, in the Romantic period, the 'Deutsche Wald' became a metaphor for beauty and nobility, a symbol of sublimity and reverence (cf. Schriewer 2000), and especially since Riehl's works, for a romantic love for the 'Heimat' (cf. Schama 1996: 113ff.). This enthusiastic, romantic and even numinous attitude continued to be an important theme for the next two hundred years, so much so that at the beginning of the twentieth century, love for an 'unspoiled nature', especially for forests, could be so perverted and misused for political propaganda. In Nazi Germany under the 'SS-Lehr und Forschungsgemeinschaft "Das Ahnenerbe"' organised by Dr Walther Wüst, researchers of the project 'Wald und Baum' further mystified the 'Deutsche Wald' and tried to link it with their ideology of a Germanic and Nordic 'Aryan' race and religion (for an excellent analysis see Rusinek 2000, cf. also Sax 1997).

In his *Ambivalence and Modernity* Zygmunt Bauman (1993: 7) discussed how 'nature' has been imagined in modern times – as something free of intervention, as unordered existence, as something singularly unfit for human habitation, not to be trusted and not to be left to its own devices. 'Nature' is something to be

mastered, subordinated and remade, so as to be readjusted to human needs. This imagination is, however, not that new: it goes back at least to the New Testament. As late as in December 2001 this biblical idea of stewardship was echoed in a pronouncement by the Vatican: 'Man has the right and a duty to act within and on the created order, making use of other creatures to create the final goal of all creation: the glory of God through the promotion of Man' (in Warnock 2003: 446). Baumann is however right in observing that today there is 'nothing … more artificial than naturalness'. This is amply evident in tourism brochures that sell the attractions of 'remote', 'idyllic' beaches and 'magic islands'. Tourist resorts in Bali, Goa the South Pacific Islands, parts of Thailand and Sri Lanka all serve as seasonal 'second homes' for Westerners in search of the last, temporary paradises. That the visual sense largely dominates environmental perception is by now well established. In their paper here, Vorlaufer et al. use this approach to elicit interesting responses regarding environmental pollution on Thai beaches. Their discussion of the problems created by increasing amounts of garbage in these paradises opens up new questions concerning the multiple environmental impact of tourism and perceptions thereof.

The transition in modernity from 'wilderness' to 'nature' 'readjusted to human needs', as a landscape with supposedly intrinsic value, can be best demonstrated by the history of National Parks, Sanctuaries and Protected Areas. It is also a history of the Western, especially male thrill for discovery and adventure through centuries of pre-colonial, colonial, imperial and post-colonial dominance.

From Utilitarian to Intrinsic Value? Peoples and Parks

Towards the beginning of the nineteenth century governments in Europe gradually came to realise that in many parts of the world the overexploitation of natural resources had caused dramatic environmental changes. This resulted in the formulation of the first protection laws. These legislations were, however, not passed to protect nature for its intrinsic value, 'for … [its] own sake', as 'we would love it [nature] as we love another human being whom we know is not our slave' (Warnock 2003: 450). These laws were passed only out of fear that the economic exploitation of specific regions would soon no longer be possible. When in the beginning of the nineteenth century the first forest laws were enacted in Prussia to allow the felling of trees only on condition that an equal number of trees were planted, the goal was to attain the sustainability of state forests, in order to ensure the continuous exploitation of lumber – not to secure scenic beauty, biodiversity or even the intrinsic value of biotopes. This was also the case when the British in their colonies in Africa and India finally noticed an overkill of game by their countrymen (cf. Anglás Grande 1999; Casimir 2001; Dovers et al. 2002; Grove 1987; Kjekshus 1977; Lenhart and Casimir 2001; Rao 2002). But instead of curbing this, thousands of local inhabitants were driven out of their ancient

homes and lands, and wildlife sanctuaries were established in order to ensure further 'sporting' and 'manly' hunting leisure-time for the British imperial class. The net 'effect of game regulations was to restrict hunting to the gentleman, sportsman, administrator and soldier' (MacKenzie 1989: 58).

Hunting in Europe had long been the privilege of the nobility and the upper classes, and thus a symbol of dominance; it was also an ideology that became part and parcel of imperial colonial attitudes (Bennett 1984; MacKenzie 1989; Pandian 1998). This was of course often combined with commercial interests, and between 1850 and 1890, hunting and the extraction of ivory, for example, led to a dramatic decrease in the enormous elephant herds of southern Africa. It was this drastic depletion of big game that caused mainly rich and politically important hunters to stand up for the protection of wild animals (a similar decrease in smaller game was also of concern to the British in the Himalayas; cf. Rao 2002). Indeed, game- and natural reserves, as well as national parks and other categories of protected areas (for a typology and their objectives see Wells and Brandon 1995: 2), were not established for their intrinsic value, but in order to control deforestation and preserve wildlife for white hunters. The 'traditional' users, the Africans and Asians, were usually blamed for the decrease in game, but it was only much later, at the close of the nineteenth century and the start of the twentieth that 'the link between conservation and the hunt [lay] in the demarcation of the privilege and power of the new rulers of Africa' (MacKenzie 1989: 58), and hunting was restricted for white hunters too.

In the seventeenth and early eighteenth centuries, Europeans by and large perceived most non-Europeans as 'primitive natives', close to beasts, and often conceptualised them as part of 'nature'. When they finally came to be accepted as 'real human beings', it was suggested that 'real' nature had to be a landscape without human inhabitants, where 'natural forces' alone would govern the interaction between plant and animal species, a process, it was thought, that would keep them in a 'natural state of equilibrium'. This ideology led to policies which forbade habitation and the exploitation of natural produce in the 'protected' zones, and often entire communities were violently forced off their native lands. In some countries even in the second half of the twentieth century, with the intrinsic value of plants and animals being recognised and the extinction of certain species feared, herding and foraging communities were expelled from their lands and a ban imposed on their use of the natural resources of their own areas. 'Almost by definition … conservational protected areas have been at odds with "indigenous people's" rights to self-determination and territorial control' (Colchester 1997: 109),[7] for this notion of conservation 'operates by sealing off portions of wilderness and their animal inhabitants, and by restricting or banning human intervention' (Ingold 1994: 10).

However, de facto, no park was ever an 'empty wilderness' (Lye Tuck-Po 1997: 8); indeed, parks are often located within the existing territories of sedentary or nomadic communities. Once such a park is created, however, the authorities

normally restrict access to the area and prohibit all activities within it, because they regard them as obstacles to effective natural resource management. Thus, for example, in 1926, with the creation of the Kruger National Park, one of the first protected areas in Africa, 3,000 individuals, mainly sedentary Thonga, were driven out of the demarcated area and those who remained were forbidden to use the 'public' routes of the park; special paths were built for them, so that they remained invisible to visitors who would get the impression of really being in 'pure nature' (Carruthers 1995; see Rao 2002 for a similar situation in the Kashmir Himalayas). Later, when across all the semi-arid savannahs of eastern and southern Africa protected areas and National Parks were created, pastoral peoples and foragers were seen as a threat to the environment (Århem 1985; Brockington and Homewood 2001; Bunn and Auslander 1999; Casimir 2001, 2002; Dieckmann 2001; Job 1999; Johnsen 2000; Myers 1972; McCabe 1997; for an overview also see Lenhart and Casimir 2001).

In many post-colonial states tourism has become a major source of revenue, and the dominant classes which benefit from these revenues tend to feel that local communities, their settlements and access to livelihood spoil the romantic and idyllic view for Western visitors, who wish to experience 'wilderness' and 'pure nature'. This is true of both African and Asian states. In the late 1970s, for example, all Mursi who lived in the border area between south Ethiopia and the Sudan were forced out of their riverine agricultural lands and choicest pastures (Turton 1994). Similarly, sheer persecution has been the fate of the Wanniyala-Aetto of Sri Lanka (Stegeborn 2001; Stegeborn 2004). When, however, it was felt that 'the natives' fitted into the image of the 'real Africa' that was in the minds of Western tourists, their settlement in such areas was sometimes allowed – again, due to the same 'romantic', Western fantasies. Thus, for instance, in 1958 George Silberbauer was appointed as 'Bushman Survey Officer' by the British Colonial Administration in Botswana; he classified those Bushmen who still hunted and gathered as 'wild' Bushmen, and when the Central Kalahari Game Reserve was finally established in 1961 the government followed his recommendations and allowed some 3,000 of these 'wild' Bushmen to hunt in the reserve (see Kuper 2003: 393).

So more often than not we have the preposterous situation in which communities who live and use vast areas are shunted out of their homes and habitats, while state agencies, conservationists (and sometimes scientists) gain access to these and invite tourists to come and visit for a fee. Occasionally, nominal monetary compensation or resettlement outside the park may be offered in return for such expulsion. But usually, park planning does not include access to viable resources, let alone employment opportunities for the evicted – not even as forest rangers or guides. Thus, for example, the 592 Maldhari families who were evicted between 1972 and 1986 from the Gir Sanctuary in western India were 'resettled' in twenty-eight scattered areas; a little arid, unirrigated land was given to these pastoralists, but even in 1999 neither seeds nor loans nor any

cash to even start off with (cf. Casimir 2001). Finally, despite lip-service being paid to the crucial importance of local environmental knowledge regarding flora and fauna – which could be very fruitfully incorporated into conservation measures – few steps are taken to tap this specialised knowledge through these communities. Instead, 'specialists' are brought in to study the problems and make recommendations (see Widlok in this volume for a detailed discussion of this aspect) that often end up in the complete negation, if not criminalisation, of local communities.

Beyond Purism and Green Primitivism: Community Based Management Schemes

> It is sad that we now have to have a term – community-oriented conservation – for something that used to come to all of us naturally. Man has many unfair advantages now over his environment. We see ourselves as separate from the environment and in our arrogance we impose on other living beings. We are changing at such a phenomenal rate that we have forgotten that other living creatures still accept the pace of nature … We believe it to our right that we are first in the order of things …When this sacred trust is violated, we have to create what we call protected areas. (Mike Leach, Chief of the Tit'qet St'at'imc Nation, Canada 2003 at the 5th World Parks Congress in Durban)

The developments of the last decades have shown clearly that both extreme points of view – the myth of 'true nature' and the romantic and misconceived construct of 'noble savages living in harmony with their environment' – have failed as concepts for human-environment negotiation in order to secure biodiversity and save rare fauna and flora from extinction. New approaches are urgently required to solve the problems of how, and following which principles, institutions can and should organise the various, often competing, claims of different interest groups to their 'Rights to Nature' (Hanna et al. 1996). Most recently, a few programmes have been initiated to integrate communities who live or have lived in reserved areas into the management of natural reserves and national parks, so that they can earn a decent livelihood (for an overview see, for example, Furze et al. 1996; Hulme and Murphree 2001; Igoe and Brockington 1999; Kothari et al. 1996; Nelson 2004; Saberwal et al. 2001). Some, though not all initiatives to place the management of game reserves entirely into local hands, appear fairly promising (but see Weber 1991 for problems in Nepal's Sagarmatha Park). Such management practice provides for a certain amount of culling by hunting (for example, of large ungulate herds), of the sale of this meat and of selling licences to hunters. The long-term success of such strategies assumes a substantial animal growth rate, specially of rare 'big game', which would require regular and strictly supervised culling that could simultaneously satisfy the controlled demand for hunting trophies. Jonsen (2000: 170) has convincingly shown for the impoverished Maasai, specially in the Ngorongoro, that

> a new approach to conservation based on community cooperation and local empowerment is probably the best way … Maasai communities do … have a strong potential as cost effective allies in conservation, once it is realized that their pastoral mode of production is not antagonistic to conservation objectives, but to a large extent the very means by which this landscape was culturally constructed in the first place.

In many cases, community control and involvement in forest management schemes have enabled a more detailed assessment of forest resources and management needs than centralised forest management did or could, thus 'challeng[ing] the notion that forest communities are problems, while state bodies deliver solutions' (Wolvekamp 1999: xviii). An analysis of twenty-three recently launched integrated conservation-development projects (ICDPs) in different parts of the world indicates an optimistic trend (Wells and Brandon 1995; see also Horowitz 1998). Although these projects accepted the World Bank's 1986 definition of wildlands as 'natural areas relatively untouched by human activities', they also 'recognized the importance of wildland management to development projects and require[d] that wildland management be considered in economic and sectorial planning' (Dedec and Goodard 1988 in Wells and Brandon 1995: 3). Wells and Brandon (1995: x) point out that 'ICDPs need to challenge the widespread but unsupported assumption that people who are made better off as a result of a development project will refrain from illegal exploitation of a nearby protected area even in the absence of the negative incentive provided by more effective penalties'.

To establish ICDP's, many factors must be taken into account (Horowitz 1998). Of utmost importance are traditional legislative infrastructures and management practices, and the already functioning institutions and systems of customary law. On the basis of these new conservation strategies should be implemented in collaboration and cooperation with the people, their political leaders or other persons of influence. Of crucial importance is the willingness of politicians and administrators to justly share the profits garnered through tourism and other sources of revenue with local communities, who will then and only then actively protect their environment. This will, hopefully, be one step towards helping them to participate in the overall equitable development of their respective regions.

Today in many regions conflicts between the local population and conservationists arise mainly from the different aims and interests between them and these 'outsiders', who warn of the deterioration of a 'natural equilibrium'. For example, many inhabitants of Europe's Alpine zones attribute a 'use value' to their mountain slopes and advocate the construction of yet more ski resorts and lifts which would lead to growth in incomes. Environmentalists on the other hand, caution against the deteriorating biodiversity and loss of scenic beauty. Especially in Germany, nature conservationists and the local land-users thus often find themselves in opposite camps. As Stoll-Kleemann (2001) has shown, strong

emotional and cultural drives lead to negative perceptions and experiences regarding nature conservation. Here conservationists are stereotyped as 'out-groups' and their activities perceived as authoritarian and threatening. Again, as in other parts of the world, a lack of inclusive and meaningful participation in conservation management by the local land-owning population plays a crucial role in the problems of managing the sustainability of certain habitats and their biodiversity.

Major conservation groups are now beginning to realise that their old, hard-line protectionist approach simply does not work (Pearce 2003). If local communities do not perceive relatively short-term benefits from efforts to protect their habitat and from the 'soft exploitation' of their environment, biodiversity will not be sustained. 'Bioprospecting' (Moran et al. 2001) is one type of environmental 'soft exploitation' (for a successful implementation of such a pragmatic strategy see Sturm 2002). That may also help both to produce new medicines and preserve traditional healing systems, thus demonstrating the therapeutic, economic and social values of these habitats. It can bring biotechnology and other benefits to biodiversity-rich but technology-poor countries. Only by respecting the intellectual property rights of the people, giving them a fair share of the profits of such undertakings, can a burgeoning form of colonialism, 'bioimperialism', be avoided (cf. Greene 2004).

The Rights of Indigenous Peoples – Between Romanticism and 'Progress'

Respecting people's rights generally must also mean that indigenous peoples have as much right to use their habitat for foraging as agriculturists to plough their lands and urban dwellers to construct buildings. This was recently pointed out for India (Rao and Sankaran 2003), where even today many *adivasi* peoples are forced out of their forests and lands to make way for National Parks or Reserves, commercial plantations, agro-industries, dams, military testing sites or even construction projects (Rao and Casimir 2003: 23ff.).

Indeed, community rights to pastureland, and in particular the institution of commons in areas with low annual rainfall averages, high annual variance and hence unpredictability of grazing, has been proved to be the optimal way of keeping the ecosystem more or less sustainable (Casimir 1992a,b; Casimir 2002; Casimir 2003; Casimir and Rao 1998; Burke 2001; McCabe 1990; Sandford 1983; cf. also Acheson 2003; Brockington and Homewood 2002; Feeny et al. 1990; McCay and Acheson 1987). Yet, local power-brokers use the much-trumpeted argument of Hardin's (1968) 'Tragedy of the Commons' to often forcefully privatise customary communal lands to their own advantage, arguing that such old 'traditional' land use systems are anyway doomed to fail. The struggle is often between 'traditionalists' and 'modernists' within the community itself. A recent example is that of the pastoral Samburu of Siambu (Lesorogol 2003), among whom the increasingly capitalist land policies of the postcolonial

Kenyan government have led to institutional changes and different power-groups emerging, some of whom fight the age-old culturally shared values of common pasture use and now claim private land ownership (cf. Mazonde n.d., see also, Fratkin 2002).

In poor countries intergenerational conflicts exacerbated by globalising influences are indeed an increasingly important factor in human-environment dynamics. An interesting example is that of the pre-Hispanic Andean cult of Pacha Mama. As Göbel discusses in her chapter here, this cult regulates and mediates all relations between humans and their environment. The transition to Catholicism did not much effect this. However, the conversions since about the 1950s to a variety of mostly U.S. -based evangelical sects has destroyed the Pacha Mama cult among the young. The destruction is both physical and cognitive, with the 'earth and animals ceas[ing] to be manifestations of a living spirit and [being] converted into things, exploitable and quantifiable resources' (Segato 2003: 186). An interesting comparison is provided by the Saora of southeastern India, who became Baptists (Vitebsky 1998).

But it is here equally that many NGOs supporting the rights of local and indigenous peoples themselves fall prey to the dangers of lurking ecological romanticism (Prasad 2003). Their attitude implies, partly at least, that in spite of a rapidly industrialising and capitalist socio-political environment, such communities should or will choose to continue with their foraging, mobile pastoralism or slash and burn cultivation, provided that their rights to their lands are finally recognised. They forget that in almost all such communities today the interplay of internal and external socio-economic and political forces is leading to the meaningful future of such supposedly 'traditional' lifestyles being questioned, and thus also to conflicts between different local power groups – often between the young, who have experienced a few of the so-called advantages of modernity, and the older generation who recall the advantages of their 'traditional lifestyle'. Seitz's chapter here provides an example of just such change as a response to a variety of environmental factors among the former foraging Aeta of the western Philippines. Even before the eruption of the volcano on Mount Pinatubo, Aeta families had been impacted by numerous NGO development projects. With the volcanic eruption further and sudden changes were required, and the Aeta managed to find new resources and means of subsistence, partly using their flexibility as foragers, even to go in for wet-rice cultivation.

From Local Problems to Global Concerns

Local Concerns and Human Behaviour

Most of us use our habitats for survival and seem to take care of them only if and when our well-being is directly affected by local and immediate circumstances. The pollution that is 'out of sight' was and often still is nobody's business, and huge spaces on the outskirts of most cities are used to get rid of massive amounts of garbage and scrap metal. Here the individual often sacrifices the 'higher environmental goal' for personal advantage. A good example of such behaviour was the municipal policy in the Swiss capital, Bern, where the fees for garbage bins were calculated according to their size. Many people ordered the smallest, but because many households produced more litter than could be stored in these small bins for domestic use, there was a sudden overflow of household litter into the bins in parks and other public places (Dieckmann and Preisendörfer 1994: 26). These public spaces are often interpreted and understood by the individual as a no-man's land, as a space of concern to none. In order to save money or time, free riding is often observed here, and people use such common spaces to get rid of their private waste. The problem is then passed on to be taken care of by the anonymous institutions of the city or state (cf. Chakrabarty 1991). The closely related, somewhat fuzzy areas of 'common' and 'no-man's land' are open to everyone's interpretation on the basis of his or her moral convictions.

In their paper in this volume Vorlaufer et al. use the example of beaches in Thailand to analyse the contexts in which beaches and tourist resorts are littered with plastic bags, cans and other waste. Curbing pollution and managing an effective disposal of litter was found to be successful only when the pressure to keep the area clean came from tourists who avoided the places which were polluted, thus leading to economic loss for their owners. In their comparative study in this volume of conventional and organic farming in Germany, Döring et al. also consider the issue of morality, and apply what they refer to as a theory of the development of moral judgements. In these two agricultural orientations they identify two different systems of thought and risk management. These systems, they suggest, constitute the framework for reconstructing the opportunities for action and the perception of risk with regard to ecological, economic and social challenges.

All these observations seem to lead to what we may consider a general 'law': cultural rules which help preserve the environment usually develop only if and when the individual does not perceive him/herself as sacrificing what he or she considers to be excessive time, money or energy; and further, if he or she feels that there is more to 'gain' than to 'lose' or 'spend' by environment-conscious behaviour. However, it is not only such 'material' or 'materialistic' goals that count – as with charity and other moral commitments, the knowledge and feeling of being 'a good human being', often a culturally high-ranking goal, also counts

and may, together with the aforementioned 'material' benefits, lead to the successful implementation of environmentally friendly measures. What happens, however, when a community maintains cultural institutions that influence only resource distribution, while access to the resource is not restricted? Andrea Bender examines this issue in her paper here and presents data from an island community in the Ha'apai-group of Tonga, where everyone has free access to all marine resources and cooperation and food-sharing remain highly cherished values. With the gradual transition from subsistent to commercial fishing, non-cooperative strategies of resource use are arising, as opportunities to sell fish are increasing and maximising profits is becoming a goal. Obviously the danger of overexploitation, if not depletion, is high. Bender compares two villages whose responses to this changing situation are very different.

Motivations, Strategies and the 'Master Value', Well-Being

All human actions are the direct or indirect outcome of motivations of individuals acting singly or in groups. Rational actor theory assumes that individual behaviour is strategically directed at optimising well-being, and other theories also presume that well-being is a 'master value' (Wolf 2003). All this does not imply, however, that individuals always

> deliberately act in order to advance their well-being, but rather insofar as they act rationally they do in fact advance their well-being, even if this is not the occurrent motivation from which they acted … [and] although there are various ways of advancing one's well-being, and often people's action will have this effect, or be directed towards it in some sense, this just does not give any clear guidance as to what is to count as rational and irrational action. (Wolf 2003: 342f.)

If we assume the broad influence of the 'master value' well-being, the motives inducing specific behaviours can be related to aiming generally at fulfilling the basic needs that are more or less common to all species and, in humans, in addition, at fulfilling culture-specific derived needs, the 'wants' (Diligensky 1981). From a proximate perspective, the motivation for action lies in most cases in the wish to enhance physical and/or psychological well-being. Many physically felt morphological/physiological and psychological needs – those of curbing hunger, fulfilling sexual desires, etc. – while fundamentally related to innate structures, are transformed and refined by cultural values and norms. The actual enhancement of an individual's proximate desires or her/his well-being is of course an optimising process, and consists of maximising the desired effects under given environmental and/or socio-cultural constraints. The results of such actions are either in accordance with the values and norms of a society, or they are in conflict with these; in the latter case, if such actions violate laws, they might be labelled as anti-social or even criminal.

Concern, Anxiety, Fear and the Future

> Every thing that happens in this world is the result of the fear of pain.
> (Franz Werfel 1941/90; translation mine)

An essential component of well-being is feeling (relatively) secure. This is born out by the variety and importance of measures and methods employed by both generalists and specialists in all societies to 'foretell' the immediate or long-term future – the future being understood in terms of both individual and group, both society and environment. Reducing uncertainty,'that source and archetype of all fear' (Bauman 1993: 7), has always been the driving force behind the desire to learn about the future and develop strategies that reduce concern and anxiety. Rosen (1987: 155) asked why this desire 'is one of the most ancient human cravings', and went on to suggest that

> perhaps the most obvious [answer] is: so that we shall be able to decide what to do *now*. Perhaps the preponderance of conscious human behavior is the execution of *plans*; and the making of plans always requires some information pertaining to the future. For this reason, forecasting has always been a central human activity. (cf. also Sjöberg 1998: 91)

We try to predict the future on the basis of more or less incomplete information and experience regarding the past and present, which are largely embedded in our traditional knowledge. On the basis of such facts, thoughts, feelings and ideas, we have constructed a model of the world whose purpose it is to make predictions (Rosen 1978: 158). On the basis of our judgement 'about what is or will be the state of some aspects of the world' (Yates and Stone 1992: 68), we then extrapolate from the present into the future and predict possible events and how these may affect us. Such considerations concern probabilistic 'if-assumptions' which can be expressed as 'if this goes on like this, then …'; 'if x happens, then …'; or 'if I act in this or that way, rather than in these other ways, then …'. From this baseline, possible future scenarios are deduced, but since information is always incomplete, every decision carries in itself a risk which is not completely calculable (for a discussion see, for example, Luhmann 1991: 84 ff.; Luhmann 1996). A decision is thus basically the selection 'of an action with the aim of producing outcomes at least as satisfactory as would result from any other available action (Yates and Stone 1992: 68).

On the one hand, worrying, which is always about the future, is a bodily experience in so far as in the Heideggerian sense of 'being in the world', the world can only be experienced through the body (Csordas 1994). Reducing uncertainty also means reducing the pain of worrying which we experience if unfavourable circumstances are expected and the situation is thought to deteriorate. On the other hand, worrying is an unpleasant psychological experience, since it involves 'preoccupation with thoughts about uncertain and

unpleasant events', as a response to a 'perceived level of risk [that] calls for a more intellectual judgement and worry tends to refer to emotional reactions' (Sjöberg 1998: 85). Worry may be related to bodily pain and/or psychological stress in the near future, or to punishment in the long term, even in the 'next' or 'afterlife'. Fear, that basic physical, mental/psychological or spiritual needs or wants may not be fulfilled if some action is not taken, are the prime movers behind actions that involve taking risk, and in principle, the greater the danger the more the willingness to take high risk (also because one feels one may have little to lose).

The releasers of worry and fear related to probable risk and the danger of 'loss' must be understood in relation to the different hierarchical structures of culture-specific values, and also in relation to individual circumstances (Rohrmann 1994). As Yates and Stone (1992: 69ff.) observed, in risk-taking situations and in risk evaluation we tend to synthesise the various risks involved into an 'overall risk appraisal' on the basis of our current situation, past experiences and specific emotions (cf. Böhm and Pfister 2000), but also according to our present culture-specific values, norms, needs and wants. All of these then dictate the risk-taker's choice of the appropriate coping strategy and behaviour vis-à-vis risk. In their chapter here, Böhm and Pfister analyse individual risk perception and define five antinomies that are typical for environmental risks: proximal vs. distal effects, short-term vs. long-term consequences, individual vs. collective perspectives, biospheric vs. anthropocentric orientation, and ethical vs. consequentialistic evaluation. They suggest that the mental representation of environmental problems implies these antinomies, and prevent straightforward solutions for both individual and societal decision-makers. They further argue that these antinomies are reflected in individual cognitive representations of environmental risks and thus affect risk evaluation, as well as individual environmental behaviour. They also outline a model that explains how these antinomies are processed in individual judgements and sketch some applications in risk communication and mediation, arguing that one means of conflict resolution is to identify and integrate such antinomies.

Even in situations that are objectively extremely life-threatening, some individuals may experience excitement and even happiness (e.g. during extreme rock-climbing); this is also true of contexts in which the 'loss' of life is considered minimal or negligible because the highest possible reward is expected in return for the life 'lost'. This, may occur, for instance, when people 'happily give their life for a greater cause' – seeing themselves and being seen by others as heroes or martyrs, as in early Christian martyrdom, among some contemporary Islamists, and generally in war propaganda. In such cases the individual is supposed to more or less voluntarily decide to suffer, in order to attain a socially high-ranking emotional, cognitive or spiritual reward.

Of Causes and Explanations

Being in the world inherently implies being endangered and hence all events and actions contain, under given circumstances and with a certain probability, one or more negative or undesirable effects for individuals and groups. In all societies people ask themselves implicitly or explicitly about the causes that lead to desired and undesired events. As discussed briefly above, especially in contemporary Western societies 'rational' and materialist models based on axioms of modern science are used to explain such events. To deal with a precarious situation this hypothetical 'rational actor' will consider various strategies, but also the differential risks that these may involve. But in many societies, including those in the West, such 'rational' explanations are either not sought, or even when they are, ultimate 'irrational'[8] or immaterial causes are found behind such 'rational' explanations. Not fulfilling duties – for example, the failure to perform the prescribed rituals for the ancestors, or the violation of religious prescriptions, such as drinking alcohol among Muslims or leading a 'sinful' life among Christians – and/or flouting social and moral norms (murder, adultery, theft, etc.) are often interpreted as sins for which due punishment is sent down by the relevant supernatural authority. Thus, for example, when AIDS broke out, the Pope eagerly explained that this was a punishment for the sin of homosexual behaviour and corrected himself only after protests, by saying it was 'a warning' from God. The idea that misfortune is a result of the violation of culture-specific taboos is at the heart of this cognitive process (cf. Casimir 1987; Casimir 2004). As mentioned above, the misfortune that befalls an individual, a family, or even an entire community, for example in the form of an environmental disaster, can then be interpreted as the expression of just such a punishment or warning.

Among the Kanak of New Caledonia who imbue their natural surroundings with sacredness, as the realm of the spiritual and human ancestors, and where landscape features are an essential part of mythology and cultural heritage, some youth now blame Western economic activities for the degradation and destruction of their environment and hence also for the painfully felt loss of their tradition and culture (Horowitz 2001). In their papers in this volume Goebel, Schlehe and Seitz refer to such immaterialist, cognitive linkages in Argentina, Indonesia and the Philippines respectively. However, as some of the other articles in this volume show, in most societies even before disaster strikes or while in the midst of deciding how to deal with it, people cogitate about their possible causes. The pastoral Hima of southwestern Uganda are thus convinced that any contact between women and cows will certainly lead to disaster (Elam 1973 in Boholm 2003). Often in search of guilt, people detect 'causes' which they relate to the violation of religious duties or social norms (cf. Casimir 2004; Douglas 1985: 53). An expected disaster is then linked and understood as punishment and preventive measures are taken. Repentance and purification rituals and other religious acts are then performed to placate the punishing supernatural forces.

A combination of strategies based on both materialist and immaterialist causal links – what Boholm (2003: 165) refers to as an 'amalgamation of objectivity and subjectivity' – seems to be what most people in all societies actually do to cope with danger and risk. It seems that the more life-threatening the perception of a situation, the higher the likelihood of 'irrational' strategies being applied simultaneously with 'rational' ones, sometimes leading to dilemmas concerning their mutual compatibility; failing the effectiveness of the latter, only the former may be resorted to. As Barbara Goebel shows in her chapter here, there is often a cultural logic to economic practices. Discussing data on the cultural handling of uncertainty in a pastoral community of the Puna de Atacama, in northwestern Argentina, she shows how success in handling these uncertainties depends, from the local perspective, largely on two factors: the technical knowledge of each herder and his/her emotional commitment towards the flocks. The former, which rests on long experience, is transmitted within each household from one generation to the other, and is further added to through daily practice. However, it is felt that in order to cope with these risks it is not sufficient to become a skilful herder; households must also minimise uncertainties by the effective management of luck potentials. Luck (*suerte*) is the innate capacity a person has (or does not have) to positively influence the procreation of herd animals. This individual luck potential can be exploited adequately only if it is known socially and if its use is embedded in a reciprocal relationship with Mother Earth (*Pachamama*). Goebel discusses how herders try to accumulate and stabilise their luck through social networks, rituals and the respect of norms concerning the modes of interaction with their environment. This analytical perspective, she suggests, also provides tools to explain why conflicts arise when local perceptions of risk are confronted with development propositions of 'experts', such as agronomists and politicians.

Uncertainty, Risk and Vulnerability

In recent decades the concepts of 'uncertainty and risk' have often been successfully discussed and used by anthropologists under different aspects (e.g., Boholm 2003; Caplan 2000; Cashdan 1990; Douglas 1985; Douglas 1992; Giordano and Boscoboinik 2002; Rao 2000; Scoons 1995; Salter 2002), in cultural studies (Lupton 1999a,b), by geographers (e.g., Adams 1995; Kasperson et al. 1995), and sociologists (Adam et al. 2000; Beck 1992; Luhmann 1990; Luhmann 1991), to better understand how humans make decisions in order to solve social, political, economic, environmental and health problems that threaten their well-being. The basic assumption has been that with declining information about threatening situations, uncertainty, together with feelings of insecurity, grows. This uncertainty refers to the probability with which future events can be foreseen correctly. The higher this uncertainty, the lower the probability of finding the best (or an optimal) strategy as a countermeasure. How individuals

cope with their problems under the constraints imposed by various socio-political and environmental factors are the topics of these different studies.

However, there still remains a certain confusion about the connotation and application of the term 'risk'. 'Risk(y)' and 'danger(ous)' are usually used interchangeably to describe specific situations, actions or decisions: for environmental phenomena synonymously with 'hazardous', to denote events such as floods, earthquakes and environmental pollution; for lifestyles with regard to specific foods or drugs; and even for interpersonal emotions and situations as for love, friendship and parenting (see for instance Lupton [1999a: 13f.], who identifies six such major categories of 'risk'). If everything can be more or less 'risky', then we need to know under which circumstances events can be classified or are interpreted as 'threatening' or 'dangerous'.

In principle as Luhmann (1990; 1991: 117; Luhmann 1996) pointed out, it is possible to differentiate between 'risk' and 'danger', because 'risks are decision related, while dangers arise externally'. However, the involvement of the decision-maker in the actual process of decision-making contradicts this hypothesis, since the risks the decision-maker takes in themselves constitute a danger for him. We are thus confronted with a classic social paradox: 'risks are dangers and dangers are risks because here we are dealing with the same factuality that is observed differentially, requiring the differentiation of both sides. The same is different' (Luhmann 1991: 117, translation mine).

To define or describe the phenomenon 'risk',[9] two very different approaches are usually used. One, the standardised and rigid 'scientific' Western definition based on contemporary insurance mathematics, which relates the term 'risk' to the probability of the amount of loss that results from a given event, or when a specific strategy has been decided upon (e.g. Farny 1995: 17ff.). The other, what Lupton (1999a: 35) referred to as a 'strong constructivist' epistemological position which holds, that 'Nothing is a risk in itself – what we understand to be a "risk" (or a hazard, threat or danger) is a product of historically, socially and politically contingent "ways of seeing"'. Labelling specific situations as 'threatening', 'risky' or 'dangerous' depends not only on the attributing individual's socio-cultural context, but also on his/her past experiences that were eventually embedded in situations comparable to the current one. As so often, a middle path seems to be the most useful; one that acknowledges that there are objective risks/dangers (related, for example, to basic human needs or life-threatening situations), but that these are often mediated differentially through individual, cultural and historical processes (cf. Lupton 1999a: 35; for the interrelationship of risk, culture and health see Harthorn and Oaks 2003).

Lupton's approach seems to be the most useful when attempting to understand decision-making and related behaviour in different cultures. This is not only because of the culturally different connotations of and attributions to 'risk' and 'danger', but also because of different value and norm relatedness. Thus, if we aspire to cross-cultural comparison, we must first enquire how situations that we

would classify under the ambiguous term 'risky' are interpreted by different individuals in different cultural settings, and which terminology they apply to denote and connote the possible negative effects of different events (cf. Rohrmann 1994). The universal application of only contemporary politically and economically dominant Western concepts of risk and uncertainty in understanding the behaviour of peoples in all cultures and at all times in history is doomed to fail, since these concepts are closely related to current Western values and norms. What under comparable economic circumstances is considered a minor threat or loss by an individual in one group may be understood as a major one by someone elsewhere (see e.g., Spittler 1989a,b; cf. also Hill 1985). Therefore different risk perceptions in which 'reference is made to a judgement that there is a risk of a certain size at hand' (Sjöberg 1998: 85) have to be analysed, taking into account varying cultural, class- and gender-specific perceptions and attitudes. Fieldwork experience in the non-Western world also shows that many languages do not differentiate between a threatening situation per se (e.g., a hailstorm or a lion, which in English we may describe as 'dangerous') and a situation in which a decision has to be taken between alternative strategies, all of which we may consider more or less risky. In all these situations only one term may be used which can be glossed as 'danger' or 'dangerous'; many of the papers in this volume exemplify this pattern.

Every human behaviour has a differential effect: first, on some or all the other members of the group; second, on other human groups in this habitat; third, on the non-human animals and vegetation; and last but not least, on the inanimate factors, such as climate and soil quality. Some behaviour is explicitly directed towards changing an environment (e.g., deforestation, use of fertilisers, pesticides, etc.), other environmental changes are the result or outcome of enterprises designed/planned to fulfil primarily socio-political purposes (e.g., infrastructural developments like building roads, dams, etc.). In both cases, negative side-effects which change the environment usually take place, but are often nonetheless accepted as inevitable. Often such changes have an unexpectedly direct and negative influence on the actor's present or future well-being, leading to spirals of new actions and counteractions. The effects of an action taken by an individual to optimise his/her situation may also lead to more or less pronounced environmental changes which could be judged by him/her as negligible or unbearable. If such environmental side-effects are in great conflict with his/her environment-related moral sentiments, he/she may decide not to act in this manner again.

In recent years geographers (Kasperson et al. 1995) and psychologists have begun to empirically analyse human–environment interactions and the resulting problems. In psychology, socially mediated risk perceptions and evaluations (e.g., Böhm et al. 1998; Jungermann and Slovic 1993a,b; Pawlik 1991; Stern 1992; Yates and Stone 1992) often based on implicit causal hypotheses (e.g. Böhm and Mader 1998), social learning and institutional change in the environmental

context (e.g., Breit et al. 2003) have been the focus of much research. 'Hazard', 'catastrophe' and 'disaster' are overwhelmingly anthropocentric categories which are largely culturally constructed (Hoffman and Oliver-Smith 2002; Jungermann and Slovic 1993a). However, the culture-specific appraisal of environmental degradation or environmental dangers like floods or droughts have received very little attention. The hazardous situation of the agropastoral communities in the Indian Thar Desert, for instance, which in many societies would be appraised as extremely dangerous, is understood there as fairly normal. Because of the high frequency of droughts; only extreme forms of deprivation are classified there as dangerous (Rao, pers. comm.). Indeed, the manner in which objectively precarious conditions are perceived by those who live in them as 'dangerous', and the degree to which an individual considers these as threatening often varies greatly from culture to culture, and within cultures, depending, for example, on what Amartya Sen (1990) referred to as the issue of 'human capabilities'.

The dangers people are exposed to and the risk they face in a given environment are indeed twofold. On the one hand they face more or less recurrent and hence relatively predictable hazards – recurring droughts, floods, earthquakes, etc. On the other hand they are more or less exposed to such events, depending on the political, social and economic circumstances under which they live. Such circumstances structure the safe or unsafe conditions which make people more or less vulnerable to these hazards and dangers (Hilhorst and Bankoff 2004). Therefore, to understand why disasters occur, Blaikie et al (1994: 2) explained that 'it is not only the natural events that cause them. They are also products of social, political, and economic environments (as distinct from the natural environments) because of the way they structure the lives of different groups of people.'

No wonder that usually it is the poorer and often suppressed part of society which suffers most when natural catastrophes occur. Another major and largely neglected aspect of risk, danger and disaster is the political use of their apparent inevitability, especially given the impact of globalisation on vulnerable populations (see Oliver-Smith 2004 for an interesting discussion; also Robbins 2004; Zimmerer and Bassett 2003). Barbara Casciarri's chapter here focuses on this issue in the changing environmental conditions in six oases of southeastern Morocco. She shows how variously the all-pervasive disaster of drought is perceived here, and talked about by farmers, pastoralists, religious specialists and ex-slaves in this region that lies on the old caravan route from Timbuktu. Her analysis brings out the multi-levelled perception and discourse regarding the assumed inevitability of the lack of water – a lack largely exacerbated by the Moroccan state's water policies.

Information and Transaction Costs in a Changing World

Today, with the individual everywhere hedged in by the increasing pressures of the forces of globalisation, local concepts and perceptions, however meaningful, are becoming more and more marginalised. Regional and global policies affecting local decision-making have also multiplied, and with this, the transaction costs involved in developing optimal strategies to solve long-term problems. But more often than not, individuals lack considerable information and are hence not in a position to understand the functioning of the various new systems and subsystems with which they have to cope. The complex yet largely familiar systemic intermeshing of factors with which they dealt under more 'traditional' conditions have now mutated into hyper-complex probabilistic systems, which they have great difficulty in managing. Under such circumstances much 'indigenous knowledge', and many of the 'traditional culture-specific' strategies with low transaction costs, can no longer be used singly to solve the problems that arise with relatively sudden economic, socio-political and environmental change. New coping strategies are either not yet devised or, if they are available, there is not enough information on their functioning and application.

This lack of information also leads to a high degree of uncertainty[10]. People may be afraid of taking the wrong decision because they are reluctant to run the risk of applying a new strategy whose effects and outcomes they cannot yet estimate. Such situations can be witnessed in a variety of contemporary contexts undergoing drastic processes of transformation in the Southern Hemisphere and in the societies of the ex-Soviet Republics (Hann 2002; Finke 2004).

But such uncertainty is equally evident in many highly industrialised and capitalist Western contexts where, for example, there has been growing insecurity among farmers in recent years. The public in many Western countries has become increasingly concerned with issues concerning the safety of foodstuffs (Gewin 2004; Stokstad 2002; Woodward 2002). Soil conservation, which 'remains firmly … at the foundations of human life' (McNeill and Winiwarter 2004), the conservation of microfauna and the prevention of erosion can be better attained by organic farming or by combining organic and traditional methods (Macilwain 2004; Mäder et al. 2002). However, better quality can be attained only with a higher labour input and this usually leads to higher pricing, therefore organic foods usually cost much more than those produced by conventional methods using artificial fertilisers, pesticides and even genetically manipulated seeds. As Döring et al. show in this volume, German farmers who decide to use organic methods are more insecure about the success of their undertaking and about the development of market prices, especially because the distribution networks for the sale of their produce are not yet well organised.

Global Concerns and Human Behaviour

With increasing environment-related problems over the last few decades, the overall interest in a 'Human Ecology' has grown and, together with the rise of environmental consciousness, the environmental sciences are now focusing not only on local problems, but are also trying to link these to the global situation. The best known and constantly discussed example is the interrelation between the depletion of the ozone layer (cf. Anderson and Sarma 2002) through FCKW (FH) and related compounds, the increasing production of CO_2 leading to the greenhouse effect and global warming, and the threat of the rising seas (for an overview see Walther et al. 2002). It was primarily with the 1987 'Montreal Protocol on Substances that Deplete the Ozone Layer' (and the 'Club of Rome' 1992) that global ecological consciousness rose. 'Think global and act local' now became one of the slogans created to make people aware of the pressing ecological problems and disasters we are all facing.

The possibility of solving pressing global problems is, however, more often than not blocked by a variety of economic and political interests. A well-known example is the problem of reaching an international agreement on the reduction of CO_2 emissions. The excessive emission of harmful substances that cross national boundaries and the disasters caused by tanker accidents in offshore waters are examples related to the well known 'Tragedy of the Commons' and the problem of 'free riding'. Many governments, even when they are aware of their pressing environmental problems, are so preoccupied with economic, defence and political problems that the environment comes as a late or no topic at all on the political and fiscal agenda. Thus, for example, in December 1997 the U.S.A. refused for economic reasons to sign the Kyoto Protocol (International Climate Policy for the Twenty-first Century), although it emits almost one-fourth of the world's greenhouse gases (Harris 1997: 269). Similarly, in the recent 'United Nations Water Development Report' (*Water for People, Water for Life*), India figures third-worst in a list of 122 countries regarding the pollution of its rivers, the availability and quality of drinking water, and its ability and commitment to improve the situation. The environment simply does not figure as a topic in the annual budget for 2003, which allocates US$ 100 billion over the next ten years for the purchase of weapon systems (Kumar 2003: 13). Economics and politics have always played a role in environmental management at the global level. The recent international competition for selling tsunami warning systems well illustrates this. Even 'aid' given for disaster relief is taken from the funds routinely set apart for 'development assistance' by rich countries.

Even when international environmental agreements are reached, the question remains of how these agreements match local perceptions of environmental crises and preferred local coping strategies. This crucial question is considered by Anita Engels in her chapter here. Examining the case of a coastal zone in Senegal, she argues that there is a large gap between global resource management schemes

stemming from international environmental agreements and the heterogeneous perceptions and coping strategies of the local population. Using the example of the Framework Convention on Climate Change (FCCC), she shows how a variety of different coping strategies is narrowed down to one dominant coping model. Also, the way in which the use of resources is linked to gender is made invisible by this dominant model, which provides a technical and cost-benefit-oriented approach. Even more importantly, she argues that different international environmental agreements develop diverging and sometimes contradictory schemes of global resource management.

Political Ecology and the Quest for Sustainable Development

The human-environment interface and the problems of environmental degradation were of little concern to sociologists of the mid-nineteenth and early twentieth centuries. As Goldblatt (1996: 2–6) notes, their references to the 'natural world' were too unspecific, and factors such as population density were seen only as a driving force of human history and a motor for social stratification. Their knowledge of biological and ecological facts was rather limited. While Durkheim, for example, rejected all forms of biological explanation and branded these as deterministic, Weber denied the importance of psychological and physiological explanations. Culture-specific cognitions, which we now know are of major importance for the way we understand the environment and react to environmental problems, were simply ignored (see in this volume Böhm and Pfister; Döring et al; Hoeppe). Even Marx, who saw 'labour' as the key variable that mediated between the natural world and human societies, never discussed the interdependence between the various factors. Hawley (1984: 914) was right in observing that 'a greater sensitivity to environmental effects could have enriched Marxian theory, just as a further development of the political-economic implications of its theory can raise the explanatory power of human ecology'. Modern sociologists such as Giddens (1990), Luhmann (1985) and notably Beck (1992; Beck 2000) have now dealt intensely, but mainly theoretically (cf. Grundmann 1999) with the relationship between modern technology, science, environmental degradation, social institutions and political power; for a critical evaluation of Beck's 'Risk Society' see Adams (1995: 179ff.) and Adam et al. (2000). These different approaches try to find an answer to why both socialist and capitalist political institutions failed to solve the environmental problems which they partly created, and most of them discuss different social theories and their approaches to environmental degradation. As Goldblatt concludes (1996: 202f.):

> We know that environmental degradation is dangerous. We know that we cannot go on as before. But how to go on, how to live individually and collectively, how to make the transition soon and how to persuade the intransigent, the selfish, the powerful and the uninterested? These are the questions that neither classical

> socialism nor contemporary social theory have provided sufficient intellectual or moral resources to answer.

In the late 1970s and 1980s many geographers, and notably researchers working in the field of Development Studies (e.g. Blaikie 1985; Blaikie and Brookfield 1987; Kent 1987; Robbins 2004) analysed the interdependence between political structures, economy, ecological catastrophes, disasters and human suffering (for an excellent case study see Upham 1987). They argued that a better understanding of human and cultural ecology can be obtained only on a broad interdisciplinary basis that considers political power relations in a wider theoretical framework (e.g. Bryant 1998; Bryant and Bailey 1997; Drèze and Sen 1990; Escobar 1996; Escobar 1998). This political ecology approach argued that only by analysing the various complex regional interdependencies between political institutions, economic systems and ecological conditions, and by applying measures to counter degradation, can pressing global environmental problems eventually also be tackled in the quest for sustainable global development in which both the economy and the environment are in a state of resilient equilibrium (Engels and Moss 2003; Mitchell 2003).

But critics have argued that here, again, this is only one side of the medal and that political ecology tends to neglect the 'natural' side in the analysis of disasters (e.g. Vayda and Walters 1999; see also McCabe 2005: 240). Only with the increasing influence on state policy of local and international environmental institutions representing the broadest possible constituencies can the local and regional antagonisms between political, economic and environmental goals on the one hand and global ecological concerns on the other be bridged. To this end changes are necessary in the many formal and informal institutions, in rules and social practices (see also Little 1999). This is perhaps especially true in the rapidly urbanising context of many societies. In their paper Krüger and Grotzke focus on this issue in the context of the changing characteristics of risk perception and coping in rapidly transforming rural Botswana. Their data show that households tend to rely increasingly on national relief, and expect the government to intervene in times of drought. Traditionally successful coping and adaptive measures, which included rural-urban linkages, are being forgotten. Government concepts of relief also tend to ignore the importance of such linkages as a safety-net for vulnerable urban groups. With the state attempting to stabilise endangered livelihood systems by introducing national welfare schemes, local perceptions and concepts of risk, drought, livelihood insecurity and destitution, as well as coping strategies and certain adaptive measures, are now being either complemented or even partly replaced by new mechanisms of risk management, which are, however, not unproblematic.

Approaching Equilibrium – Sustainability Again

As discussed earlier, individuals of all species try continuously – consciously or unconsciously and in accordance with their capacities – to accommodate and adapt to their ever-changing social and environmental situations in order to enhance well-being. Thus understood as systems, environments and the habitats of all species and communities are in constant flux. These systems may theoretically approach a state of equilibrium swinging to and fro over short spans for briefer or longer periods of time, and for moments even reach a steady state (cf. Foin and Davis 1987). If some environmental variables, understood as disturbances, reach a certain level, some 'players' (species or groups) may leave their habitat, become drastically reduced in numbers and/or some invaders may occupy the now empty or new niches. The system may then exceed its resilient capacity and transform to a state with a different structure and some new interdependent functions, and move around a new equilibrium. In extreme cases, events which change the system affect a human population in such a way that they are experienced as a disaster, and the well-being of the majority declines drastically.

Continuing with the 'ecosystem approach' (e.g., Moran 1990), what is now termed the 'new ecological thinking' 'has become the study of "disturbance, disharmony, and chaos" (Worster 1990: 3). According to geographer Karl Zimmerer the "new ecology" accents disequilibria, instability, and even chaotic fluctuations in biophysical environments, both "natural" and "human impacted" (1994: 108)' (McCabe 2005: 4–5). However, here again the question of the observational time-scale arises. It is only in times of drastic environmental changes, when whole populations (human and non-human) are suddenly threatened, that we can speak of a 'non-equilibrium ecosystem', of 'disturbance' and even call it chaotic. Long term changes of the 'natural' environment are only detectable in retrospect. If, for instance, a biotope slowly, say in some hundred years, changes its species composition due to an invader, we would find a 'harmonious' intermeshing of species tied together in a more or less complex food-web.

The notion of equilibrium brings us to a second notion, that of 'sustainability'. This was one of the keywords used at the 'United Nations Conference on Environment and Development' (UNCED), or 'Earth Summit', held in Rio in June 1992. Chapter 13 of Agenda 21 as approved in Rio deals with the management of fragile ecosystems, especially highly endangered mountain systems of the world. The text for this chapter was drafted by the International Centre for Integrated Mountain Development (ICIMOD 1992: 1, cf. also Ives 1993); Programme B states that its objectives are: 'to promote income-generating activities; such as sustainable tourism, fisheries, and environmentally-sound mining, and to improve infrastructure and social services; to protect the livelihood of local communities and indigenous peoples'.

The term 'sustainability' was, however, not defined either at Rio, or on any other occasion by any institution. Indeed, the term has been used at various times with varied connotations, and as Lélé (1991: 613, see also Lélé 1996) comments, it has become 'a "metafix" that will unite everybody'. It often carries with it the vague implication of an even vaguer state of being 'in harmony with nature' (Murdoch and Clark 1994).

In the fields of economics, ecology and resource management, expressions such as 'sustainable development', 'sustained yields', 'optimum sustainable yield' or 'maximum sustained yield' are commonly used, but as Kalinin and Boykov (1972: 361) remarked, 'The general goal of management of a biological resource is maximum sustained yield, a nebulous term at the very best'. They went on to explain:

> Maximum sustained yield implies the removal of production from a stock over and above that needed to replace the amount removed. Theoretically, for maximum yield the standing crop at harvest time should be the maximum biomass the ecosystem will support. Harvest or removal takes the population down to a level at which the amount removed can be replaced by the remaining stock by the next harvest period. But in practice the maximum sustained yield is quite variable depending upon the size of breeding stock, or principal, the exploiter is willing to allow to remain. The maximum sustained yield then depends upon the size of the principal. The lower the principal, the lower the sustained yield, generally. What constitutes a low principal is, of course, highly dependent upon the biology of the … species involved. (Kalinin and Bykov 1972: 361)

In the case of coastal fish populations for example, the new laws and regulatory devices which aim at solving the problems of over-exploitation 'require that fisheries be managed for attainment of what is called Optimum Sustainable Yield (OSY); that is, the most you can take and still maintain the fish stock'. But Bennett (1990: 446f.) pointed out that however benign the goals,

> the law itself made no attempt to define Optimum Sustainable Yield for the simple reason that no one knew how to define it or what types of data to include in the definition. Nor was there any systematic attempt to define the human institutions and activity patterns which modify the physical circumstances.

Even a 'simple' relationship between a single predator and a single prey is complex. No wonder, then, that the idea inherent in the term 'sustainability' – that of maintaining, if possible infinitely, an equilibrium between all populations in a biotope or habitat (cf. Gurung 1993) – is so highly problematic. It implies that the various populations at the different trophic levels, which interact with one another in an ecosystem forming a highly complex food-web, must remain more or less stable in a climax situation. It is of course impossible to reach a state in which all the species involved remain for long in such equilibrium that

mortality does not exceed natality, or vice versa. Such an hypothetical state would consolidate a system in which no change would – and from a human point of view should – take place, once the homeostatic goal had been reached. Alternatively, if one 'player' in the game changed, all the other 'players' involved would as rapidly as possible have to change their strategies in such a way, that they would 'co-evolve' (Norgaard 1992), and thus with the least effort homeostasis would once again be attained. This would imply either that the human populations concerned would remain stable and no cultural change would take place, or that every cultural change and innovation would be accompanied by management strategies which counterbalanced all the possible negative effects on all the other populations involved. Hence a definition of sustainability such as that advanced by Viederman (1993: 179) must remain a completely unrealistic concept:

> A sustainable society ensures the health and vitality of human life and culture and of nature, for present and future generations, by *ending* activities that destroy human life and culture and nature, by *conserving* what exists, *restoring* what has been damaged, and *preventing* future harm.' (italics in original)

Even this all embracing definition distinguishes between human life and 'nature', and indeed all existing discourse on 'sustainability' and 'sustainable development' has basically only the well-being of human populations in mind, all other species being protected not for their own sake, but only in so far as they are important factors in supporting human life and well-being. The Brundlandt report, for example, states that 'Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.' (WECD 1987: 43). There is, however, no attempt here to differentiate between the terms 'needs' and 'basic needs', and furthermore no effort has been made to distinguish either of these from 'wants', which are often culture-specific. In an even shorter version, the report of the World Bank (WBR 1992: 8) offers the following definitions:

1. Development is about improving the well-being of people,
2. Sustainable development is development that lasts.

The general problem with all such highly generalising definitions is that they are based on fairly static concepts (for dynamic approaches Lance et al. 2002). The well-being aimed at must of course be directly linked to 'needs' and 'wants', but both are related to changing norms and values which vary not only over time, but also between societies, ethnic and religious communities, class, gender and age groups. Reducing 'needs' to 'basic needs' would a priori deny many populations their culture-specific wants, and these have indeed been neglected and disregarded far too often as irrelevant, if not outright irrational in the eurocentric

development concepts inaugurated by Western aid organisations and faithfully followed by national policies in the countries of both the North and the South (Sen 1990). Furthermore, the well-being of an individual or group can not be conceived of as a final state that can be reached, but as a goal which must be constantly redefined under the constraints of ever-changing local and global circumstances. Each developmental step which leads to attaining a desired goal opens up the prospect of new goals, with the promise of even higher levels of conceivable well-being.

Until now, humans seem rarely to have been able to disregard possible changes which promise them improvement, even if these are at the cost of other humans, let alone non-human populations. However, if we start at the local level and try to reach the possible, any discussion of sustainability must begin, as Haripriya Rangan (2000: 191) suggests in her history of the Chipko movement of the Garhwal Himalayas,

> by addressing the regional question of improved access to resources and social well-being in the *present continuous*, and not as a state that might be restored by return to an idyllic past or miraculously created in the distant future. Sustainability needs to be redefined in terms of social practices that enable the continuation of the lived dimensions of social life through diverse pathways that are open-ended and changeable.

Such open-endedness could question the generalised goal wherein a socio-political system strives for the 'maximum happiness of the maximum number of people'; it could imply a constant search for a steady state between the changing 'lived dimension of the social life' and the changing environment. Until now, however, humans as hedonists (Phillips 2003) seem to have striven more often towards a maximum, and tended to overexploit the environment's use-value. We have a long way to go before we understand that, as Hardin's aphorism goes: 'the maximum is not the optimum' (quoted after Easterbrook 2003). This would lead to a new paradigm by which we would strive for 'optimal happiness for the optimal number of people'. This optimal number must be understood in relation to the possible sustainability of as many individuals in human and non-human populations as possible. We cannot hope that the means for such an end will develop 'automatically' by an evolutionary process. Sustainability, with its different dimensions (cf. Stirling 1999) can only be approached by the formulation of a set of open-ended laws, based on a non-anthropocentric moral. These general laws have to comprise rules by which they can be adapted to solve specific local environmental problems which emerge from the constant interplay of the culture-specific 'lived dimension of the social life' and the 'non-human environment'.

Conclusion: Sustaining Biodiversity and Human Well-Being

As mentioned earlier, the promoters of nature conservation and 'sustainability', who have written the intrinsic value of (rare) plants and animals on their banner, often find themselves in opposition to local communities of land users. Also, many of them, especially biologists, who fight for the sustainability of biodiversity, do not integrate or consult local communities in the planning process of their projects and thus at least appear implicitly opposed to all those who are concerned with the well-being of present and future human generations. Yet it is clear that 'Conservation is about people as much as it is about species or ecosystems' (Bawla et al. 2004; Mascia et al. 2003: 1; in Berkes 2003: 94; for an overview see O'Riordan et al. 2002).

There is, of course, a logical link between the terms 'development', 'sustainability' and 'conservation'. Most descriptions and definitions of these terms, however, take into account only the anthropocentric human use-value (Dasgupta 2001: 124). Thus, for instance, 'development' was defined by the IUCN (1980) as:

> the modification of the biosphere and the application of human, financial, living and non living resources *to satisfy human needs and improve the quality of human life*. For development to be sustainable it must take account of social and ecological factors, as well as economic ones; of the living and non-living resource base; and of long term as well as the short term advantages and disadvantages of alternative actions [italics mine].

Similarly, for Kasperson et al. (1995: 25) 'sustainability', specially 'ecological sustainability'

> refers to situations in which nature-society relations are so structured that the environment can *support the continuation of human use-systems, the level of human well-being*, and the preservation of options for future generations over long time-periods [italics mine].

Along much the same lines, 'conservation' was defined by the IUCN (1980) as

> *the management of human use of the biosphere so that it may yield the greatest sustainable benefit* to present generations while maintaining its potential to meet the needs and aspirations of future generations. Thus conservation is positive, embracing preservation, maintenance, sustainable utilisation, restoration, and enhancement of the natural environment … [italics mine].

The term 'environmental degradation' is equally or primarily related to its negative effects on human well-being. Other populations are explicitly or implicitly taken into account only for their utilitarian and sometimes aesthetic

value (cf. Goldblatt 1996: 28). But from a non-anthropocentric and perhaps ethical point of view we must enlarge our perspective and include in our ideal of 'sustainable development' also the demand for the intrinsic value and well-being of all (other) species. We would then be obliged to reformulate our anthropocentric ethics towards an universal one somewhat along the lines of Albert Schweitzer who, as early as in 1931, observed that

> The great mistake of all past ethics is, that they felt that they had to deal only with the behaviour of humans towards other humans … Ethical is only he for whom life as such, that of plants and animals as of humans, is holy … Only the universal ethic of an experience of responsibility which is enlarged into the indefinite responsibility for everything alive can be grounded in thought [translation mine].[11]

Sadly, however, such an universal ethic alone, even if it could be applied, will not be sufficient to preserve biodiversity. We as humans often prefer smaller, immediate returns over larger ones that are deferred (Fehr 2002), and therefore tend to avoid behaviours without any noticeable (and possibly altruistic) benefits. If we wish to preserve ourselves and as many of the millions of other species living on our planet as possible, we must take into account 'human nature' and the necessary fulfilment of our basic needs, as well as our culture-specific wants. But we must, especially in the West, develop cultures, in which changed norms and values counterbalance the expectations of ever-growing 'progress'. The political and economic strategies of present Western systems, leading to further North–South iniquities and the continuing exploitation and deprivation of the nations of the Southern Hemisphere, are one of the main reasons for the ongoing overexploitation of natural resources and the deterioration of many environments (e.g., Ehrenfeld 2003; Kothari and Ahmad 2003; Thaler 2004). Terms of fair trade are one of the major factors which can lead to the growth of well-being in these countries, finally also curbing the extremely high demographic growth-rates, which are among the key variables that cause many local ecological crises that further exacerbate the global ecological situation. We must above all consider the nature and degree to which formal, institutional definitions of human development, environmental change, sustainability and well-being (seek to) legitimise the interests of the politically and economically powerful and then try and redefine these based on the broadest possible consensus. Then, and only then do we also have a chance of ending the current continuous increase in human poverty and conflict that is accompanied by loss of biodiversity and of entire biotopes.

Notes

1. 'Was den Menschen umgibt, wirkt nicht allein auf ihn, er wirkt auch wieder zurück auf selbiges, und indem er sich modifizieren lässt, modifiziert er wieder rings um sich her.'
2. We may distinguish between cultural traits which are based on cognitive and behavioural innovations that are passed on over the generations and traits and capacities that are based solely on mutations, selection and adaptation. We should, however, remember that the ability to develop cultural capacities found in humans and in some higher non-human primates is also a product of the process of 'natural' evolution.
3. Much earlier attempts to question this, for example by the eighteenth century French mathematician Dupuis, did not go far (cf. Schama 1996: 250ff.).
4. Dramatic environmental events, long viewed from an exclusively anthropocentric perspective, are gradually being classified as 'disasters' and perceived more biocentrically. The *Exxon Valdes* and other oil spills and the mass destruction of avian species in the Persian Gulf during the first Gulf War are two examples.
5. This is true also of religions and philosophies which are said to be concerned with non-violence in general (see e.g., Cort 2002).
6. The comparison of royal gardens, parks and specific landscapes with 'Paradise' is ancient. Aelian (Claudius Aelianus) refers to such domains in India and Iran (Hughes 1998: 82ff.) and Inden (forthcoming) discusses similar traditions within South Asia.
7. See, for example, Kuper 2003 for a critical discussion of the term 'indigenous peoples'.
8. I am aware of the problems involved in using the terms 'rational' and 'irrational'. If logical thinking is defined as based on a search for cause-effect relations, then the connotation 'irrational' makes little sense. For the believer, an 'act of God', or of demons, is as causal and logical as the law of gravitation is for a physicist. The distinction here should connote both kinds of logic.
9. The origin of the English term 'risk' and its French and German equivalents is not clear. They could stem from the Arabic '*rizq*' or the Persian '*ruzî*', which denote those gifts from God which sustain life and daily food respectively (cf. Ashbaghi 1988: 135). Alternatively, they may derive from the Greek word '*risikón*' denoting a rock or a cliff which threatens the sailor and his ship. Meaning 'danger' and 'daring', *risico, risco* emerged in middle-Italian and *arsisco, risgo* in Spanish (cf. Lokotsch 1927; Schulz/Basler 1977: 452–53). It seems that the ambivalence of the term – intrinsic or decision-related danger – arose only with the onset of modernity (cf. Bauman 1993: 1ff.) when it came to be used, from the sixteenth century, among merchants to also denote the dangers inherent in decision-making.
10. For a detailed discussion of the different types of uncertainty (known, unknown and unknowable) and their influence on decisions see Chua Chow and Sarin 2002.
11. 'Der große Fehler aller bisherigen Ethik ist, daß sie es nur mit dem Verhalten des Menschen zum Menschen zu tun zu haben glaubt … Ethisch ist er nur, wenn ihm das Leben als solches, das der Pflanzen und der Tiere wie das des Menschen heilig ist … Nur die universelle Ethik des Erlebens der ins Grenzenlose erweiterten Verantwortung gegen alles, was lebt, läßt sich im Denken begründen …' (Albert Schweitzer 1931).

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Introduction

Carl A. Maida

Sustainability, Local Knowledge, and the Bioregion

The concept of sustainability holds that the social, economic, and environmental factors within human communities must be viewed interactively and systematically. The Brundtland Report (World Commission on Environment and Development, 1987) defines sustainable development as meeting the needs of the present without compromising the ability of future generations to meet their own needs. In 1996, an international group of practitioners and researchers met in Bellagio, Italy, to develop new ways to measure and assess progress toward sustainable development. The Bellagio Principles (1997) serve as guidelines for the whole of the assessment process, including the choice and design of indicators, their interpretation, and communication of the results.

Desmond McNeill (2000) identifies a conflict of interpretations over the concept of sustainable development among various "actors" who have a stake in the sustainability debate. These include academics, activists, and bureaucrats, both legal and political, whose divergent perspectives, interests, and assumptions translate into competing claims as to the very definition of the term. McNeill locates the conflicts among these differing disciplines and professional orientations as arising from earlier debates about poverty, development, and environmental protection, and he calls attention to an emerging conflict between "technicists" seeking technical solutions to environmental problems and "humanists" whose critical perspectives move toward political solutions. Blake Ratner (2004a) calls for an integrated approach toward resolving the polarizing tendencies within the debate. Ratner singles out political economists, rational choice theorists, and cultural institutionalists, positing that their key perspectives, namely equity, efficiency, and cultural identity, respectively, are "three legs of a stool" and therefore necessary elements of any socially acceptable response to sustainability.

Although broadly conceived, the pursuit of sustainable development is a local practice because every community has different needs and quality of life concerns. Despite local variation, the participation of ordinary citizens, or "deliberative democracy," remains constant across the sustainable community movement (Hempel 1998; Agyeman & Angus 2003; Ratner 2004b). In rural areas undergoing rapid development and urban areas transformed by planning, renewal, and clearance, new partnerships are forming on behalf of sustainable development. Residents, and state and nongovernmental organization (NGO) experts, are partnering to design indicators and to monitor land, labor, housing, health, and other quality of life concerns. Civic engagement by ordinary residents is essential as local people have practical experience and bring important intuitive insights to the tasks of indicator design and monitoring. Jane Jacobs (1961) argued on behalf of such "self-diversification," or neighborhood transformation that reflects the vitality, mobility, and aesthetic interests of its residents.

An "ideal" sustainability indicator would be an interactive measure of how long and how well a certain feature of the quality of life or the health of a natural system could maintain itself. Such a measure would require a clear definition of the limits or carrying capacity of a system, or region, or community, to continue on without degrading the environment or decreasing biodiversity while sustaining human and biological life at a certain healthy level. True sustainability indicators will have to wait until both social science and ecological science give us better and measurable models of the operation of interacting systems and until economic measurements can be accurately correlated with social and environmental factors.

However, the interactions and shared effects of economic activity, human society, and the environment can be measured, if not precisely at this stage, at least with some clarity about how they in general improve or degrade each other over time (Bossel 1999; Hart 1999; United Nations 2001). This involves devising custom-made measures of a local system and stipulating from a values perspective what are desirable or undesirable effects. This requires a combination of artfully designed measurement devices and human-defined goals (Haughton & Hunter 1994; Roseland 1998; Meter 1999, 2002). It will also require a better grasp of philosophical and ethical issues surrounding sustainable development (Lee, Holland & McNeill, 2000).

Holistic planning theory has begun to recognize the connection between ecological principles, such as conservation, biodiversity, and restoration, and social scientific principles, such as human scale, social equity, and human development (Archibugi 1998; Beatley 1999; Calthorpe & Fulton 2001). Those who adopt these principles—New Urbanists, advocates of "smart growth" and "livable cities," and proponents of sustainable communities—are rediscovering the vision of "the regional city" as the basis of good and equitable planning and design (Goodman & Goodman 1960; Luccarelli 1995; Duany, Plater-Zyberk & Speck 2000).

The idea of sustainability returns to the notion of the region as the ground of both reason and democracy. Regional culture provides not only a diversity of practices for its citizens to experience but also local perspectives to shape their personal identities. These experiences engender a collective identity and ecology of public symbols that help a community to define place-centered ethical and aesthetic norms. Once internalized, these norms provide individuals with the coherence that fosters more immediate and spontaneous forms of interaction.

This lay form of civic community relies upon a distinct way of knowing that differs from yet is supportive of the universalistic assumptions of the Enlightenment. Clifford Geertz (1983) refers to this way of knowing as "local knowledge" and contends that this form of "fugitive truth" can still be derived from contemporary practices, such as politics, law, ethnography, and poetry, as all are "crafts of place" and "are alike absorbed with the artisan task of seeing broad principles in parochial facts" (Geertz, 1983:167). James Scott (1976), who, like Geertz, has studied Southeast Asian agrarian societies, observed a form of local knowledge in peasant economic, social, and moral arrangements. In the local economies of Burma and Vietnam, Scott found a "subsistence ethic"–or a right to a minimal guaranteed return on the harvest as a hedge against food shortages–embedded in the economic practices and social exchange relations of peasant community life.

Especially valuable in understanding this phenomenon in urban life is the work of social historians and historically informed social scientists interested in the structural aspects of social formations, particularly how their dynamics reflect changes in knowledge and civic culture. Robert Putnam (1993) investigated civic traditions in modern Italian politics and emphasized the primacy of "civic engagement" as a central form of civic virtue. Thomas Bender (1993) studies the extent to which the sense of civic obligation depends upon the character of "urban knowledges." Both seek to document the ways in which "civic community" is represented in what Pierre Bourdieu (1977) would call the habitus of modern citizens, namely the bundle of conventions and habitual ways and perceptions that order lives in particular times and places. Such lay initiatives represent what is perhaps the most fundamental and least appreciated form of civic engagement: the direct and highly active participation of citizens in public affairs by means of NGOs.

An area where considerable attention has been paid to local knowledge is that of bioregionalism, a concept based on ecological principles and traditions of vernacular culture. Bioregionalists envision a more equitable relationship between human and natural systems through reorganizing society around common ecosystems or bioregions and upon sustainable principles. The literature on common pool resources and common property has focused on environmental degradation and resource depletion, and scholars of the commons have offered community-based conservation as a corrective (Agrawal 2003). Some have

called for a "recovery of the commons" as a means of regaining local community through peoples' direct involvement in the web of the natural resources (Snyder 1990). This would come about through a revitalized sense of citizenship based upon shared governance around food, water, soil, and energy resources (Orr 1994). Some have even suggested that a "common covenant" could result if people allied themselves by virtue of a common watershed (Jackson 1987). Such a place-focused politics would become viable if local communities were rebuilt upon ecological principles rather than upon political or economic centralization. These "communities of place" would be complex and human-scaled—ones that forge connections between people, foster a sense of well-being, and ensure resilience in crises (Calthorpe & Fulton 2001).

Adaptive Learning and Human Survival

Sustainable development cannot be understood apart from a community, its *ethos,* and its ways of life. Cultural processes, such as norms, values, and expectations, operate as precedents to guide human adaptation, as in the case of a community facing development choices. Culture forms part of a milieu, or adaptive nexus, in which humans learn to cope by taking these precedents into account (Bennett 1996). It acts as a collective memory for human groups to store and retrieve knowledge on which to model future events (Adams 1988). Adaptive behavior, or strategic coping, requires the anticipation of outcomes, using foresight and intentionality as cognitive potentials. In this sense, culture is a form of anticipatory behavior specific to humans, for much of our time is spent reorganizing the world to resist randomness or entropy (Bennett 1996). Humans are goal-directed and self-organizing systems that adapt using new and old information to anticipate outcomes (Moran & Gillett-Netting 2000). The capacity for *internal* adaptation is seen in coping, a short-term process of stress reduction through which individual organisms respond to fluctuations in the environment (Alland 1970).

We also have the capacity to relate with the environment through image-making (Arnheim 1969; Langer 1972). This form of *external* adaptation rests on the ability to symbolically represent the physical world as a cognitive map (Bennett 1996). A cultural worldview reflects the shared cognitive categories of people that experience, and work within, a *local* set of spatial and temporal arrangements. Culture unifies the cognitive maps of different individuals within a locale by imposing "consistency among meanings," as a paradigm for working with the energetic world. By unifying the mental and the energetic in a symbolic system, a local society provides the means to reproduce its own self-organization (Adams 1988).

This form of social reproduction is frequently reinforced through ritual. Anthropology, ethology, and neuroscience view ritualization as adaptive behav-

ior in its ability to encode cultural knowledge (Laughlin, McManus & d'Aquili 1993; Rappaport 1999; Watanabe & Smuts 1999). Ritual symbols, according to Victor Turner (1969), prompt social action because their referents call up polarities between physiological phenomena and normative values, such as reciprocity, respect, generosity, and kindness. Ritual–as a performance–uses these multiple sensory domains in order to provoke an exchange between the physiological and cultural poles, and to reinforce social trust and perhaps a sense of *communitas* among participants.

Living systems theory posits an articulation between humans and the global environment (Miller 1978). This model assumes that human, technical and social spheres are mediated by individual and collective behavior, which is influenced at the biosocial level by physiological and metabolic processes. A living system depends upon subsystem components for its survival, that is, information channels, memory, decision centers, motor outputs, and reproductive elements. All living systems, from cells to the earth, rely on matter, energy, and information flows.

Anthropological holism and living systems theory regard purposive behavior, or culture, as an open system interacting with the environment through positive feedback. The holistic approach views culture as developing in relation to the environmental niche, and social practices as adaptive responses to particular ecological pressures. Historical ecology regards landscape as a manifestation of this dialectical relationship between human action and natural systems over time (Crumley 1994). Living systems theory similarly uses cognitive potentials to explain adaptation in crisis. The systems view holds that organizations and communities, like individuals, will need to draw upon competencies derived from adapting to past crises as sources of feedback. Moreover, how each system experiences a critical event and the emergent pattern of responses will influence the direction of change through later stages of its development.

Using this framework, one may characterize three main evolutionary transitions in human history. Agriculture marked the achievement of long-range predictive control over the food supply through intensive land use techniques. The Industrial Revolution liberated people from this direct symbiotic relationship to the land but severed their local dependence upon the land itself. The second industrial revolution constituted the emergence of human systems capable of large-scale intervention into natural systems, exemplified by human population growth and greater control over the earth's resources. This includes subterranean exploitation of energy and metals; vertical expansion into the atmosphere and oceans for nitrogen, minerals, and food: and control over areas of the electromagnetic spectrum. This last transition brought with it the power to transform the planet into a global system through environmental-exploitative techniques (Bennett 1976). The processes of control in the global system, that is extraction, production, distribution, transportation, and communication, are regulated by

diverse ideologies. Global pressures have required local communities to reinvent the symbolic and organizational elements of their cultures in the face of new technologies and ways of life.

At a different scale, local community, or locality, denotes both a physical space and a distinct sensory order where concentrations of people engage in complex networks of social relations (Leeds 1973). Primary relationships of kinship, friendship, and neighborliness, based upon face-to-face interaction, are the most immediate forms of association. Less personal relationships, based upon transaction, are the secondary modes of activity. A loose social organization derives from this multiplicity of contexts, events, and situations. Localities retain their flexible and somewhat amorphous structure because they can accommodate diverse social relationships within their boundaries and control the outcomes of most external intrusions. As highly organized segments of a population, localities support a social structure where individuals take on multiple roles within many cross-cutting networks. Within this configuration, social resources are viewed as potentials and as rights accrued by virtue of a person's status and role within each network. A locality strives to maintain internal control through everyday routines and rituals, and through the networks that govern interpersonal behavior. Local power resides in the internal control of both human and material resources and tends to limit the encroachment of external institutions, such as state or corporate bureaucracies.

The concept of sustainable development, as framed by Redclift (1987), links the transfer of capital, labor, and natural resources within the global economic system. Through a comparative framework that situates the historical role of the environment within capitalist development, Redclift views resource exploitation and structural underdevelopment in the southern hemisphere as a consequence of environmental change in the industrialized northern hemisphere. With global change, localities throughout the world have undergone ecological crises, such as resource depletion, changes in land use, and biodiversity loss. These conditions are frequently accompanied by anthropogenic hazards, such as climate change, greenhouse warming, and emerging epidemic diseases, as well as chaotic environmental episodes such as drought, flooding, and violent storms. Despite efforts to maintain internal control of their economies, many localities become enmeshed in global markets and, as a result, experience increased pressures to change their styles of work and land tenure practices, and to specialize in order to remain competitive. Local communities not only become dependent upon external market forces but are also bound by the policies of development programs designed to introduce technological change. In the past, localities would call upon culture to guide decisions about resource use, as in the case of sustained yield resource management. Locally determined strategies were directed to sustaining an internal equilibrium and were not motivated by demands from outside the local system (Bennett 1976).

Delocalization results when people become less affected with local concerns, especially in decisions about the management of common resources, and in their stance towards their neighbors who have been marginalized by consequences of global change (National Science Foundation 1995). Through its encounter with these displacements, the new ecological anthropology has come to view the community as embedded within larger systems at the regional, national, and international levels, and to study the impact of a multitiered and globalizing world on the locality (Marcus 1995; Gupta & Ferguson 1997; Kottak 1999; Burawoy 2000). This new paradigm recognizes the importance of cultural mediations in ecological processes at a time when local ethnoecologies are being transformed by development, biodiversity conservation, environmentalism, and the influence of NGOs (Brosius 1999; Escobar 1999). Within political ecology, environmental justice research has addressed the ways poor communities organize to confront disproportionate, high, and adverse environmental exposure (Pastor 2001, 2002; Harper & Rajan 2002).

The global economy has led to the transformation of cities, such as New York, London, Tokyo, Sydney, Toronto, Miami, and Los Angeles, into "transnational market spaces" more oriented to world markets than to their national economies (Sassen 1994). Global cities are strategic places in the world economy where the centralized control and management operations required to direct a geographically dispersed array of economic activities are located. As the hubs of global financial markets, these cities are places where there is considerable foreign direct investment and where the broader social structure has grown more international. Their workforces deliver highly specialized services, including finance, telecommunications, and advertising, to diverse linguistic and cultural communities worldwide.

The emergence of globally oriented service industries within these cities, together with the decline of mass production, has created new inequalities and economic polarization. There is a growing earnings disparity between those within the city linked to the international economy and those who remain marginal to it. There is also a disparity in consumption patterns between those employed in the major growth sectors that have high-paying jobs and the low-wage workers employed by small, low-cost service operations. Economic globalization has contributed to a "new geography of centrality and marginality" that elevates certain localities as central to the international economy, while rendering others marginal to the production and distribution of global capital. The turn from the local toward the global resulted in the population movements and dislocations that characterize a crisis, referred to as "late capitalism" or "post-Fordism," first in the developed northern hemisphere, and more recently in the rapidly developing southern hemisphere (Harvey 1989).

Networks and Reorientation

The dislocations caused by the extreme situations of our time have spawned a new pattern of strategic coping, especially when established mechanisms cannot respond adequately to the community's needs. Consequently, various mediating structures–social networks, mutual aid groups, cooperatives, and associations based on ethnic, community, and voluntary ties–move into the vacuum to act as pathways through crisis. These informal social resources promote strategies for survival amid the fragmentation that accompanies dislocation (Fischer 1982). Through them, individuals become cognizant of alternative forms of problem solving, help seeking, and negotiating after crises. Those who embrace these resources gain support and mutual aid, but they also realize an expressive dimension through their participation. The forms of association mobilized during a crisis affect survivors' lives since their sense of belonging reduces the isolation that results from dislocation, and the emergent ties help survivors restore their psychological and social equilibrium. Through facing a crisis and coping with peers in voluntary efforts, survivors learn pragmatic strategies of self-construction. These social milieus cultivate a collective strength and a personal identity, one capable of surviving the multiple crises of late modernity. This form of engagement, called "life politics" by Giddens (1991), concerns issues, such as environmental risks, nuclear power, food security, and reproductive technologies, where self-identity is influenced by globalizing processes.

Networks of civil engagement–mutual aid organizations and other small-scale voluntary associations–were essential to community life in the face of myriad dislocations that marked the onset of modernity in the United States, Western Europe, and elsewhere. Robert Putnam (1993) and his associates have demonstrated, through extensive study of the role of civic traditions in the development of contemporary Italian regional governments, that denser mutual support networks in a community ensure a greater likelihood of civic engagement. Since the medieval period, civic legacies in the towns of northern and central Italy were built upon institutions that supported social solidarity, such as voluntary associations and mutual aid societies. These networks of civic engagement were crucial to the management of collective life in Italian communal republics.

The roots of civic community were thus embedded in a pattern of associational life that traced its ancestry to earlier periods of civic inventiveness. Nineteenth-century Italy saw such a situation as local communities, governed for centuries by civic republicanism, were obliged to develop new forms of collective action for mutual benefit to confront the risks of a rapidly changing social order. In facing the dislocations associated with modernity, localities throughout Italy relied on their civic traditions to guide them in forging a new sense of civic commitment. The emergent "modern" form of civic community, built upon cooperative organizations, cultural associations, and other vehicles for civic

mobilization created amid the turmoil of nineteenth-century life, was largely responsible for the success of the regional governments established in northern and central Italy during the 1970s. As they did when their cultural fabrics were rapidly transformed by technological and social advances associated with nation-building and industrialization a century ago, contemporary Italian localities called upon their civic traditions to direct them in the task of reshaping civic culture in the face of regionalization. In these regional governance efforts, cities and their surrounding rural areas framed joint strategies that both stabilized urban fresh food supplies and created clusters of rural industries that extended from the factory to cottage levels. Similar strategies have been adopted in France and Holland, as well as by the European Union.

By comparison, in the United States, massive transformations of civic life during the 1960s and 1970s have brought about considerably different outcomes. For one thing, there has been a tendency to polarize urban areas from rural areas, strengthening transnational market spaces at the expense of sustainable communities and local food networks. Further, the American civic universe has since been characterized by national advocacy organizations that are professionally dominated and far less dependent upon voluntary participation than were the local membership organizations of previous eras (Skocpol 2003). As a result, the public sphere where people actively engage in politics and policy-making has changed (Calhoun 1992). In the United States and elsewhere in the North, the move away from local associations to global advocacy organizations has had an impact on local communities worldwide. Until recently, these localities have used cultural dynamics similar to the ones Putnam describes to survive the transition to urban, industrial life in the nineteenth and twentieth centuries, and to confront the turbulence of globalization in our own times.

However, there have also been changes in the global "Third Sector" as a result of the transformation of NGOs within national societies of the North (Salamon & Anheier 1997; Anheier & Toepler 1999). In the area of sustainability and natural resource management, significant amounts of international donor monies have been appropriated for interventions on behalf of biodiversity conservation and land stabilization (Brosius, Tsing & Zerner 1998). Consequently, NGO-initiated community-based conservation projects frequently conflate the local knowledge of indigenous resource-owning residents with the well-meaning conservationist initiatives of transnational NGOs (Igoe 2003; Hviding 2003). Through these projects, local-level movements for control over natural resources frequently link up with NGO-inspired transnational advocacy networks. Much of the recent debate, emerging from the convergence of local and global interests through these movements, involves the way each set of actors has come to interpret local knowledge (Dumoulin 2003).

The cases that comprise the book further explore the ways local communities have reinvented themselves using cultural knowledge to blend traditional

sentiments with fully modern sensibilities, and to sustain both local and regional networks and the sense of cultural identity amid large-scale dislocations within their own societies and in the international economy. Therefore, following the lead of Eric Wolf (1982) and other anthropologists and social scientists, in general, who have been "rediscovering" history in the social sciences, the authors attempt to place recent examples of social formations related to sustaining natural resources and preserving cultural knowledge into a larger context.

Local and Global Knowledges

The first set of essays focuses on conflicts between local and global knowledges in biomes, such as tropical rainforests and rivers. Claude Raynaut and his coauthors provide a critical analysis of the notion of sustainability, showing that, even when applied to a local place and to issues of protection and preservation of nature and of local cultures, it cannot be established upon clear, ready-made criteria that could guide an attempt to reach a stable, long-lasting situation of natural and social equilibrium. Thomas Thornton looks at problems that come about when indigenous communities develop regional and village-level business corporations to manage land, resources, and income. These local practices will often conflict with state regulations to conserve wild, renewable resources, such as fish, plants, and wildlife, as a legal way to enhance their sustainability. Johanna Gibson calls for an expansion of the concept of "place-centered community" to include collective values, such as shared identity and mutual responsibility in facing the potential loss of connection to the land. In other words, "community" can be understood as including indigenous biological resources and an ethos of preservation of cultural diversity within a globalizing framework of biodiversity. Dario Novellino argues that despite expanded notions of community that include ecological sustainability and protection of biodiversity, there remains a threat to local knowledge and practices because of conflicting priorities. As a result of their efforts to promote local knowledge, both government and NGO conservationists come into conflict with the ways of perceiving and using natural resources by traditional communities. On the other hand, the indigenous people themselves have difficulties in conceiving of a unitary notion of "culture" and "community" that could serve a political function.

Local Practices: Adaptive Strategies and State Responses

This set of essays concerns local practices in communities in transition, focusing on the conflicts between innovative adaptive strategies used by local communities to preserve resources and ways of life, and regulative responses by state

agencies. Krista Harper analyzes environmental politics and activism during the post-socialist transformation of Central and Eastern Europe. The spatial dimensions of urban-rural inequalities and marginalization are presented in the context of both a growing environmental awareness and new advocacy organizations among ethnic populations. The ensuing tension between environmental justice and mainstream environmentalism challenges existing notions of sustainability. Deborah Pellow describes how the dual processes of transnational migration and the preservation of sustainable foodways help maintain the informal sector of urban ethnic enclaves. Many ethnic neighborhoods have local markets that sell prepared ethnic foods made by migrants from rural and tribal areas. In the cosmopolitan neighborhoods of Third World cities, one finds a "creolization" of food consumption in that both local and Western cuisines are co-present in these "globalized local communities." State public health agencies have become increasingly concerned with the conditions under which such foods are produced, stored, and distributed. Janet Benson discusses how the evolution of agricultural practices in the 1960s provided a basis for the development of rural "industrialization," namely meatpacking and agribusiness. This trend was coupled with the use of transnational migrant labor and led to municipal growth in farming areas. As a result, state services have increased, since town dwellers have greater needs for public health, education, and social services. Current practices have led to major water conservation issues and threaten agricultural sustainability in the region. Barbara Yablon Maida and Carl Maida examine residents' attitudes toward land use and development and the perceptions of the visual landscape in a rapidly urbanizing agricultural area. After voters passed measures that would ideally control development infringement onto agricultural land and preserve open space, residents and experts designed quality of life indicators to measure features of the economy, social well-being, and environmental health. Civic engagement was crucial to the indicator design process.

Social Capital, Civic Engagement, and Globalization

The third set of essays regards practices that tend to increase social capital in local communities, such as civic engagement and the design of sustainable development indicators. Critical perspectives on cultural practices of consumption and on community self-sufficiency are offered to assist localities in meeting the challenges of globalization. Kenneth Meter describes how residents, technical experts, and professional researchers formed new urban partnerships to address environmental concerns and prevent pollution, and in the process devised new tools that are applicable globally. In an effort to engage residents directly in defining indicators of neighborhood sustainability for their own communities, participants defined linkages among issues that are typically viewed as separate. Karla Caser looks at dynamics in coastal communities as new businesses, primarily ecotourism

and commercial travel and tourism, and upwardly mobile residents enter the area. This influx has led to an altered landscape, as well as changes in both class relations and lifestyles that have held the community together for generations. A case study looks at how changes in the physical environment hinder community identity and channel people's use of space, decreasing social capital especially for low-income residents. Bourdieu's praxeology is used to develop an account of the ways by which the built environment objectifies social capital. Such "physical-social capital" symbolically and physically constrains social interaction and engenders shared identity and predictability. The framework is considered especially useful for design professionals, equipping them with critical tools for creating environments responsive to society's contemporary needs while building inclusive communities of place.

Two essays address theoretical issues related to the ongoing debate on globalization and local knowledge. Richard Westra reflects on how the abstract and impersonal effects of globalization on the human "life-world" tend to neglect the human cultural goals of caring, mutual aid, accountability, and shared governance. As a corrective and perhaps reparative strategy, communities of place can attempt to re-embed their local economies in the "life-world," through sustainable practices that increase self-sufficiency and personal autonomy. In this way, local communities can potentially insulate themselves from the ravages of global markets. Snježana Čolić discusses the prospect of sustainability within a globalizing world and how global culture has come to eclipse local knowledge with respect to resource needs and thereby moved localities to embrace more universalist consumption practices, including media and other knowledge commodities of advanced capitalist societies. With these practices come forms of global knowledge that may even include new styles of citizenship and regulations supporting resource conservation, biodiversity, and sustainable development. Moreover, the new media conveying these commodities create a "cultural space of the global" that is relatively void of context; the attendant cognitive dissonance, anxiety, and insecurity will often provoke a sense of cultural disenchantment. To critically analyze the various ways sustainable ideas and practices, in the context of globalization, have brought about dynamic changes in local communities, as the papers in this volume demonstrate, anthropologists will have to approach the study of culture through multiple perspectives, based upon the interests and needs of particular societies, rather than the universalist interests of any single ideological, historical, or methodological tradition.

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1 Local Science vs. Global Science: an Overview

Paul Sillitoe

Relativity is a relative idea. There is the physical scientists' notion of relativity, which is of global relevance, and there is the social scientists' notion of relativity, which is of local relevance. Just as physicists argue that classical scientific laws are a special case that apply to planet Earth only – varying with mass, speed, time and such – so too anthropologists maintain that scientific theories are a special case rooted largely in contemporary Euro-American understanding of the world – varying with culture, history, place and so on. We assume that our scientific view is one way of explaining our experience of the world, albeit a technically powerful one, employing an astonishingly effective body of integrated theory. Few of us are arrogant or ignorant enough to think that humans can aspire to a true 'Godlike view' of the universe and our place in it. We can never definitively verify universal propositions, only unsuccessfully attempt to falsify them experimentally (Popper 1959).

Increasingly there are calls that we should pay more attention to other views, not necessarily to challenge scientific achievements but to inform them further and better guide their exploitation, to enrich their cultural relevance to the benefit of all. The promotion of alternative views is burgeoning in the context of international development currently. The aim is to find a place for others' knowledge alongside science (Richards 1985; DeWalt 1994; Antweiler 1998; Purcell 1998; Sillitoe 1998; Ellen and Harris 2000; Sillitoe et al. 2002; ISSJ 2002). The distinctive feature of these essays is that they treat local and global science as culturally equal, tackling head on the import of purported differences, acknowledging both strengths and weaknesses, and opportunities for further synergistic interaction. Advocates of local knowledge argue that we need to learn to listen to others. One reason for the endorsement of so-called local or indigenous knowledge initiatives in the context of participatory development is that these will likely facilitate more successful interventions. They promote culturally appropriate

initiatives and empower people to contribute to their formulation and implementation.

In anthropology there is a long tradition of advocating the soundness of local science. For instance, over a century ago the Master of Hatfield College in Durham, in an address to the University's Philosophical Society entitled 'Savage Science', observed that 'the foundation, the principle, and the methods of savage logic and scientific logic are identical … modern science has no other basis than savage science had – both are built on the same foundations and by means of the same instruments of thought' (Jevons 1900: 12, 19). We now have many examples of the soundness of local science and practices, and the need to respect them – some previously considered 'primitive' and in need of change. We have long known that shifting cultivation, far from destroying tropical forests, is a sustainable land use regime (Conklin 1957), and with appropriate crop and soil management it can transform into stable semi-permanent farming systems, as in highland New Guinea (Sillitoe 1996; see also Dove et al., this volume). Shifting cultivators in the Himalayan foothills are not the reckless farmers that some assert, responsible for land degradation and massive soil erosion losses leading to lowland sedimentation and water shortages, but are aware of the environmental risks and farm in a regulated way to conserve their soil resources (Forsyth 1996). The close investigation of West African forest-savannah land use history reveals that where previously people were accused of creating savannah from forest they are found to operate sophisticated woodland management regimes (Fairhead and Leach 1996). The trampling of vegetation and soil by cattle in East Africa, once cited as evidence of pastoralist over-stocking degrading rangeland, has been revealed as sound management promoting the vigorous growth of new pasture (A. Kassam, pers. comm.; cf. Leach and Mearns 1996). Similarly, Aboriginal bush-burning practices, long condemned as environmentally destructive, are now recognised as sound management adopted in Australian national parks for clearing overgrown and dead vegetation and ensuring healthy new growth (Verran 2002; see also Smith, this volume). The introduction of high-yielding rice varieties into Bali, with associated chemical inputs and changes to the farming regime, had deleterious consequences because technocrats did not appreciate how the sophisticated irrigation system operated, centring on networks of water temples and rituals that synchronised cultivation across the island (Lansing 1991). The crop-breeding activities of peasant farmers, far from being hit or miss as popularly imagined, match well those of plant geneticists, and have proved highly effective for millennia to judge by the number of cultivars farmers have domesticated, selecting for particular environments (Richards 1986; Cleveland and Soleri 2002) Attempts to improve on the 'primitive' fishing technology used on the African Great Lakes likewise proved detrimental to fish stocks, the local 'inefficient' practices being well adjusted to the conservation of fish populations (E. Allison, pers. comm.). There are many other examples of the soundness of local science.[1]

We resist the urge to define global and local science, beyond making a few general observations, for reasons that are discussed in more detail below, namely the difficulty of coming up with a definition that covers the multitude of local sciences sufficient to contrast with global science. It is established, as Jevons's comments intimate, that all humans are capable of abstract thought and have notions of causality, that they can suspend prior beliefs and will revise these if evidence suggests that they are wrong, even if counter-intuitive. We broadly hold to the dictionary (*Oxford English Dictionary*) definition of science as an intellectual and practical pursuit that seeks to further understanding of the 'physical and natural world through observation and experiment'. In extending this definition to local contexts we have to interpret behaviour broadly, such that experiment includes noting the results of everyday experiences – for example, while subsistence farmers may not consciously hold a formal hypothesis and conduct randomised trials to test it, they continually experiment as they cultivate crops and learn from the results, passing on the knowledge in accumulated lore. While local scientific knowledge may not be systematically recorded like that of global science, nor feature such prescribed theories, it is nonetheless formalised to varying extents in cultural heritage. All cultures accumulate and interpret knowledge rationally according to their value codes, although until we appreciate these latter it may seem otherwise. We believe that local and global science are often directly comparable. The implication is that local practices may validate narrowly defined global or 'modern scientific' knowledge, as in testing and adopting or rejecting extension advice for example (see Marzano, this volume), and vice versa, that global scientific techniques may corroborate local knowledge, as in for instance some ethnoscientific research (Sillitoe 1996). While some contributions to this volume are concerned to compare and contrast local with global science, and repeatedly broach these definitional issues, others are more interested in the relations between local and global science, particularly their political dimensions. According to Ingold's (2004: 177) tripartite definition of anthropology's engagement with science, the essays fall into studies of science – as a way of working and kind of knowledge – and the relation between science and society: the impact of science on people and their responses to it.

The learning process should be a two-way affair, not only facilitating the adoption of scientifically informed ideas by local communities but also the informing of scientific understanding with local knowledge. There is nothing new in this proposition. Eighty years ago Malinowski, reputedly inaugurating the modern era in anthropology, argued on the last page of *Argonauts of the Western Pacific* (1922: 518), that 'In grasping the essential outlook of others … we cannot but help widening our own … (it) should lead us to such knowledge and to tolerance and generosity, based on the understanding of other men's point of view.' The contribution of Gerard Bodeker illustrates this, showing how the randomised control trials that characterise clinical medicine's hunt for new drugs diverge from local practices and may result in modern medicine overlooking

valuable local knowledge. He describes how Indian (Ayurvedic) and Chinese medical practitioners consider the whole person in disease diagnosis and not only a few symptoms; they give priority to state of mind and talk about balancing energy forces. Likewise their pharmacologies work on the synergistic interaction between several plant components in a remedy, based on a profound knowledge of herbal plant taxonomy, which is entirely different to modern science that seeks to isolate the active chemical compound in any one plant and subsequently synthesise it. It is an example of the holistic approach of indigenous knowledge systems in contrast to the reductionistic approach of science. He argues that modern medicine should take account of such complex combinations of plant materials, using the case of *changshan*, an ancient Chinese antimalarial drug, to make his point. The active ingredient in *changshan* is a saxifrage (*Dichroa febrifuga*), reported to be one of two of the most powerful antimalarial compounds known. Western science identified and extracted the active alkaloid but rejected it as it caused severe nausea. Herbalists administer it in a formulation with six other ingredients. If clinical medicine had considered the traditional herbal mix, which includes ingredients to offset nausea, it could have developed an effective drug to combat malaria years ago. This collection of essays intends to go beyond such demonstrations of the soundness of local science, and arguing for the incorporation of such knowledge into development alongside techno-scientific work to reduce poverty, to contend that we need to look quizzically at the foundations of global science itself and further challenge its hegemony, not only over local communities in Africa, Asia, the Pacific or wherever, but also the global community.

Local Knowledge Informing Science?

The reason for global science's success is that it has achieved what appears to be a good approximation to understanding natural processes, notably in terms of the ability that it affords humans to manipulate and control the physical world, as evidenced in the startling technological achievements that it underpins. We have only to think of air and space travel, the electronic wizardry of computer and robotic technology, organ transplant surgery, the increasing ability to intervene in life itself with test-tube conception, genetically modified crops, and so on. Such scientific advances are regularly announced and celebrated in events such as the annual British Association Festival of Science meetings from which this volume originates. It is such technological achievements, undoubtedly the most advanced in human history, that have allowed Euro-American society its global domination, from trading colonialism to multinational corporatism, and have led to the muting of other cultural views and values, even threatening their continued existence. Some may assert that this verifies the assumptions of evolution, one of science's most popular theories, for we see here the survival of the fittest cultures. The problem is defining cultural fitness, for evolution is not a

teleological theory. In the long term, if we are not careful, our scientific-technological domination may prove unfit or unsustainable, as some of the contributions to this volume point out (see chapters by Cleveland and Soleri, Rhoades and Nazarea, and Sillitoe).

The idea that others' knowledge might have something to contribute – even challenge scientific understanding – appears to many a hopeless, even a silly proposition. It seems to be a David and Goliath scenario: no other culture has come close to science's aeronautical, communications, medical and other technological achievements. Yet experience shows, as the few examples given above illustrate, that local people often get it right, sometimes when science gets it wrong. Local views, with sympathetic research, can enrich scientific understanding. This is not a revolutionary observation. The history of science testifies to it. Folk knowledge from Europe and elsewhere has informed the development of science. In their contribution Alberto Arce and Eleanor Fisher point out how everyday understanding and practice has influenced science since its Enlightenment emergence – when 'natural knowledge' was used to encompass 'skill or craft' and subsequently 'the workings of nature' – to the present day – when sociologists argue that science is not culturally disembodied knowledge but prejudiced by social factors such as worldview, verbal categories, semantics and shared practices. The mathematics that underpins the quantitative foundations of much natural science (see Chapter 13, this volume) owes much to medieval Islamic scholarship (Nasr 1976). Since European global expansion, we have drawn on the knowledge of local populations to further understanding of new plants and animals (Atran 1990; Turnbull 2000): as seen, for example, in Rumphius' flora of southeast Asia, which drew heavily on native classifications and ecology that, picked up by Linnaeus, continue to influence scientific biology to this day (Ellen and Harris 2000: 6–11; Ellen 2004). Local knowledge contributed to the emergence of the theory of evolution, one of science's most successful theories, Galapagos inhabitants pointing out to Darwin (1845) that they could tell from which island tortoises came, and finches too, by their markings and shape, the result of micro-evolution. And currently in this vein, we have pharmaceutical companies actively prospecting others' knowledge in their search for new drugs and cosmetics, continuing a tradition that has already resulted in over 25 percent of Western prescription drugs deriving from indigenous knowledge (Puri 2001).

This history makes puzzling the scientific establishment's apparent scepticism regarding growing interest beyond anthropology in indigenous knowledge, notably in international development. An editorial in the influential journal *Nature* (October 1999), captioned 'Caution: Traditional Knowledge. Principles of Merit Need to Be Spelt out in Distinguishing Valuable Knowledge from Myth', catches the tone. It was commenting on the 1999 World Conference on Science, organised in Hungary by the International Council for Science and UNESCO (United Nations Educational, Scientific and Cultural Organization),

on 'Science for the Twenty-First Century: A New Commitment', at which representatives of the U.K.'s Royal Society and the U.S. National Academy of Sciences, and subsequently the International Council's general assembly, questioned some of the clauses on local knowledge in the *Declaration on Science* and *The Science Agenda* adopted by the conference. A controversial clause in the former refers to 'traditional and local knowledge systems as dynamic expressions of perceiving and understanding the world, [that] can make, and historically have made, a valuable contribution to science and technology, and that there is a need to preserve, protect, research and promote this cultural heritage and empirical knowledge' and the latter calls on governments to 'formulate national policies that allow a wider use of the applications of traditional forms of learning and knowledge' (Dickson 1999: 631; Martin 2002; http://helix.nature.com/wcs).

One reason for concern on the part of the scientific establishment was that it perceived support for pseudo-science, such as beliefs in creationism, which could impact negatively on it, as Christian fundamentalism recently has in parts of the U.S. (Deveraux and Evans 2004). Another, some argue, is the concern that scientists have to protect their status and power in society, and the global hegemony of Western culture, by maintaining a clear boundary between what they know and do, from what everyone else knows and does (Nader 1996). Although the cultural location of the hegemony is increasingly unclear (historically science as narrowly defined emerged in Europe between 1600 and 1900), it is now a global phenomenon involving many scientists from non-Western backgrounds. Yet another reason is irritation on the part of some scientists with postmodern sociological commentaries that point out that their work is culturally relative and subjective, not the objective and value-free quest for truth that they think (Knorr-Cetina 1999). And related to this, there is some annoyance at attempts by historians of science to present the human side of scientific endeavours – the accidents, nonsense, blind alleys etc. – that many scientific texts omit when they present theories as abstract deductions, depicting these in abstract equations such as $e = mc^2$ and omitting the vivid metaphors about trains travelling at the speed of light (for example see Spranzi's 2004 entertaining account of Galileo's use of metaphors). Others resent sociologists prying into their lives to determine the significance of social interaction and values in determining scientific outcomes and their application in technology– the role of gossip, 'old school tie', personal likes and animosities within and between laboratories etc. (Latour and Woolgar 1986; Latour 1987, 1999). Some contributions to this volume take up these social and political issues (see Arce and Fisher, Dove et al., Marzano, and Sable et al.), albeit with the intention of contributing to the rapprochement of local with global science, not exacerbating these unhelpful relations.

Local and Global Science Compared

The contrasting of local with global science is not necessarily straightforward, as several of the chapters in this book show, and intimated in Bodeker's discussion of the epistemological clash between 'traditional' and modern medicine. We need to approach local schemes with sympathy if we are to learn from them. In their contribution Bob Rhoades and Virginia Nazarea compare scientific modelling of environmental change with local perceptions of change in the Cotachachi-Cayapas Ecological Reserve in Ecuador.[2] Land use management in the region employs a computer model to predict future changes from current trends to inform policy makers and politicians in making development decisions. The modellers assume that time is linear and that cause-and-effect relations mark its passage, which contrasts with the Quechua people's conception of the future being behind them while the past is in front, such that dealing with the unseen future entails seeing the past clearly. In my contribution I also pick up on science's linear perspective, contrasting it with circular ideas elsewhere. It is difficult to see what we have to learn from places such as New Guinea, where a wide range of counting systems occur, all featuring a limited number line and restricted series of terms for numerals (in some cases only two words), and which feature repetitive counting in rounds, starting again at the beginning when they reach the end of their limited number sequence. They make calculation seem even more unwieldy by sometimes reckoning in pairs and employing numeral classifiers, which are words attached to numbers depending on the thing counted, such as calling circular things 'round', and when counting coins saying 'round one, round two, round three' etc. We are inclined to dismiss such numerical schemes when comparing them to the sophisticated mathematical logic and computational power of the linear decimal scheme used in global science, when their ontological assumptions reflect radically different worldviews and insights that demand more respect.

Serena Heckler illustrates the shortcomings of scientifically framed research when confronted with ethnographic reality. The moral for a volume such as this is beware of scientific assumptions distorting local understandings. Her hypothesis was that Piaroa communities more acculturated into mainstream Venezuelan society would have less botanical knowledge than remote forest ones. She set up a number of quadrat plots to test it, where she asked people to identify plants and give their uses, collecting quantitative data for analysis by scoring respondents' replies according to correct responses. Subsequently reflecting on the research, she came to question the results when she realised that Piaroa botanical nomenclature is mutable, people even inventing plant names for her. She frankly reports how she came to realise that variation between individuals and fluidity of classification can characterise such people's knowledge of the forest and compromise scientific assumptions. However not all local ideas are necessarily at odds with scientific understanding; they may parallel it. The contribu-

tion of Trudy Sable and colleagues shows how local and global science can profitably inform each other. They report on a collaborative project[3] that involves both natural and social scientists working together with Innu people in Labrador to research locations where frozen lakes first thaw in the spring to reveal water rich in fish and attracting much wildlife, especially waterfowl. They show how the results of water sample analysis and limnological research undertaken by scientists compare with Innu ideas of water quality and health, and their understanding of the ecology of waterbodies and how they exploit these resources.

A related issue is the local character of much local knowledge. This is proving a problem in development contexts where agencies seek generic solutions to problems of poverty, sustainability and so on. We see the scale problem, as Cleveland and Soleri point out, in the increasing focus of natural resources development on diverse regions with marginal and fragile environments away from those where high production is achievable using a standard technology, usually including high-yielding varieties. By definition local science is geographically and culturally specific, infrequently extending to wide regions. We see this in Australia, as Ben Smith makes clear, comparing Cape York Aboriginal plant knowledge with botanical science. Knowledge for these Aboriginals is so localised that only persons with kin and spiritually validated associations with a place will profess to know about it. They do not allow for general categories divorced from place; for instance they will not classify together two spears made in different places because they have dissimilar 'immanent essences' resulting from different creative acts of 'culture-heroes' in the mythical Story- or Dreamtime. In some senses local and global scientific ideas are incommensurable. For example, an Aboriginal elder and a geological scientist looking at a rock formation will 'see' quite different things: the Aboriginal elder sees the petrified record of some event in the Story-time involving some creator being such as the rainbow serpent, whereas the geological scientist sees a record of sedimentary processes millennia ago and contemporary weathering activity (and if employed by a mining company possible evidence of certain minerals in the outcrop). It is not a case of one being right and the other wrong – as some scientists might contend – but of radically different worldviews and epistemologies.

The contribution by Roy Ellen illustrates well how the regional focus of local knowledge contrasts with the universal sweep of global science in a comparison of an Indonesian population's classification and understanding of forest types with that of foresters and ecologists. The Nuaulu of Seram island have a locally focused scheme, as evidenced in the extensive use of toponyms that convey information about places' histories and how human activities have modified their vegetation. An investigation of the composition of a series of forest quadrat plots, relying heavily on local knowledge of forest communities, shows that they take several factors into consideration in classifying forest and do so in a flexible way, acknowledging its continuous variation. This contrasts with global science that wishes to generalise for the world, focusing not on the forest cover of a small

island, but all forest throughout Maleasia or even the tropics; although comparing categories used in one region of the world – e.g. equatorial Africa – with those in another – e.g. Amazonia – can be difficult. Until recently this has involved the use of gross forest type categories to accommodate the wide variety of communities found, although sometimes it has drawn on local knowledge, as evident in the scientific mapping of Seram, which features many Nuaulu terms – another example of local knowledge contributing to scientific knowledge over a long period of time. The equilibrium model of static primary or climax forest, on which depend such stereotype classifications of forest according to ideal types is giving way, no longer accepted by ecologists who seek to understand the detailed structural diversity of forests. Again, it is not necessarily a case of incommensurability, as new computing technology is increasingly allowing global science to work with a multitude of different forest communities, bringing it nearer to the toponym knowledge of local populations and its more faithful representation of forest variation.

Hybrid Science

Correspondence between local and global sciences is further evident in the hybrid knowledge that results when they borrow from one another, as has occurred for generations with interaction between populations – what anthropologists once called diffusion. This on-going process even questions the propriety of distinguishing local from global science, prompting a furious debate over the meaning of such terms as local, indigenous, traditional and citizen knowledge, among others, and the correctness of using such terms at all. It smacks for some of the discredited distinction between primitive and civilised thought, what some have dubbed 'the great cognitive divide' (Frake 1983; Ellen 2004: 411), a reflection of our urge to impose simple, and often sterile (as here) dichotomies on the world. In this context it is necessary to point out that while there is a single global science (which is not to imply that scientists always agree with one another), there are a large number of local sciences, illustrating the richness of human inventiveness; to suppose that they reflect different cognitive processes is fallacious, although they do reveal varying preoccupations in life and differing bodies of knowledge. As Roy Ellen (2004: 443) observes, 'what counts as "indigenous knowledge" is so protean and extensive, to claim that it is comparable or not comparable to science is misleading, a diversion from the real issue'. The real issue is dealing with the diversity and dynamism that characterises human understanding. Furthermore, as mentioned previously, and as the label 'global' indicates, many scientists today come from non-Western cultures, enriching narrowly defined science's enquiries. There is a need to engage with the complexity of relations that characterise all knowledge traditions, to break with these fruitless definitional debates, such as I have attempted elsewhere by envisaging linked spheres of knowledge instead of two poles, local and global (Sillitoe 2002).

Several contributions to this volume deal with issues relating to such hybridisation knowledge. The project on which Trudy Sable and colleagues report illustrates well such interaction between local and global science, with the foundation of the Innu Environmental Guardians Program, a university-accredited course driven by Innu needs and values, which seeks to redress the damage done by the European education system and empower the Innu to deal with state and federal government agencies. Innu elders determine part of the programme's contents and act as instructors alongside lecturers in Western environmental science, to achieve the balance the Innu need to manage in twenty-first-century Canada.

Mariella Marzano focuses on the relation between local and global science as evidenced in the role of extension in development – extension comprises the advisory services that inform and teach people about interventions. It illustrates one process of hybridisation of scientific with local knowledge. She argues that we need better to understand why farmers opt for some scientific solutions and not others, which often relates to social and political issues as much as technical ones. She uses experiences in eastern Sri Lanka, working with a project researching intercropping with rubber, to illustrate the problems extension workers face interfacing between scientific advice and local farmer 'realities'. Among the difficulties they face in promulgating scientifically researched solutions is the unsuitability of some of the advice they are expected to disseminate to local farmers. This often relates to ignorance of local knowledge and conditions, because many agricultural research stations continue to work largely in isolation from farmers, subsequently seeking to impose their scientific solutions on them via extension workers.

Michael Dove, Daniel Smith and colleagues offer a salutary warning of the dangers of perpetuating the image of a clear divide between local knowledge and global science, a risk courted by books such as this one. Through a series of ethnographic vignettes they criticise the separation of Western from non-Western resource use systems and environmental relations, and the 'mobilisation' of such environmental ideas to political ends. They remind us of the hybrid nature of much environmental knowledge, that historically mixing has occurred, with the incorporation of global scientific knowledge locally, through a series of case histories. These include the influence of commercial logging companies on community forestry management and fire fighting in Mexico; the impact of mapping on communities in Irian Jaya and the consequences of their participation in the process; and Dayak people in East Kalimantan promoting themselves via an environmentally aware co-operative to attract outside agencies to work with them.

Alberto Arce and Eleanor Fisher explore what they call the interface between knowledge traditions, particularly how everyday understanding and practice influence scientific research in agriculture, focusing on processes where global science confronts and influences, and is influenced by, different local practices. They illustrate the negotiation of knowledge that occurs between different actors

at the interface via case histories. These include an account of the experimental trials by Lawes, a farmer, and Gilbert, a chemist, at Rothampstead, which led to inorganic phosphate fertilisers; and the work of Pearl in the U.S. on hen productivity, which increased egg laying by combining a close observation of farmers' practices with a knowledge of genetics, and imaginative use of extension services to relay the information back to farmers. In his contribution Ben Smith describes communication between local Aboriginal and scientific traditions in Australia, regardless of the epistemological gulf between them. The Australian State has coerced Aborigines into European-style education for generations, in misguided attempts at forced assimilation, such that they are able to broker between both traditions. We see this in development projects such as that drawing on indigenous plant knowledge or 'law' to distil commercial oils, to establish an environmentally and socially sustainable local enterprise.

Variable Tacit Knowledge

The fallacy of bracketing together all local science in contradistinction to global science is not only evident when we look at any local tradition closely, as in many of the chapters in this book, but is doubly so when we examine the assumption that the knowledge represented is locally homogenous. The variability in local knowledge is something that we have to accommodate – see my linked spheres of knowledge model (Sillitoe 2002). Different interest groups within a community might have different understandings of issues, with different perspectives and agendas, which they will seek to manipulate, those in more powerful positions usually doing so more successfully, imposing their views on others. Differences will exist along gender, age, class, occupational and other lines, and between individuals of similar social status, although we should beware of overstating the extent to which knowledge varies between people who share a common sociocultural and linguistic heritage. The interpretation they put on shared knowledge will differ, depending on how it affects their interests. It is common for in-fighting to occur between different interest groups within a community regarding proposed development interventions. We see such differences in the global science community too, where scientists regularly disagree over the interpretation of research results (see Cleveland 2001 for an example of how context influences scientific interpretation). Alberto Arce and Eleanor Fisher afford an illustration in their discussion of an agricultural research station – at El Chapare in Bolivia – which, with the building of a new high-tech in vitro crop propagation unit with international aid, not only sought to foist an inappropriate technology on local farmers (with the aim of deflecting them from coca drug cultivation by promoting commercial palmito production), but also spawned political in-fighting among staff and, paying little attention to the realities of farming in the region, predictably failed to help the peasant population.

The challenges do not end here. The local focus of local science reflects not only an absence of any universal aspirations but also the pragmatic rootedness of much of this knowledge, which is contingent on acquiring particular skills necessary to life in certain regions. The documentation of such tacit knowledge presents intriguing problems. People do it, they do not debate it. The only sure way to access such experiential knowledge is to learn to do the activities that comprise it (hence the importance anthropologists accord to participant observation, although we may question the extent and ethics of their participation). Cleveland and Soleri touch on issues of tacit knowledge in their discussion of what they call the 'natural farmer', as do Arce and Fisher in their case histories of agricultural innovations. In her chapter, Serena Heckler reports on the importance of such knowledge, that the Piaroa of Venezuela learn much through their life experiences 'going to' the forest, in what they do and see while engaged in activities there. The importance of shamanistic practice to what these Amazonian Indians know adds another experiential dimension, which further undermined her initial scientifically framed research project. While individuals may be knowledgeable about forest botany from a practical perspective, they may be ignorant of what really matters from a Piaroa perspective, namely the work of gods and spirit forces that ensure forest fertility.

The problems are compounded when we consider the limited and distorted understanding we achieve – for instance of shamanistic forest knowledge – when we try to convey whatever we do manage to learn using the written word. This does not invalidate attempts, however partial, to record something about these matters, but it puts them in perspective. When we engage with tacit knowledge we have to admit that there are dimensions to understanding and living in the world other than the intellectual, for human experience and knowledge encompass far more than words can convey. Academics perhaps over-intellectualise and assume that they can capture too much of the human condition in rational discourse. This takes a particular turn in relation to domains that depend equally on experience as intellect, on skills transferred 'hands-on', which practitioners often cannot verbalise. We sometimes find ourselves in the awkward position of appearing to explain what they themselves cannot explain, while it is their practices and behaviour that embody the knowledge! This is not only an issue with local science. Experimental science also features an element of tacit knowledge: witness how often scientists refer to the importance of their practical skills and those of their laboratory technicians. Many early scientific achievements featured the work of handy persons such as Faraday and Davy building and operating strange gadgets to investigate the properties of electricity (Gooding and James 1985; Fisher 2001). This brings us back to the social and cultural issues touched upon earlier, that any science, local or global, depends on interaction between socially and culturally placed humans who embody differing skills.

Local and Global Science in Socio-cultural Context

Several contributors to this book focus on social and cultural issues, largely their political dimensions, which have been of interest for some time in sociology and history of science debates. Recurring themes include power relations in science and imperialism in development contexts. A worrying aspect of global science for many is the idea that it researches and discovers the 'secrets of nature' in a disinterested manner, that it seeks knowledge and advances understanding for their own sake (Chalmers 1999). Nature is the way she is, according to this view, and all scientists are doing is revealing her more fully to us, and in advancing our understanding are allowing us to exert further control over the world and our destiny (Whewell 1989). Regardless of the discoverers, whatever they uncover will be the same because nature is a constant beyond those who investigate her, such that they will all reveal the same mysteries. But whether or not you believe nature exists out there and awaits uncovering, the discoveries undeniably take place and are interpreted within a certain sociocultural and historical context (Latour 1987, 1999), which has largely been Euro-American capitalist society during the last two centuries that global science has emerged. Scientific research clearly does not take place in some sociopolitically neutral environment, the place where those who quest after 'pure knowledge' live. Place, culture and time heavily inform it, particularly interpretation of scientific findings and the uses to which we put them.

The cases documented by Michael Dove, Daniel Smith and colleagues highlight the use of environmental discourse to manipulate various political agendas. On the one hand, there are authorities deprecating local knowledge and practices to exert control over communities. We see this in the questionable depiction of swidden agriculture as backward and damaging to the environment when this farming regime occurred in parts of Europe until recently and still does in the U.S., which 'anti-swidden forces' conveniently overlook as they seek to dispossess farmers. And the presentation of the Northern Forest in New England U.S. as pristine wilderness by environmental and conservation organisations, when commercial logging and, increasingly, tourism have severely affected it, signify control by powerful outside interests. On the other hand, people are valorising non-Western environmental knowledge and stewardship in the face of increasingly environmental despoliation; some local populations are picking up on this, appropriating Western scientific and 'green' ideas to protect their interests. Squatters in Kathmandu caught up in a fierce political battle seek to promote a conservation image to counter river pollution accusations, city authorities blaming them for its sewage and garbage disposal problems. Similarly, migrant farmers in Brazilian Amazonia seek to establish themselves as environmental stewards and not the villains of forest destruction. Elsewhere in Amazonia, the indigenous Piaroa are evidencing a growing interest in traditional environmental knowledge, as Serena Heckler shows, in part to assert their identity and claim territory by

showing that they are its guardians. Furthermore, although aggressive proselytisation has undermined their shamanistic tradition, they are increasingly identifying with it too as a political strategy.

The political dimension is evident in the Labrador case too, as Trudy Sable and colleagues make clear, describing how Innu collaborators help to identify and define project research issues in line with demands that they demonstrate to the government their credentials as environmental guardians as a prelude to achieving self-determination. In order to attain self-government they have to be able to argue in, and show some understanding of, the federal government's scientific language. The reaffirmation of the Innu's tacit and practical knowledge from a scientific perspective gives it political credence and significance, ensuring that it features in reports passed on to politicians and policy makers, which is central to their achieving a degree of autonomy in their own country and control over their own destinies, so long denied under colonial rule. The political environment can seriously interfere with the dissemination of scientific research findings via extension services, as Mariella Marzano recounts, where in Sri Lanka complex interactions between different levels of the state bureaucracy lead to confusion, and local people adept at manipulating their negotiations with outsiders may frustrate the efforts of extension workers as they seek to achieve other goals. A history of partisanship and corruption has also undermined the trust and co-operation necessary to effective extension work, and local communities used to a paternalistic regime that issues directives are not well placed to respond to development's current encouragement of participation. Furthermore – and paradoxically, given current participatory rhetoric – extension arrangements often inhibit farmer experimentation and innovation by the conditions they impose on those who adopt their recommendations. The short-term fashion trends that characterise development result in farmers receiving confused advice too, promoting one thing one year and something different the next. Violent fluctuations in market prices exacerbate this trend as farmers switch from one crop to another in large numbers following extension advice. This brings us to the commercial focus of the capitalist political orders that dominate and manipulate global science.

Science for Sale

The market infiltration of science has become increasingly obvious in the last two decades with growing political pressure to fund research via partnerships with commercial companies. The argument is that forcing closer links with commercial interests will ensure scientific research is more relevant to the demands of the economy, and driven less by pure intellectual curiosity, which in the view of many politicians results in work of dubious worth. What they seem to overlook is that curtailing 'blue skies' research will inhibit future breakthroughs. History suggests that we have to allow for many blind alley projects for every

new highway discovery. We have only to consider what cranks Victorian society thought persons such as Faraday for researching electromagnetic forces, unable to see the contemporary electronic age. Furthermore, as some political commentators point out, while the profit motive that fuels capitalism might make a few wealthy, it reduces many to poverty, which is a particular concern currently in development contexts with the emphasis on poverty reduction. 'Fee-fi-fo-fum, I smell money, everyone': we have the greedy exploitation of technological advances to enrich a few, not community-focused progress. We have something to learn from political and economic arrangements elsewhere, if we believe in fairness. David Cleveland and Daniela Soleri illustrate some of these issues in their discussion of the 'economically rational farmer'. This is not the place to rehearse arguments for and against increasing links between scientific research and the market but we should note the implications for relations between local and global science. These again are largely political issues, focusing on disquiet about capitalist imperialism. They are manifest particularly in concerns currently to protect people's intellectual property rights (IPRs), to prevent unfair exploitation of their knowledge for commercial gain.

Intellectual property has become a burning issue recently, and Charles Clift takes up the argument that it is necessary to define rights legally to protect local knowledge holders. He points to some intriguing parallels that the impact of IPRs have on global and local science, arguing that pushing IPRs in both these domains could have similar deleterious consequences: for instance, undermining the collegiality central to university life as scientists become less willing to share knowledge, thus upsetting the fine balance between competition and cooperation. Patenting up-stream processes could be particularly damaging, as these often feature in future research. Financial gain has hitherto not motivated scientists so much as peer recognition, intellectual curiosity and advancing the frontiers of knowledge, which is deeply satisfying, like writing good poetry or doing beautiful painting. Also, the supposed financial benefits in applying IPRs to the university research market are largely lost in administrative costs and litigation. Clift argues that IPRs could likewise disrupt the balance of local communities, if some claim to own knowledge above others. Indeed they strike at the foundations of local knowledge, much of which is communal not private. The imposition of IPRs on local knowledge, which has flourished for millennia without such arrangements, is an aspect of the intrusion of the capitalist order into these communities (Cleveland and Murray 1997). They may disrupt established processes for generating new knowledge locally, as in scientific research, by upsetting its vigour, in seeking to protect and freeze it in some timeless traditional past. The idea that IPRs offer some kind of general protection to local science by assigning rights and excluding others, should not be misconstrued as protecting knowledge from extinction under the relentless onslaught of the economic and social forces of capitalism. Regarding IPRs as a solution to the protection of local knowledge is thus to misdiagnose the problem. It is the larger

issues related to the penetration of the market, the loss of land and other rights that are the real problem. IPRs are not an effective way of tackling poverty and global inequalities, rather the opposite. They may thwart scientific access to knowledge for the benefit of humankind (e.g. in researching new drugs), by prompting communities to exclude researchers, or prompting them to overvalue their knowledge. The patent system is intended to provide an incentive for invention and innovation – and space for these to occur – which is quite at odds with ensuring equity in the use of local knowledge or its protection.

The political position varies from one region of the world to another, making generalisation about IPRs difficult, as some other contributors show. Gerard Bodeker argues that medical researchers must accord equal status to traditional healers when working on herbal medicines, and not allow science to dominate, as such power differentials can fatally undermine research, as illustrated with *changshan*, the Chinese anti-malarial. This demands respect, he points out, for the intellectual property rights of healers. In their contribution, Alberto Arce and Eleanor Fisher describe the legal battle over attempts to patent genetic material from quinoa, an Andean crop, by U.S. university researchers. It shows how negotiations at the knowledge interface between local and global science is complex, sometimes involving many parties. Here NGOs (non-governmental organisations) and people's organisations seek to defend farmers' interests, revealing a conflict between local and scientific goals, with serious political implications – biotechnology and genomics threatening local farmer autonomy by controlling seed supply. Elsewhere in Latin America, IPRs are of concern to many local populations, particularly in Amazonia, which is seen as biodiverse and likely to yield important new natural compounds for use in drugs, cosmetics and food. People are anxious to protect their environmental knowledge from outsiders for fear of biopiracy, as Serena Heckler relates, having learnt that their forest may contain commercially valuable products. This illustrates Charles Clift's point about IPRs possibly prompting communities to inhibit scientific research that could benefit humankind or overestimate the commercial value of their resources.

Dangerous Science?

The idea is not that the small local knowledge stone should knock Goliath science over, an improbable, even ridiculous prospect. It is that we should create space for others' ideas. This is necessary not only because it should continue to add to global science's awesome fund of knowledge, but also because it might help us to manage this knowledge more effectively for the planet and humankind. It is becoming increasingly evident that our astounding scientifically informed technological advances are coming at considerable and possibly unsustainable costs. There is growing discontent with science in many sections of our society – from light-green conservationists to deep-green eco-warriors, purple establishment Church of England to rainbow millenarian cults, and pink

neo-left politicians to dark-red socialists – which chime in with calls for us to listen to local voices (Milton 1993). This is not to suggest that other traditions are wiser than science. In anthropology we have learnt to tread the middle road between thinking that all traditional tribal ways are inherently sustainable and environmentally sound (Ellen 1986), and the reverse that all peasants are ignorant and demand development, or worse civilisation. We are all fallible humans. But we think, of course, that we have much to learn from all people; this is a *sine qua non* of the discipline.

Many within development circles, with their short historical perspective and rapid idea fashion cycles, date concerns with sustainability to the so-called 'Brundtland report' (World Commission on Environment and Development 1987), whereas demographers routinely trace them back to Malthus (1798) and the early nineteenth century, although there is evidence of population concerns much earlier, for instance, 1600 BCE Babylonian tablets refer to problems of overpopulation (Cohen 1995). There are concerns about human population levels and global carrying capacity, which come and go in prominence. There are worries about damage to the environment with ozone holes and global warming, climatic changes and pollution. How irresponsible can we be before a catastrophe occurs? Take the generation of nuclear power, which creates in plutonium a deadly radioactive waste product with a half-life of 10,000 years, that we are dumping in subterranean silos in northern England where 10,000 years ago there was an ice age and glaciers carved valleys through the rock. No fear (just yet) of global warming of glaciers pushing canisters of plutonium into the Home Counties but what a liability we are passing onto future generations. We are increasingly asking ourselves if science is intervening in nature, and indirectly social arrangements, in ways that we lack the wisdom to manage, meddling with life itself in test-tube reproduction, genetic modification of crops, and so on, not to mention weapons of unimaginable destructive capacity. There is anxiety about the social implications of technologically driven change, with evidence of breakdown and alienation, isolation and hostility. We are entering dangerous new territory with the erosion of the family, which for millennia has been the cornerstone of social order for cultures around the world. We have good reason to be expressing concerns about sustainability, and it is not only non-scientists who are doing so. Scientists are too, as evidenced by the 'sustainable science' theme of the British Association Festival in 2003 at which this book came into being.

These worries suggest that scientific knowledge is dangerously partial, that there are some fundamental gaps in its worldview and that its dominance is unhealthy. What is problematic about the scientific approach? There have been several critiques, as the essays in this volume indicate. The contribution of David Cleveland and Daniela Soleri tackles the issue of sustainability head on. They open by arguing that we can only define sustainability in agricultural contexts subjectively, based on the values that we bring to the definition. But once we have agreed a definition we can objectively assess indicators of sustainability. The

authors point out that farmers' knowledge has increasingly featured in debates about sustainable agriculture, but that it tends to be defined deductively according to the assumptions that inform the definition of sustainability, whereas they argue that we should empirically investigate farmers' knowledge to see how it complies with sustainable goals. Furthermore, they argue that definitions of farmer knowledge and scientific knowledge often determine the roles of farmers and scientists in sustainable agriculture development. They elaborate on this thesis by proposing four approaches to local farmer knowledge, which they call the 'economically rational farmer', the 'socially rational farmer', the 'ecologically rational farmer' and the 'complex farmer' approaches. They take each in turn and give the definition of sustainable agriculture they entail, followed by definitions of local farmer knowledge and global scientific knowledge to which they lead, before describing the different roles for farmers, and the natural and social scientists in agricultural development that these approaches stipulate.

Bob Rhoades and Virginia Nazarea further address the issue of sustainability. They use modified folktales and panoramic photographs in methodologically innovative participatory contexts to probe people's views of landscape changes, to compare with the work of scientists researching models of conservation. They reveal an emphasis locally on community and livelihood concerns, notably the need for economic development to improve the standard of living for people who in the past have had a raw deal. Deforestation is not a prominent concern as it is with the scientists whose values and assumptions about conservation inform their modelling predictions (which depend on the parameters they feed in, such as monitoring forest loss, land degradation and so on). It is not that the scientists are wrong to focus on conservation but that any attempts to persuade local people to buy into the need to protect the ecologically important zones found in their region are unlikely to succeed if they do not also address the issues those local people think important. It is not the familiar scenario of sustainable local practices versus unsustainable science-technology but of formulating biodiversity conservation policies in ways that relate to local concerns.

A belief in sustainability draws on deeply held Aboriginal values, as Ben Smith makes clear in his contribution, relating how people blocked plans to log their forest. Heirs to one of the most conservative cultures known – according to the archaeological record Aboriginal lifeways remained largely unchanged for generations – where existence evidences a circularity and demands repeated contemporary validation of creation-time events, sustainability is beyond question, being central to life as they know it. In my own contribution I contrast circular ideas of being, which reflect more sustainable worldviews, with the linear perspective of science. The way in which we count informs these views. The limitless counting scheme that characterises the mathematics of science, while it underpins many startling discoveries and innovations, intimates an unsustainable perspective, as graphically illustrated by the concepts of infinity and zero. This contrasts with the finite perspective of counting systems found elsewhere,

such as in New Guinea. Focusing on the computational limitations of such schemes prompts us to write them off, which is unfortunate. The finite standpoint informing them imbues sustainable views, in contrast to the Euro-Asian scheme as increasingly evident with the current harnessing of science to the market economy with its nostrums for endless growth while we inhabit a finite planet. Those who count less may have something to teach us about sustainability.

It is not our intention in local knowledge work to enrage, after Jack of the Beanstalk fame, the science giant but to work with it to promote sustainable and appropriate interventions. We argue that we need to draw on other cultural perceptions to achieve balance. We have to acknowledge the social positioning of knowledge – that understanding is culturally embedded, and not value free (including that of science). We find ourselves on the horns of a dilemma (Dunbar 1995; Peat 2002). Some argue that it is pointless to talk about controlling scientific research because inquisitive humans will always engage in it because nature exists out there and waits for us to unravel her codes. The genie is already out of the bottle. But are we ready to play God with the knowledge? All the evidence suggests not. The worry is that we do not have the wisdom to handle some of the knowledge, such as designer genetics for offspring, horrendous weapons of mass destruction in the hands of fallible humans, whether politicians or terrorists. Perhaps others can help us to find a morality that can assist us to ensure that we manage this knowledge better than market capitalistic democracies appear able to do. But there are no straightforward answers. Some other codes of morality would seek to control scientific enquiry, keep us living in virtual medieval ignorance, implying feudal political control. We are arguing that we need to draw on the full range of the human heritage as we seek ways forwards in the future that might benefit all humankind and ensure the continued well-being of the planet we inhabit.

Notes

1. The implication of these examples is not that local people always get it right. There are many instances where people make mistakes; for example, refugees often find that their knowledge ill equips them to manage in the regions to which they are displaced. See Dunbar (1995: 47–57) for some further ethnographic examples.
2. Part of the U.S. Government's Sustainable Agriculture and Natural Resource Management Project (SANREM) response to Agenda 21 of the Rio Earth Summit.
3. The project involves the Innu Nation of Labrador, Environment Canada (a federal government department) and the Gorsebrook Research Institute (St Mary's University, Nova Scotia).

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Introduction

"Nature" in Anthropological Theories

"Nature" as a concept is extremely elusive, yet it is commonly taken for granted by those who live in postindustrial societies that "pristine nature" is "out there." Using Japanese culture, I demonstrate how we often think of "representations of nature" as "pristine nature objectively out there," and I explore the factors that naturalized this view, challenging the positivist view, beginning with Plato, that "real nature" is "out there." I compare Japanese culture with other societies, including hunting-gathering and agricultural societies, on the one hand, and some western European societies, on the other.

With an understanding of culture as historical processes, this phenomenological study over a long period of Japanese culture proves that the cosmological scheme, such as the basic spatial division of the above with a positive valence and the below with a negative, does not constitute separate mental activities at higher levels but is intimately involved in the daily lives of people.

My discussion is in dialogue with debates in anthropological studies about "nature," social evolutionary theory, symbolic structure and the quotidian, representations, mimesis, and practical religion.

Anthropological Studies on Nature/Environment

The foundational work in the anthropological effort to understand the "nature" of various peoples is *Primitive Classification* by Durkheim and Mauss ([1901–2] 1963), written at the time anthropology was born in France as comparative sociology. They and many subsequent anthropologists have used the term "nature" to refer to the environment when describing peoples who themselves had/have neither a term nor a concept for "nature." Nonetheless, these anthropologists have left invaluable descriptions of these peoples' views of their environment.

Lévi-Strauss is the major figure whose Mythology series and in fact entire oeuvre is about the relationship between nature and culture, or "cooking" as the basic mode of culturalizing nature ([1949] 1969).

Approaches by anthropologists are quite diverse, leading to a very apt phrase, "Nature Wars," by Roy Ellen (2020). "Environment," also a diverse concept, complicates the question of what is "nature." Ellen ([2006] 2008: 190) opposes those who consider "nature" intrinsically "cultural." Tim Ingold (1993: 152) similarly opposes "the sterile opposition" between the "naturalistic view" of the landscape and the "culturalistic view."

While recognizing the importance of the question, I focus on representations of nature as untouched nature. People interact with their environment in reference to those beings who inhabit "nature," which is seldom perceived as an abstract space. Using examples of indigenous Australians, the Zuni, the Sioux, and the Chinese, Durkheim and Mauss describe how they perceive and conceptualize their environment. For example, among the people in the Mount Gambier area of Australia, the "crow quite naturally, by virtue of its colour, covers the rain and consequently winter, clouds, and—through these—lightning and thunder" ([1901–02] 1963: 20–21).

"Who" are allowed to be members of the universe and the stratification among them are crucial questions to ask for an understanding of a people's "nature." As detailed in chapter 1, the Japanese universe is predominantly inhabited by plants, which occupy the highest throne. Southeast Asians portray their universe in art primarily with plants, including flowers. The self-designation of both the People's Republic of China and the Republic of China starts with two characters for "The Central Flower of the Universe." In contrast, the African universe is inhabited primarily by animals. Like for the Ainu, it is *without* flowers, as Goody (1993: 1–27) points out in his first chapter, "No Flowers in Africa," in *The Culture of Flowers*.

In every culture, a large number of inhabitants, both plants and animals, are excluded from the mental stock of "nature." Many plants are written off as weeds, even though some may be a delicacy for some other peoples, as in the case of Japanese *nori,* referred to as seaweed in the West. The Japanese also associate dandelions with childhood memories of being in a field blowing the seeds to disperse them, as do Americans. As the lawn took pride of place in some societies, the plant became the most annoying enemy for those who treasure their lawn, i.e., culturally created nature, and for farmers since it may delay hay production because of its high water content. There are innumerable examples of undesirable fauna and flora excluded from "our nature."

My first anthropological work was a study of the Sakhalin Ainu, for whom, as for the Achuar of the Ecuadorian Amazon (Descola [2005] 2014), there is no separate concept or word for nature. They have an exhaustive

knowledge of the beings of their environment, but their language does not have words for overall domains, such as "plants," "animals," and "nature." They select a certain number of fauna and flora to be the inhabitants of their universe. During my first fieldwork in 1965, on a fine spring day after a long winter in Hokkaido, Japan, Husko, my Ainu friend, and I stepped out of our house to collect plants in the field just outside, now full of vegetation. I immediately realized that the promontories in her mental picture of the grass field and those in mine were entirely different. My vision of the field was only flowers, nothing else catching my eyes. In contrast, Husko spotted every edible and medicinal plant whose useful parts were well developed, even those at some distance. There is no name for the whole plant in the Ainu language; rather, a distinct lexeme is given to each part of the plant—leaves and roots—that is useful. Flowers do not receive lexemes and did not have a place in Husko's mental image of the field (Ohnuki-Tierney 1974, 2021). Like the Achuar, the Ainu consider nonhuman animals similar to humans. When they meet humans, they don fur to offer the fur and the meat as their gifts to convey good wishes to humans.

Multisensory Perception of the Environment

The means of perception and understanding of the environment vary among peoples. Among European peoples, what Jay calls ocularcentrism ([1993] 1994: 40–41) began in the Renaissance as opposition to the interference of textuality preventing an unmediated vision of the divine, and it spread to nonreligious fields, leading to the celebration of Cartesian physics and turning nature into "a ventriloquist's dummy, of which man could make himself, as it were the lord and master" (Descola [2005] 2014: 61).

The Sakhalin Ainu use multiple senses, but vision is of least importance. Their perception of the environment and its inhabitants is uncannily reflected in their classification of headaches and boils. The terrestrial beings, such as bears, musk deer, dogs, and woodpeckers, are perceived auditorily (Ohnuki-Tierney 1977). For example, the bear headache is perceived by the sound that simulates the bear's heavy footsteps in the head, as opposed to the musk deer headache with the sound of lighter footsteps. The aquatic beings are perceived through thermal and tactile senses. The octopus headache simulates the tactile feeling of the suction cups of an octopus, accompanied by the chill, as opposed to the lamprey headache, which has the tactile sensation of sharp pain at one locus and accompanied by chills (for details, see Ohnuki-Tierney 1977).

Billington ([1966] 1970: 32–33) points out that at the fringe of "European civilization" in the Russian north, new church murals were becoming musical illustrations in the fourteenth century, and that the interdependence

of sight, sound, and smell had been important in the liturgy of the Eastern Church. Although not about nature, this example shows the way multiple senses are used simultaneously.

Nature had been captured and represented by other means, such as music, as seen in Beethoven's Symphony no. 6 (*Pastoral*), in Flight of the Bumblebee by Nikolai Rimsky-Korsakov, or in "Song of the Flea" by Modest Mussorgsky—the list is long.

The affective dimension of nature varies widely. The Sakhalin Ainu consider its inhabitants as *pirika*, meaning "sacred and therefore beautiful." Thus, the bear is *pirika* because it is the supreme deity (Ohnuki-Tierney 1974). In Western scholarship, the discussion of nature often involves concepts of aesthetics: the "beautiful" and "sublime." The discussion of sublimity often begins with Longinus, a scholar of perhaps the first century CE, who defined it as "a kind of height and conspicuous excellence" and said its presence in speeches and writings drives people "not to persuasion, but to ecstasy" (1985: 8–9). That is, he emphasized that sublimity is not a conceptual understanding but an emotive response. Often referred to is Kant's distinction: "The Beautiful in nature is connected with the form of the object, which consists in having [definite] boundaries. The Sublime . . . is to be found in a formless object, so far as in it or by occasion of it *boundlessness* is represented, and yet its totality is also present to thought" ([1790] 2000: 101–2; [1793] 2001: 306–8). He adds: "Sublimity, therefore, does not reside in anything of nature, but *only in our mind*" ([1790] 2000: 129; my emphasis). Elsewhere, he explicitly states that it is incorrect to call any object of nature sublime, but it is correct to call many objects of nature beautiful (103). "The *beautiful* is that which pleases universally without [requiring] a concept" (67), and therefore, "*Beautiful Art is an art in so far as it seems like nature*" (187).

Some Basic Themes

There are some themes in reference to "nature" that are quite common across cultures, if not universal. Let me describe a few of them.[1]

No "Nature" as a Distinct Category

For people in small-scale societies, primarily hunting and foraging peoples, there is no "nature" as a category of their environment. Descola ([2005] 2014) points out that "nature" as a separate category does not exist among the Achuar as well as among many other groups. He describes the Achuar view of hunting: "Woolly monkeys, toucans, howler monkeys . . .

are . . . the 'complete persons,' . . . we kill them for food, but they are still relatives." The hunters establish "the bond of friendship" with particular members of these species (15). His book, *Beyond Nature and Culture*, starts with a quotation from Aristotle, who warns that "any attempt to demonstrate that nature exists would be absurd" but defines nature as "the sum total of beings" (1, 65).

The Sakhalin Ainu do not have nature as a separate category. Their "hunting" was a supreme religious activity, and less an economic value, as in the case of their treatment of the bear, the supreme deity. The deity, the bear, offers its flesh and fur as gifts to the Ainu, who, during the elaborate bear ceremony, offer their treasures as their return gift and send its soul back to the mountains, the home of the bear (Ohnuki-Tierney 1974: 16–31, 90–97; 1999).

Wild Nature to Be Conquered

In some of the large nation-states built on an agrarian economy, "wild nature" is constructed to be conquered by the king or some elite males. Pointing out how the strong symbolic connection between kingship and the hunting of oxen/bull developed and persisted, Bertelli ([1990] 2001: 114–26) tells us that Gilgamesh, the Sumerian ruler who is said to have reigned between 2900 and 2700 BCE, was called "the mighty wild bull." In Mycenaean Greece (c. 1600–1100 BCE), hunting was the source of political and military power (Hamilakis 2003).

The Greeks had various forms of hunting, with different significations for social status. Hunting with hunting dogs, called *cynegia* (dog driving), had the highest status. In Plato's utopia, young ruling-class males practiced only *cynegia* (Cartmill 1993: 31–32). Beginning in 80 CE, gladiatorial contests between Roman "hunters" and exotic animals vividly portrayed the Roman elites' attitude and activities related to hunting, an utmost show of the *conquest of wild nature* and a demonstration of masculinity. The medieval "royal hunt" starts with *the creation of wild nature*, a large royal forest near every chateau, like Château de Fontainebleau, which Francis I redeveloped starting in 1528, or Château de Versailles, where Louis XIII built a hunting lodge in 1623. In these artificially created forests, kings and other elite males hunted animals to demonstrate their power by conquering wild nature. Hunting was their supreme political activity. In Eurasia, including the Middle East, India, central Asia, and China, the royal hunt was also extremely important and continued well into later periods (Allesen 2013; Bates 2013; Cartmill 1993).

In European societies, hunting remained a privilege restricted to nobility; commoners were not allowed to be in these royal forests. Therefore, it

was far from a subsistence economic activity providing a source of food, as clearly supported by the fact that people's riots took place *always* at times of grain shortage, as exemplified by the Flour War during the reign of Louis XV (Kaplan 1976a: xxvii–xxxix; 1976b: 446–47).

Countryside/Farmland as "Nature"

A universal phenomenon following urbanization, the construction of the rural-cum-natural took place in many of these societies. When cities are born, the rural is born, and urbanites often long for a connection or reconnection to "pristine nature." For them, nature is/was "there" among peoples engaged in foraging, pastoralism, and agriculture, when in fact nature does not exist either as a concept or word among these peoples. Farmland, created by a thorough destruction of nature, by clearing all the trees and other plants, becomes nature in the view of urbanites, giving birth to the symbolic opposition of nature and culture. In many post-agrarian societies, the two became antithetical concepts, each assigned with positive and negative values. The city represents culture with human achievements and, alternatively, the decadent human-altered space, while the rural represents the unspoiled pristine space or the wild or uncivilized nowhere. This development started early, reaching back to classical times (Williams 1973: 46–54). The cultural construction of the "English countryside" is well articulated by Newby (1979), Williams (1973), and others.

> To most inhabitants of urban England . . . the countryside supports a serene, idyllic existence, enjoyed by blameless Arcadians happy in their communion with Nature; or alternatively it is a backward and isolated world where boredom vies with boorishness, inducing melancholia and a suspicion of incest. (Newby 1979: 13)

In the 1970s, "in contrast to the apparently unending gloomy news about conflict-ridden, strikeprone, double-digit inflation, urban, industrial England," a *real* English countryside thrived in the minds of the people, especially middle-class English mostly ignorant of agriculture, and on calendar illustrations and chocolate-box lids (Newby 1979: 14–18).

In France, Marie Antoinette built a little farm in Versailles where she could play at raising sheep. Painters both major and minor chose rural France as their motif. The "grain stack" series by Claude Monet (1840–1926) and paintings of farmers (*L'Angélus*, *Des glaneuses*, etc.) by Jean-François Millet (1814–75) are the most celebrated examples.

In Japan, there already was "the rural" for the urban courtiers in Kyoto during the eighth century (chapter 3). However, the discussion of the rural/urban gained force during the late early modern period in reference to modernization. The Japanese nativist scholars supported the moderniza-

tion and industrialization of Japan while at the same time lamenting the decay of the quality of life in Edo (Tokyo) (Gluck 1985: 179–85). Yanagita Kunio's *Tales of Tōno* (*Tōno Monogatari*), published in 1910 (Yanagita [1968] 1981), is often cited as representative of the nostalgia for the rural at the time when Japan was rapidly industrializing. Yanagita collected the oral tradition of Tōno in present-day Iwate Prefecture during the last of the Meiji period (1868–1912). Harootunian (1988: 416,) is critical of Yanagita Kunio "re-presented" the voiceless narrative of the folk as opposed to civilization and rationality, and Orikuchi Shinobu equated orality with village simplicity.

Today, against incredibly tall skyscrapers mushrooming in Tokyo, NHK, the national television network, has a number of series featuring individual farmers informing viewers about their meaningful lives.

Pastoralism is also idealized as "a simplified life in the country" (Frye [1957] 1990: 143) and even reinforced by Christian teachings, as in a series of metaphors such as Christ the lamb, ministers as pastors, and believers as the flock. ([1957] 1990). Yet, in some European cultures, pastoralism, which required grazing land, was seen as in competition with agriculture, as noted by Braudel ([1967] 1973: 68; my emphasis), who unabashedly favored animal husbandry and meat eating, and lamented that "fields were cultivated *at the expense* of hunting-ground and extensive stock-raising. . . . [A] larger and larger number of people were *reduced to* eating vegetable foods . . . *often insipid and always monotonous*." Japan never had a pastoral economy until it was introduced on a small scale to a few places, like Hokkaido, during the Meiji period.

Nature in Foundational Myths and Religious Canons

In Greek mythology, Hercules is "Man the Hunter," and Deianira is "Woman the Tiller." In the Old Testament, God's preference is for Abel, a keeper of sheep, rather than Cain, a tiller of the ground. This differential treatment of animals and plants continued in history (Smith [1889] 1972: 269; Braudel [1967] 1973: 68; Ohnuki-Tierney 1993: 119–20).

As detailed in chapter 2, wet-rice agriculture was introduced to Japan toward the end of the ninth century BCE, giving the economic foundation for the development of a large complex society. With the establishment of the emperor system, the imperial myth-history explained how the grandson of the Sun Goddess was sent down from heaven (Takamagahara) to transform the Japanese archipelago from wilderness to a land of succulent ears of rice. The soul of rice grain was placed at the apex of the hierarchy of soul-bearing inhabitants. The emperor was endowed with the exclusive right to officiate all the rituals pertaining to rice and its growth—the role persisted throughout history up to today. The role of the emperor as the

custodian of rice was not preceded by a hunting tradition. This led to the emperor being in charge of temporality. Miyata (1992) emphasizes that this role is indeed at the very foundation of the emperor's power.

In some agrarian societies, the grains are considered deities, as in the case of corn and maize, and in others they are symbols of deities. In Christianity, wheat is not God but the abode for God, as further discussed in chapter 1.

"Nature" as Representations: Theoretical Overview

By "nature," I refer to the space in people's view of their universe that humans do not occupy. My interest is how that space is represented. It is an attempt to show how representations of nature become "nature," with Japan as an example. The Japanese have been like a poster child of "people who love and live in nature." *Nihon no shizen*—Japanese nature—has become so naturalized that hardly anyone questions it—like the word nature itself. Yet, the Japanese have engaged in extensive representations of nature through literature, music, architecture, and other visual and performing arts.

In Western scholarship, Plato, an early fifth-century Athenian scholar (429?–347 BCE), first articulated the notion of *representation*—art as a false representation, mimesis—of "nature." In the well-known allegory, he introduces "men dwelling in a sort of subterranean cavern," who are allowed to see only the shadows on the wall of what passes outside. In this situation, they "would deem reality to be nothing else than the shadows of the artificial objects." When one is freed from his fetters and "compelled to stand up and lift his eyes to the light, he realizes that what he was seeing was "a cheat and an illusion" (Plato [1935] 2000: book 7, 119–23). Using the painter as an example of an artist, Plato calls him the imitator who produces "an imitation of a phantasm or of the truth," and declares that "mimetic art is far removed from the truth," presenting a minor part while claiming to reproduce the whole. For Plato, art is a failed attempt to produce truth/nature (429–33). Ever since, "nature" has been at the center of much of academic discourse, especially in philosophy, art, and anthropology.

In his very short but enormously influential article, Benjamin ([1966] 1986: 333) points out that nature creates similarities, but it is humans who possess the highest capacity for producing similarities. This capacity, according to him, is "a rudiment of the powerful compulsion in former times to become and behave like something else."

Like Plato, Benjamin uses examples from nature for his theory of mimesis. As a concrete example, Benjamin ([1982] 2002: 33) points to the introduction of arcades and the construction of panoramas as "the scenes

of perfect imitation of nature," which was an "attempt to produce deceptively life-like changes in the represented nature," and which prepared the way not only for photography but for [silent] film and sound film." The arcades built during the latter half of the nineteenth century symbolized the watershed of a dramatic transformation of Western society from a culture of production to that of consumption (Benjamin [1982] 2002).

Benjamin's theory of mimesis is a significant part of his theory of modernity, in which "the decay" comes from a transformation of the mimetic faculty ([1966] 1986: 332–33). Taussig (1993: 20) considers that mass culture today "both stimulates and is predicated upon mimetic modes of perception." As this book, especially chapters 7 and 8, will show, the mimetic faculty continues to function or, in an even more intensive way, to convert the representations of nature into "true nature."[2]

Further developing Marx's proposition of the "fetishism of the commodity form," Lukács ([1923] 1971) proposed a highly influential analytical concept of *reification*—how the commodity form becomes the dominant form of objectivity in capitalistic societies. We will see in Chapters 7 and 8 the particular role Japanese religions, including "rice as pure money," have played in the passage to the naturalization of the commodity as the dominant form of objectivity.

For anthropological inquiry, the "real" or the "truth" in the sense used by Plato, the positivist, is not the concern of this book, since its starting point is how nature is culturally construed and defined, and how the culturally defined nature is represented and transmitted as real. If not regarding it as "a cheat and an illusion," we all too often assume that we know "the real" inhabitants of "the real nature," when in fact much of our knowledge comes from representations—culturally constructed images and meanings.

The realization that there is *no* "nature objectively out there" was forcefully presented by Latour ([1991] 1993: 90; 2010: 97), who wrote, "Real as Nature, narrated as Discourse, collective as Society, existential as Being: such are the quasi-objects that the moderns have caused to proliferate." According to him, this is what we, who pretend to be moderns, subscribe to. Although his argument is based heavily on the biblical tradition of the West, Rich (2021) likewise argues that "nature" has always been what humans make, although his emphasis is more on what he calls the "post-natural world."

Shirane (2012), who meticulously examined "the Japanese four seasons" during the premodern period using textual, performative, visual, and other materials, uses the term "secondary nature (*nijiteki shizen*)" to refer to the represented nature which became "a substitute for a more primary nature that was often remote from or rarely seen by the aristocrats" who lived in the city (Kyoto) (4).

My own personal experience took place when I began writing an article (Ohnuki-Tierney 1981). I drew a "real catfish," which my colleague Norman Whitten, then editor in chief of *American Ethnologist*, pointed out really did not look like a catfish. I then realized that I had never seen a "real" catfish, which the Japanese "marginalize" and hence is not sold or seen in fish stores. Yet many Japanese are familiar with visual representations of the fish and meanings assigned to it in their folklore, which include its role as the causal agent of the 1855 earthquake that destroyed a wicked society by punishing the rich and bringing a new world (Ouwehand 1964).

The importance of representations as the source of people's conception of "nature" is of paramount importance in societies where literary, visual, and auditory representations are highly developed. At times, there is a subtle "tug of war" between nature and its representation. For example, cherry blossoms are of paramount importance in all forms of representation of spring, the most cherished season. On the other hand, in ancient Japan there were only mountain cherry blossoms. Today, television follows the degree of blooming, starting from northern Okinawa, the southernmost region, as it goes up to Hokkaido in the north. It was humans and the successive governments who made Japan into the land of cherry blossoms by planting the trees all over Japan's riverbanks, school yards, military bases, and so forth. By far the most common type of cherry tree is a *someiyoshino*—a *hybrid*—that is, a type culturally altered by humans, created during the Edo period.

The above discussion of representation is only one side of the whole process, in my view. In other words, the basic question is: are these representations really "mimesis" of what is supposedly out there objectively? It is the issue of "form" versus "matter," debated by Plato and Aristotle (Rogers 1935; Shields 2020), as well the Japanese philosopher Nishida Kitarō. It is the question of whether there is some "matter" out there, which an artist or people give a "form."[3] Let me return to this topic in later chapters and the conclusion, using the examples of the rock garden, netsuke, and bonsai, which raise the possibility that in fact these representations are *not* mimesis of "objective nature" out there.

Culture as Historical Process

Since I have taken the most difficult path for research by choosing the entire prehistory and history of Japan for this project, let me explain by briefly discussing the need for a study over a long period of time.

Jan Vansina (1970: 165; 1985) has been the most prominent champion for the necessity to abolish "the zero-time fiction," emphasizing oral tradi-

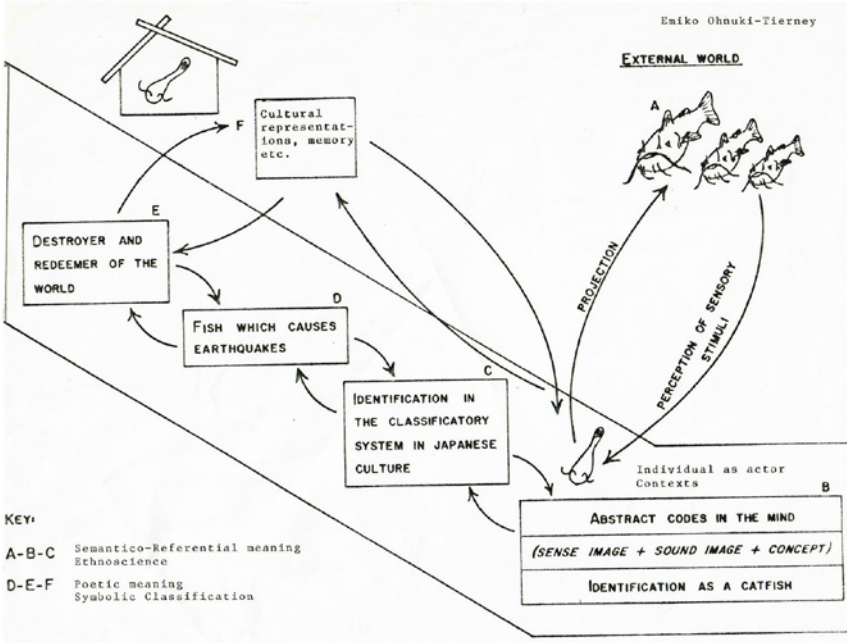

Figure 0.1. Catfish in "nature." Chart by the author.

tion as history. As I explained in my previous work, there are a number of approaches for studying culture as historical processes (Ohnuki-Tierney 1990a; 2001; 2002a; see also Hunt 1989). One major issue is the length of time chosen, depending on the problem under research. Sally Moore (1986) chose one hundred years for her study of the Chagga of Tanzania, and for his study of Western colonialism and capitalism, Sidney Mintz (1985) examined the entire modern period, during which sugar was transformed from a rare foreign luxury into a necessity for working-class British.

A tripartite scheme for historical research was proposed by Fernand Braudel, Marc Bloch, Emmanuel Le Roy Ladurie, and others of the Annales school. Braudel defined the "structure of the long run," or *longue durée*, in contrast to two shorter spans: the *conjuncture*, which covers a decade or up to a century, and the *event*, a short period of time when "surface oscillations" are most conspicuous (Braudel [1969] 1980; Furet 1972: 54–55; Le Goff 1972). Their choice is the *longue durée*, with apparent skepticism about the other two, as succinctly characterized by Paul Ricoeur (1980: 11), who forcefully stated, "History characterized by short, rapid, nervous oscillations" is "richest in humanity" although "the most dangerous." The

basic assumption is that the structure remains intact for a long period of time and therefore it is worthy of study.

Culture always consists of more than one paradigm. By "paradigm" I mean the basic model or pattern of culture. Revolutions—be it French, Bolshevik, or Mao's—are all the result of an alternative paradigm coming to the fore. There was no revolution, but medieval Japan epitomizes the presence of two paradigms, with the one below trying to usurp the existing paradigm (chapter 4).

In addition to the synchronic presence of more than one paradigm, historical flow involves the rise of a new paradigm. In the literary field, Charles Baudelaire (1821–67), in his well-known essay "Peintre de la vie moderne" ("The Painter of Modern Life"), clearly defined the term *moderne* (modernity) for the first time: "By 'modernity' I mean the ephemeral, the fugitive, the contingent, the half of art whose other half is the eternal and the immutable" ([1855] 2001: 12). Baudelaire's modernity was a new paradigm that emerged at the time and assumed dominance along with another that was stable and noncontingent.

According to Marc Augé ([1992] 1995: 79), with *surmodernité* (supermodernity) we witness the emergence of "non-place" (*non-lieux*)—impersonal space—without the complete erasing of "place," with its personal connections to the individual's space. He argues that the two constitute "palimpsests." When a new paradigm emerges, it interacts with the previous ones and may eventually become dominant. Culture as historical processes is always in motion (Moore 1986)—becoming and reproducing itself even when disintegrating. It transforms itself at the core in a constant ebb and flow, with local-transnational interactions as the engine of historical change.

Studying Japanese culture and society over a long period of time enabled me to examine the relationship between the quotidian and the "lofty" cosmological scheme. My research proved that cosmology/ontology and the like are not separate mental activities at higher levels but are intimately involved in the daily lives of the people. It is not a solid structure over which surface oscillations occur. Instead, the basic symbolic axis of the above and the below has persisted, upholding the everyday behaviors of the people, *and* verse versa, while both undergo historical transformations.

In reference to the topic of nature, my research enabled me to see that nature recedes as a series of representations take over and become "nature." Along the way, I was able to explore the complexity of historical change, in which no single individual exercises power; rather, historical change takes place, in the main, while those "in power" as well as those "without power" are more or less unaware of the process—those who created representations of nature did not tell others to copy their representa-

tions, but the latter willingly accepted the representation as true "nature." With the development of capitalism, nature became commodified and reified as "nature objectively" out there. Even this process does not involve coercive pressure; people are willing participants without knowing the process involved.

While we witness the development of capitalism all over the world, Japan's case offers an example of how its penetration of societies is not uniform. From ancient times, rice was "pure money" and naturalized the financial payments to religious practitioners as legitimate. In addition, the Japanese emphasis on reward during one's lifetime, rather than after death, has become the enduring practice, "endorsing," as it were, consumerism. Both of these factors have operated for a long time, giving consumerism a long and successful history in Japan, with people being willing participants without being aware of the factors involved in the process.

About This Book

Part 1 offers the basic information about Japan, its prehistory and early history, and its cosmology. Chapter 1 describes the nascent "Japan," when the political economy based on the wet-rice agriculture introduced by Koreans was established, when the imperial court constructed the cosmogony that deified rice grains, and when rice paddies became "Japanese nature." It also established the spatial division of the above and the below, with the former assigned a positive value and the latter defined as defiled. The book describes how this symbolic structure governing cosmological space as well as daily behavior continued to be upheld through time and remains even today.

Chapter 2 examines the inhabitants of the universe and their interrelations. The relationship between deities, humans, and some nonhumans is highly complex due to the border crossings by nonhuman animals, as well as humans who can be deities. Each of them, animate or inanimate, is endowed with a soul. Most importantly, the soul remains dormant until it leaves the physical body, upon which time, if not treated properly, it inflicts punishment on the individual, who may not always be the offender, leading to the collective responsibility among members of a social group. I consider animism to be the most important belief in Japanese religiosity, in the past and today.

There is a distinct hierarchy among all beings. The Japanese universe is dominated by plants, with rice at the apex. Next are trees. The hierarchy among trees depends on whether a divine soul uses it as a temporary abode. The normative classification of nonhuman animals follows the

basic cosmo-spatial principle, degrading the "four-legged" animals as the most defiled and hence taboo to eat. It is not because of the physical property of four leges but because the number of legs maximizes their contact with the ground. Yet, the same four-legged animals, such as monkeys and foxes, are the messengers to the deities. Furthermore, important religious cults developed, such as the Fuji Shinkō during the Edo period, in which the monkey played the important role as messenger for Mount Fuji. Another is the Inari Myōjin, the deity of rice grains, with the fox as the messenger with enduring strength even today.

Part 2 focuses on how "Japanese nature" was defined and represented in different periods of history. Chapter 3 starts with the poetic praises of rice plants in the *Manyōshū* during the late Nara period (710–94), which saw the initial development of the "four seasons" based on the original seasons used by the Chinese and reformulated by the Japanese. With the move of the capitol from Nara to Kyoto (Heian period), there was an efflorescence of the imperial culture, in which the imperial version of "the four seasons" became detached from the environment but was well established as "the Japanese four seasons," that is, "Japanese nature." The "imperial nature" reflected the opulence of the lives of courtiers at the palace, symbolized by butterflies, which fly above the ground, and by flowers without roots—neither touching the ground. Developing highly sophisticated aesthetics, the courtiers placed the beings of the imperial nature at center stage in their *waka* poems, such as *Kokin Wakashū*, and literary pieces, such as *The Tale of Genji*, which became important classics.

Humans too began systematic avoidance of the ground. The most important expression of this was the permission one must receive from the emperor to "go up" to the main building of the Imperial Palace for an audience, which was granted only to individuals of the highest rank. Others, called "people on the ground" (*jigenin*), including warriors, had to stay outside, kneeling with one knee on the bare ground.

The invention of footwear was the first attempt to enable people not to directly touch the ground when walking. Footwear then became the culprit and has not been allowed inside ever since, leading to the ubiquitous presence of signs declaring, "NO FOOTGEAR INSIDE." Carriages followed this development. For the emperor a special type of carriage exclusively for the emperor, called *hōren*, was used throughout history until the introduction of an automobile during the Meiji period. The ox-drawn carriage, called *gissha*, was for the courtiers who used ever more elaborate *gissha* to show off their status and wealth.

Chapter 4 discusses a most dynamic period in Japanese history, when the paradigmatic plurality came to the fore. The "lower conquering the upper (*gekokujō*)" reigned in Japanese society, as both the mentalité and

the governing principle of the social structure. The most dramatic example showing the power of historical agents is Toyotomi Hideyoshi, who was born the son of a farmer of no distinction and orphaned at a young age, and who ascended to the apex of the Japanese political system as the most fearsome of the warlords. While trying to prove he too was "cultured," he became the grand patron of the tea ceremony.

At this time, the warrior class rose to the top of the social hierarchy, pushing the emperors to the background. The emperors ceased to have power over the military, which became the exclusive domain of the warriors. Cultural affairs, such as composition of *waka* and *renga* poetry and events celebrating and appreciating "nature," became the courtiers' role and preoccupation. During this period, the representation of "Japanese nature" was completed, as it were. The year came to consist of twelve months, each defined by a plant (flower or tree), a bird, and a particular activity. Even if a particular flower might not bloom during the month to which it was assigned, the constructed "nature" governed.

Meanwhile, the most fearsome and brutal of warriors had to prove that they too were cultured (*bun*), rather than simply excelling in military skills (*bu*). The development of rock gardens and tea ceremony was the result of their efforts. The ground is not to be seen—all covered with rocks and pebbles. The rock garden became the quintessential "Japanese nature." Unlike the Western landscape, the Japanese *tei'en* (landscape) is said to represent "nature." Yet, the rock gardens show how the "representations" are not mimesis of "nature"—far from it. It is neither a mimesis nor a fractal minimalism.

Part 3 focuses on uses of "Japanese nature" as the symbol of the collective self of the Japanese as they became increasingly aware of Japan as a country in the world and their sense of *cultural* nationalism developed. Chapter 5 describes the ironic outcome of the prevailing peace within the country under the shogunate—the warrior class's loss of a raison d'être and consequently their economic and political powers. The highly urbanized new capital of Edo saw the rapid rise of capitalism. Since both the courtiers and warriors were legally prohibited from engaging in commercial affairs, the merchants seized economic power and developed their plebeian culture. Through a number of venues in art and literature, they celebrated "Japan as the land of rice paddies, cherry blossoms, and Mount Fuji"—creating the enduring symbols of "Japanese nature."

Another important development during the Edo period is the efflorescence of the plebeian culture of the merchant class, which further refined the non-minimalist tradition of poems of haikai and haiku—the literary tradition with the use of 5-7-5 words—and small-scale arts of bonsai ("garden in a pot") and netsuke (toggles).

Chapter 6 points out that with the rise of *political* nationalism, "Japanese nature" became a favorite tool used by the government for various purposes, not only to strengthen nationalism but also for economic development by luring both domestic and foreign tourism. Already in 1912, the Japan Travel Bureau was established, and in 1931 the national parks were designated for the promotion of tourism, at times when devastating changes to the "natural" environment were allowed to take place in Akan in Hokkaido, Oze near Tokyo, and elsewhere. At the height of Japanese militarism, cherry trees, which had represented Japan or Japanese nature since the Heian period (794–1185), were planted in the colonies to mark that they belonged to Japan, against the wish of the South Koreans, who are now planning to replace them with their own "king cherry" (Rubin 2014). This was also the time when the military government attempted to aestheticize the murder of its own soldiers by using the metaphor of cherry blossoms, which fall after a beautiful but short time.

In part 4, chapter 7 focuses on the role of consumerism, which gained velocity in contemporary Japan, playing a powerful role in the domestication of "Japanese nature." Contemporary consumerism also takes advantage of the cosmo-spatial principle and its valences in a number of everyday practices, including purification of cars, which accumulate dirt from the defiled ground on their tires, and the promotion of pet carts so that the feet of the pets do not get soiled when they "take a walk." This mutual reinforcement between capitalism and Japanese cosmological beliefs is so naturalized that most people do not realize the real nature of current consumerism. Likewise, the government and tourist industries promote tourism by the Japanese and foreigners to appreciate "Japanese nature" when tourists are not fully cognizant of the economic motive of their promotions.

Chapter 8 is an attempt to understand contemporary Japan, described in chapter 7, where consumerism has almost a free hand, domesticating the inhabitants of "nature." Meanwhile, magic and magical thinking flourish and animism legitimizes the business prosperity of temples and shrines. At the same time, the symbolic principle of above and below with respective valances also bolsters consumerism, promoting the need to supply footwear and other commodities to facilitate and reinforce the symbolic valences. Furthermore, this principle remains the cardinal rule for the everyday life of the contemporary Japanese—from the requirements for everyday behavior, such as taking off one's shoes, to architectural structures, such as the mandatory entrance area (*genkan*).

Through a critical assessment of social evolutionary theory, which sees a unilinear path of history from primitivism, characterized by magic and irrationality, toward modernity, marked by celebrating rationality as the

ultimate, I suggest that we abandon this yardstick—one based primarily on the historical experiences of Western European societies. Instead, we should look into the paramount role that "magical practices" play in *sociality* for the Japanese, who are known for an extensive practice of gift exchange. These magical practices play the role of "gifts," expressing one's concerns to a particular individual.

The ease with which temples and shrines have "cooperated" with consumerism requires some explanation. Money is equivocal in most societies and its nature—pure or impure—is determined in practice, that is, in how it is used. In the case of Japan, rice—the dominant symbol of "Japanese nature"—has been "pure money" almost throughout history. It was what the Japanese offered to the deities. Therefore, offering money to Shinto priests and Buddhist monks, for example, for the purification of cars, is not a departure for the Japanese, who have been used to offer rice and currency for religious purposes.

After a summary of major points raised in the book, the conclusion focuses on "the representation of zero"—are art and other human products always a mimesis of "matter" and other phenomena that are presumably to be copied? Or should we interpret, for example, the rock garden as human products without reference to "matter," and netsuke and bonsai *not* as miniatures but human products based on, for example, people's imagination of what a tiger, never seen by the artist, is about? To put it in reference to the Aristotle-Plato debate, should *form* without *matter* be another way to think about the problem of "representations"?

Notes

1. I use the term/concept "culture," which is more inclusive than cosmology and ontology, although the recent "ontological turn" ushered in intensive debates over these related concepts. "Ontology" has a long history in philosophy (e.g., Deleuze [1988] 1993, [1990] 1995) and has been used differently by various scholars under such terms as "differential ontology," "perspectivist ontology," "cosmological deixis," etc. Descola (2014: 271; [2005] 2014: 57–88) prefers "worlding" to differentiate his approach from ontologies, and offers a comprehensive history of "The Great Divide," including nature versus culture, in the Western scholarly tradition. Descola ([2005] 2014: 3–9, 13–17) considers that the similarity of interiorities justifies the extension of "culture" to nonhumans, including "intersubjectivity to a mastery of techniques, ritualized conduct and deference to conventions" (129–30). He states: "[A]ll this does not suffice to blur the major differences that exist between the cultures presented here as examples" (31).

   Viveiros de Castro (1998: 470, 479) proposes multinaturalism—the same culture, different natures. "Ontology Is Just Another Word for Culture" is an

edited volume (Venkatesan 2010), whereas Graeber (2015) entitles his article "Radical Alterity Is Just Another Way of Saying 'Reality.'" For further discussions, see Candea (2010), Geschiere (2013: 170, 256–57), Kelly (2014), Latour (2005), Ramos (2012), and Turner ([2009] 2017: 205–43).

2. For further discussion on the topic of representation and mimesis by Erich Auerbach, Walter Benjamin, and Michael Taussig, see Ohnuki-Tierney 2015: 14–15, 210.
3. Kant ([1781] 1966: 34) identified space and time as the two forms of sensibility. Some scholars have focused on the temporal element. Handelman (2020: 291) emphasizes that all forms are moving with time, as does Deleuze ([1990] 1995: 14, 47), who discards notions such as structure, the symbolic, or the signifier.

CHAPTER 1

Introduction

Robert J. Gordon

We live in a post-explorer era in which it is widely considered that the feats of the great adventurers are remnants of history and that the Earth's mysterious places and peoples have long "been discovered." Yet adventure enjoys ubiquitous status in public culture and late capitalism. Adventure television, from the Discovery Channel to the "reality shows," is a major growth area. Best-selling books and magazines increasingly feature "extreme content" and narratives of audaciously successful and famously disastrous expeditions. The best selling SUV (Sport Utility Vehicle) speaks volumes about the current fascination with adventure and the goods deemed necessary for it. Such purchases clearly have major environmental consequences, yet people persist in purchasing them even though they—like most SUVs—will never be used for what they are supposed to be capable of doing. These totems of the desirable bespeak a nostalgia for more heroic days.

Or consider "adventure travel." Once the province of elites, it has become accessible and fashionable among the middle classes, and is one of the fastest-growing segments of the tourism industry. It draws on, and serves as a conduit for, an increasingly transnational concern with the disappearance of distinctive places, cultures, and ecosystems (Johnston 1990; Zurick 1995). More than half of tourists (98 out of 197.7 million) defined themselves as adventure travelers (Travel Industry Association 1998).

Adventure should not of course be restricted to consumers: its therapeutic value is well-accepted. Over the last three decades, for-profit and not-for-profit agencies have developed adventure experiences defined as life-enhancing and identity-transforming. The best known of these organ-

izations is Outward Bound, which has established a significant market niche by emphasizing the power of personal challenge. Outward Bound, like most experiential programs such as Ropes and NOLS (National Outdoor Leadership School), embraces the belief that personal experience heightens self-awareness and builds "character" (Holyfield & Fine 1997).

Although anthropologists have explored kindred topics like danger and risk in depth (e.g. Douglas and Wildavksy 1982; Caplan 2000; Lianos with Douglas 2000), few have explicitly considered adventure as a subject in its own right, much less tried to explain the contours of its ubiquity for contemporary cultural production. There are good reasons for anthropology to examine contemporary concepts and forms of adventure, and this volume is an initial effort at presenting some of the major themes that could fall under an anthropology of adventure. We ask: What does it mean to have an "adventure," experientially speaking? What conditions transform quotidian lives and activities into adventure? How do differential access to resources or one's position in social hierarchies of gender, race, ethnicity, sexuality, etc. affect perspectives on risk, danger, and the experience of adventure? What is the social organization of adventure? What are the different ways adventure is commodified and visualized? How do Western understandings of adventure translate cross-culturally? What rituals and symbols are associated with contemporary forms of adventure? How does anthropology itself reflect shifting concepts and practices of adventure?

In this introduction, we examine the meanings of adventure, using as a focal point the seminal work of Georg Simmel. We then briefly situate the historical appearance and rise of a certain kind of adventurer and adventuresome sensibility that is captured in the imagery of Tarzan. We also explore the social conditions that have helped shape modern adventuring, particularly colonial-era traveling, the invention of the camera, and the rise of cinema. We examine contemporary expressions of adventure, and explore their relationship to commodification and capitalism. We conclude with an exploration of anthropology's own ambivalence toward adventuring, which derives from a combination of fascination and professional distancing.

Defining Adventure

The Oxford Concise Dictionary defines adventure as: "Risk, danger; daring enterprise; unexpected incident," and then adds "commercial speculation."

As if to underline this latter point, it defines an "Adventurer" not only as "one who seeks adventures," but also a "soldier of fortune, speculator, one who lives by his wits." A crucial element of adventure, as Nick Thomas has observed, is the "reconstitution of the landscape, certain things and some social relations in new imaginative terms" (Thomas 1987: 10). As a form of self-expression its potential lies in its ability to shift "between real and metaphorical contexts of deterritorialization" (Wardle 2002: 525). Adventures are fueled in the imagination but grounded in perceived and real risk that, were it not for the adventure, could be avoided. It is a special moment and place, as Erving Goffman (1967) puts it, "where the Action is." One has to be prepared, momentarily at least, to let go of a controlled situation and accept one's fate.

In Western cultural contexts, adventure is often communicated and understood through a biochemical idiom, as the pursuit of the "adrenaline rush" and the "endorphin high." Recent research does indeed show that risk-taking can have a drug-like effect on people because it releases dopamine, the chemical transmitter that pushes the neurological levers marked "gratification" in the mesolimbic reward system (Dabbs 2000). Charles Pasternak (2003) argues that what differentiates humanity from our genetically close cousins is the synergy of three otherwise ordinary evolutionary vectors, namely the development of the opposable thumb, a slight alteration in vocal-cord anatomy which allowed for a broad range of sounds, and the rapid accretion of neurons in the brain's cortex, all of which fueled a "taste" for searching, analyzing, and exploring. In short, questing. Indeed, some psychologists see evolutionary advantage in gratuitous risk-taking, in that it promotes both physical and cultural exploration and growth (see e.g., Apter 1992; Zuckerman 1994).

Adventure arguably has a close relationship to human biology, but to reduce adventure to its purely biochemical and evolutionary manifestations misses the rich social, cultural, political, and economic contexts that shape how and why people think of certain activities and images as adventuresome. Clearly a focus on adventure can be an important way in which to approach some of our central interests as anthropologists. Adventure provides a useful context in which to study issues of political economy, development, colonialism, and globalization, as well as issues of cultural identity, subjectivity, and representation, precisely because it breaks from, and can be a useful vantage point from which to consider, the humdrum of the ordinary life.

Simmel is one of the few social theorists to analyze adventure and his work provides an important thread linking all the chapters in this volume. In his classic 1911 essay "The Adventure," he observes that adventures are experiences that occur beyond the humdrum of everyday life. Adventures have clearly demarcated beginnings and endings, and generally entail dropping out of the continuity or reciprocal interpenetration with adjacent parts of what constitutes "life as a whole." As an experience, it is like "an island of life which determines its beginnings and end according to its own formative powers and—like the part of a continent—also according to those adjacent territories" (Simmel 1983: 223). Being free of normal entanglements, an adventure has a quality of self-sufficiency. They are part of the *exclave* of life, "torn-off" from a (somehow) unified stream of existence. Adventures thus frequently take on a dreamlike quality, which provides a heightened, if ahistorical, form of experiencing (Simmel 1983: 222–226). Both Yengoyan's and Gordon's chapters in this volume note the antistructural characteristics and similarities to some of Victor Turner's work in this regard. Adventures typically occur in non-normal places, that is, adventurers are by and large "strangers," another category famously theorized by Simmel (1950). In such untrustworthy places stranger/adventurers have a strong inducement to capture what impresses them most as "authentic" and "typical."

Risk-taking is intrinsic to adventure. When asked why he climbed mountains, Sir Chris Bonington replied:

> It's the drive to adventure.… To give it a wider connotation, if human kind did not get challenged by risk, we'd probably still be in the caves or probably would never have got where we were. So I think an intrinsic important part of the human psyche is this desire to stretch themselves to go into the unknown (BBC interview with Robin Lustig, Broadcast 29 May, 2003)

For Bonington mountaineering is a "calculated risk." The thrill lies in challenging danger and then using skill to obviate it. The word "risk" derives from the Italian *risicare,* "to dare." It is thus not a fate, but a choice that will depend on how much knowledge one has and how free one is to exercise options. Risk is therefore a cultural construction that is the result of active agency, not some passive reaction. As Paine (2002: 68) puts it, danger is objective, and risk is how one interprets it. Risk perception is thus shaped by both culture and social organization. Within such a social cos-

mos the distribution of power will obviously influence such perceptions (Douglas and Wildavsky 1982). As Simmel noted, adventure entails "the gesture of the conqueror." Inevitably adventurers have considerable coercive power, in that in pursuing their objectives they do not have to consider the objective natural tendencies. They labor under the apprehension that they can successfully battle the elements and conquer nature. Adventures typically occur in risky environments that would prod adventurers to be more careful, and indeed, calculated in their actions. In a study of mountaineers, the common characteristic to emerge was a strong attraction to ambiguity, uncertainty, and puzzlement (Mitchell 1998). They perceived themselves not as boisterous devil-may-care adventurers, but rather as capable people who enjoyed meeting challenges with complex problem-solving skills. Mountains are the classic site for adventuring, and several chapters in this volume, those by Houston, Logan, and Napier, deal with facets of this "sport."

Risks are generally based on imponderables that are frequently a product of lack of knowledge or the need to uncover a secret, a topic also pioneered by Simmel (1950). Awareness of secrets produces an "immense enlargement of life." An adventure thus involves undertaking action(s) involving dangers and risks the extent of which is "unknown" or a still a secret, which ultimately possibly imperil one's own existence. This element of awareness of danger is crucial. In his reminiscences, Sartre recalled that it was while serving in the French Underground against the Nazis that he felt most free: "Freedom is Terror and Terror is Freedom," he famously proclaimed. His countryman Camus said it well: "What gives value to travel is fear. It breaks down a kind of internal structure … stripped of all our crutches, deprived of our masks … we are completely on the surface of ourselves … this is the most obvious benefit of travel" (Camus 1962: 26). This is why a sense of adventure is so necessary for imperialism since the place of adventure is usually beyond what is defined as home or "civilization." Here nothing can be trusted, nothing can be taken for granted.

To be sure, people take risks all the time, but that does not necessarily mean that they are having an adventure, at least if we follow Simmel. One of the characteristics of modernity, as Goffman (1968) points out, is that chance-taking tends to be an organized affair, as in a competitive commercialized sport or gambling. Casinos are certainly places where people take risks; but because they are specially organized social spaces, adventures rarely happen within them. There are, of course, also a number of jobs or

careers that hold the potential for adventure. Indeed, a popular euphemism for mercenaries is "professional adventurers," and one simply has to look, as McBride does in this volume, at current U.S. military recruiting strategies to see how jobs are "adventurized." But even these high-octane jobs can be incredibly boring most of the time (Goffman 1968; Bourke 1999). In Simmel's formulation these would not be adventures as they do not entail time away from ordinary work. Adventure entails a strong ludic and avowedly nonwork element because it deals with nonessential chances. Indeed, for Michael Green, adventure is freedom to engage in normally socially unacceptable behavior. Being outside the normal bonds of society, one can give satisfaction to the wilder impulses and desires (Green 1993: 185). Gordon's chapter in this volume addresses this issue by comparing South African troops and United Nations peacekeepers in the same environment and argues that the success of the latter can be attributed to the fact that they saw their deployment as an adventure within a structured *communitas* situation, while the former did not.

For Simmel, adventure is an experiential framework: "The decisive point is that the adventure, in its specific nature and charms, is a form of experiencing. The content of the experience does not make the adventure" (1983: 229). Michael Crichton, the science fiction writer, describes how in an adventure one is "stripped of your ordinary surroundings, your friends, your daily routines … you are forced into direct experience" (cited in Strain 2003: 4). Adventures, it would seem, peel away one's own cultural baggage. At the root of tourism, and especially adventure, some suggest, is the quest for an authentic experience. Showing shades of Simmel's (1950) work on the "metropolis," MacCannell (1989) suggests that this is a reaction to urban alienation that grew out of industrialization and fragmentation of modern society. Authenticity, or the "cult of immediate experience" (Conner 1978: 56), is becoming increasingly important in this globalized world. Modern tourists and adventurers fervently pursue authenticity that they believe can be found by stripping away layers of culture and is a quality that so-called "primitive" societies experience. By subjecting their bodies to risk and stress in untamed nature and cultures, many Westerners believe that not only are they "getting away from it all" but they are also getting "in touch with their real selves."

This raises an important problem, Bruner (1986) argues, namely, that we can only experience our own lives, although we may seek clues and make inferences about another's experiences, typically by interpreting expressions.

To be a successful adventurer one must be a storyteller as well, and such stories are complex, their success depending on their ability to "transport" the audience so that they can live vicariously through the tale. The true mark of a hero or adventurer, Hughes-Hallett (as cited in Holland 2004) has recently suggested, is the ability to inspire in others forms of madness—whether desire, or terror, or both. Of course part of the art of adventure, as Bradburd and Napier point out in this volume, is precisely in denying the heroic. It requires more than simply rehashing the act and needs to include the "subtleties of feeling which flesh out 'mere' acts" (Zweig 1981: 96). Stories of danger can stimulate vicarious pleasures. Thus when a German tourist was mauled by a lion in the Etosha Game Park, tourism authorities expected it to have a negative impact on numbers but the story had precisely the opposite effect, leading to a healthy increase in tourism.

It is also necessary to distinguish adventure from other types of related experience, namely tourism and pilgrimages (although Houston's essay in this volume suggests that in mountaineering they can merge). Central to the marketing of the travel and leisure industry is the notion of an escape from the everyday. Most religions encourage travel in the belief that it is good for the soul. Pilgrimages focus on self-transformation. They are experienced and interpreted as rebirth, atonement, or liberation from materialism, jealousy, and hatred (and also of course status enhancement). While historically pilgrims were undoubtedly transformed mentally and physically, nowadays "time-space compression" has resulted in pilgrimages and adventures becoming vulgarized. One has to interact, albeit transiently, with strangers, thus the standard norms of reciprocity do not apply and in this sense it can be a high-risk activity. But what organized mass tourism does is minimize these risks by taking "the trouble out of traveling." The power and economic differential is such that tourists can typically withdraw if they feel threatened. And then there is that hybrid, adventure tourism. It entails a contradiction since adventure is about dealing with uncertainty, yet planned tours minimize this. Adventure tourism is marketed for those who have neither the time nor the desire to take the risk fully upon themselves.

Reminiscing about their adventures, it is clear as Houston's chapter suggests, that what many adventurers most fondly remember is the intense camaraderie, in which they rely upon one another not only for companionship, but for support in life-and-death situations. Indeed in the prefeminist era, Lionel Tiger wrote an influential book *Men in Groups* (1969), in which he argued that adventures were necessary for male-bonding, and that male-

bonding was critical for maintaining social order. In the Western imagination, adventurers have been almost exclusively male, and the very term carried with it a certain air of gallantry, while the term "Adventuress" brought forth mostly negative connotations around the theme of "gold digger." But this is changing. Nowadays adventure provides the grounds upon which conflicts over gender equality play out, as Logan and Mathers and Hubbard's chapters suggest.

Given the experiential component of adventure, it is not surprising that some (including Simmel himself) claim that sex is the signature adventure, since each sexual encounter is believed to be unique (Cohen and Taylor 1992). It is no accident that the only adventurer Simmel mentions by name is Casanova! Part of this dynamic undoubtedly is that the imagination often links cultural and sexual motives for travel. Sex for liberation and revelation was often an unstated feature of European travel in the nineteenth and twentieth centuries. As Sir Richard Burton, an early adventurer-anthropologist, recognized, a change of place frequently signaled a change of morals. There is a common belief that the "other" is always promiscuous. Thus Americans and Europeans believe that Africans and Latin Americans are licentious (Gilman 1985), while Africans, Arabs, Asians, and Latin Americans commonly believe the same of Europeans and Americans (Sumich 2002). It is not only men who engage in sexual tourism but increasingly also women, as Mathers and Hubbard suggest (see also Ebron 1997; Meisch 1996, 2002). Whether or not travelers actually engage in sex while abroad, sexual encounters often feature prominently in tales and fantasies, not only of the adventurers, but also of the local people on the site of the adventure (Bowman 1989; Sumich 2002).

Sex is frequently a coy part, at least of the literature on the adventure of travel, yet the sensual is an important if overlooked part of the adventure. In his essay on "Flirting," Simmel (1984) captures this corporeal ambience well. Flirting, he says, is a way of being suspended between having and not having, between consent and refusal. Flirting captures much of the contemporary sense of adventure with its air of self-indulgent lack of responsibility. But like yearning, it ceases once it is fulfilled. One can only be said to have flirted in the afterglow, once the danger has receded. The key quality is that of sustained ambiguity. It is this desire for sustained ambiguity implicit in adventure that recently led Laura Kipnis to pen a polemic entitled *Against Love.* She argued in favor of adultery because it allowed one to step outside the bounds of what people normally do. It discombobulates

temporality and provides a feeling of elation coupled to anxiety and gnawing guilt. As she says, "A strange virus seems to have invaded your normally high-functioning immune system, penetrating your defenses, leaving you vulnerable, trembly, strangely flushed. It seems you have contracted a life-threatening case of desire" (Kipnis 2003: 7). Adultery captures the metaphysics of adventure well. One is pushing the limits. One is betwixt and between statuses, and it could lead to a change in status. No wonder it holds the potential to be transforming, yet by definition militates against transformation.

Tarzan Ascendant

Sex is a powerful frame for considering adventure. But in this volume, we self-consciously turn to a more macho image, that of Tarzan. We do this because we feel he provides an even more powerful lens to consider adventure's ubiquity. As an icon Tarzan both transcends and highlights the specificity of adventure's historical meanings. In their day, Edgar Rice Burroughs's novels enjoyed enormous popularity because Tarzan represented the consummate colonial-era adventurer: a white man whose noble civility enabled him to communicate with and control savage peoples and animals. Tarzan is now the consummate "eco-tourist": a cosmopolitan striving to live in harmony with nature, using appropriate technology, and helping the natives who are too dumb to solve their own problems.[1] Tarzan is still an icon of adventure, because like all adventurers, his actions have universal qualities (observations that both Napier and Vivanco explore). But the meanings assigned to his adventurous actions, as with any adventure, are also highly dependent on specific historical, cultural, and political contexts. So what does Tarzan stand for and how do we explain his longevity and appeal?

Burroughs, who had never been to Africa, wrote his Tarzan books with a "50 cent Sears dictionary and Stanley's *In Darkest Africa*" (Torgovnick 1990: 26). He knew little about Africa and cared even less. His novels, and the movies based on them, are a hodgepodge of generic fantasies about savages and jungles, frequently not even based in Africa, and no one, certainly not the reviewers, bothered too much about such matters (Fury 1994). Tarzan clones like *Jacaré* also worked on this formula, as Whitehead shows. At its peak Burroughs's negative portrayal of women and blacks did not appear to attract criticism. Yet, according to George MacDonald Fraser, "prob-

ably no colonial writer except Haggard so shaped Western imagination of Africa and its people" (1988: 142).

Burroughs's first Tarzan novel, *Tarzan of the Apes,* was published in 1912 and a stream of twenty-three others followed. So successful was this enterprise that Burroughs registered Tarzan as a trademark in 1913 and licensed everything from coffee and bread to bubble gum and toys. Tarzan was the first fictional character to be multi-mass-media marketed. A Tarzan newspaper comic strip was successfully launched in 1929 (Green 1992: 199), and radio shows followed in 1931 (Morton 1993: 106). There was a veritable Tarzan industry, with "Tarzan Clubs" rivaling the Boy Scouts for the loyalties of boys and young adult males. But Tarzan influenced more than young boys. He was popular globally, translated into more than thirty-two languages. As late as 1963, Tarzan constituted one-thirtieth of the total annual sales of all paperbacks in the U.S. (Mandel 1963; Torgovnick 1990: 42). Of course the heady sixties also heralded the age of the Boeing, the rise of global mass air travel, and more importantly the founding of the Peace Corps and similar "helping agencies." Now instead of simply reading and fantasizing about Tarzan, one could emulate him, a theme that Sheridan and Price examine in their analysis of the Peace Corps as adventure.

Commentators like Gore Vidal (1963) interpreted Tarzan's viselike hold on popular memory to a desire and fantasy to escape, to dominate the environment. But such a reading, as Torgovnick (1990) suggests, is elitist, presenting the folks of the 1920s as dupes. Rather, she argues, Tarzan promised not an escape but a recreation of the modern world. The messages emanating from his novels were complex. He was a mover and a shaker who made things happen, like in the Peace Corps hype, or (as Vivanco suggests) the television figure of the Crocodile Hunter.

By the turn of the century the American frontier had been pronounced closed and the appreciation of wilderness reached national cult proportions, spearheaded by such popularizers as Teddy Roosevelt and John Muir. Many believed that white masculinity was under threat from a variety of factors, including the fledgling suffragette movement. Masculinity could be retained and regained by physical work and contact with nature. Tarzan's enduring popularity, Kasson believes (and Vivanco echoes), testifies to the enduring importance of manliness confronting the wilderness: Life is too soft and one has to prove and test oneself physically in tight spots. At the same time Tarzan represents a crude, albeit effective, intervention in the nature-nurture debate on the popular front, coming out clearly for "good

breeding" (Kasson 2001; Bloom 1993), or the "Blue bloods" as Napier would have it. The interrelations between Tarzan, adventure, and the origins of anthropology and "popular" culture were complex, and cry for detailed analysis, and the chapters by Yengoyan, Barnard, Bradburd, and Lindstrom examine various aspects of this situation.

Tarzan's Lineage: The Rise of Exhibitionary Adventurism and Modern Adventure Tourism

> Nowadays, being an explorer is a trade, which consists not … in discovering hitherto unknown facts … but in covering a great many miles and assembling lantern-slides or motion pictures … so as to fill a hall with an audience for several days in succession (Levi-Strauss 1974: 4).

The rise of modern adventuring is located in the aftermath of the Napoleonic Wars. Not only did this herald a period of comparative peace in Europe, it also signaled the growing importance of industrialization with all its important cultural consequences. There was also a powerful, if neglected, demographic stimulus. Demobilization was complex. The ordinary soldiers and sailors were easily discharged, but officers were a more politically volatile matter since they had the vote and political connections. Instead, they went on "half-pay," leaving the British Royal Navy, for example, with a ratio of one officer for every four sailors. In 1846, of 1,151 officers, only 172 were in full employment (Fleming 1998: 2). In such a situation "exploration" held a special appeal to the middle classes, and recently established organizations like the Royal Geographical Society helped to stimulate, channel, and advise on such matters. Gordon Cummings, an ex-Indian Army officer who pioneered sports adventure hunting in Africa, epitomized their approach and attitude. Cummings outsold Charles Dickens with his *The Lion Hunter of South Africa,* and claimed to be richer than Britain's wealthiest landowner, for in Africa "I felt that it was all my own" (Bull 1988: 64).

And then there was David Livingstone, still one of the European names most closely connected to Victorian-era adventure. How he achieved this near-iconic status informs us about the persistence of certain imageries of the Other and the sense of adventure they evoked. His first book, *Missionary Travels and Researches in South Africa,* was a best seller and sold over 70,000 copies. Changes in lithography and the emergent "penny presses"

ensured that illustrated books like those by Livingstone enjoyed a wide and rapid distribution, not just among the upper classes but, more importantly, among the aspiring classes as well. Given the inherently proselytizing nature of his mission work both in Africa and at home (perhaps one of the more successful examples of the use of "adventure" for mass fund-raising) he soon became a household name, especially when he got "lost." In 1871, in one of the greatest and most celebrated scoops in journalism, *The New York Herald*'s man, H.M. Stanley, met and interviewed him. Stanley's account, *In Darkest Africa* (150,000 copies), was read, in the words of one 1890 reviewer, "more universally and with greater interest than any other publication" (cited in Brantlinger 1988: 180). This Boorstinian "pseudo-event" was one of the milestones in the history of the mass media. Changes in print technology unleashed heavy competition, especially in the United States and Britain among what was later dubbed the "Yellow Press," and served to create and sustain the myth of the Explorer, epitomized by the remarkable success of the slew of self-promoting books Stanley later wrote (Riffenbaugh 1992).

Directly inspired by the tales of Livingstone was Francis Galton, cousin to Charles Darwin, founder of eugenics and second President of the Royal Anthropological Institute. What is less well-known about Galton is that as a twenty-five-year-old, emboldened by Livingstone's "discovery" of Lake Ngami, he tried to be the first European to reach the lake from the West. While he failed in this endeavor, within a year of his return to England he published a book, *Tropical South Africa,* for which he was awarded the Gold Medal of the Royal Geographical Society, and the Silver Medal of the French Geographical Society, and was elected to both the Royal Society and the Athenaeum Club. The book went through at least four editions and was translated into German and French. Buoyed by the success of this effort, he immediately started work on a second book that was also based on his travels. This was his even more successful best seller *The Art of Travel, or, Shifts and Contrivances Available in Wild Countries,* first published in 1855 and eventually running to eight editions. Clearly, its sales were to be found not so much among the emergent professional explorers who found it rather fanciful, as among the "armchair" travelers, and it informed and sustained the Victorian visual imagery of Africa and other exotic lands. It literally and figuratively set the standard for what adventures were supposed to be. This is clear from the first sentence of the book: "If you have health, a great craving for adventure, at least a moderate fortune, and can

set your heart on a definite object, which old travelers do not think impracticable, then travel by all means."

According to Galton, adventure was a unique "opportunity for distinction" to the young man who would "probably achieve a reputation that might be envied by wiser men," and one of the "most grateful results of a journey" would be for the young traveler to be admitted into "the society of men with whose names he had long been familiar, and whom he had reverenced as his heroes" (Galton 2000 [1872]: 2). A successful traveler did not hurry, took a passionate interest in his work, had a good temper and knew how to deal with reluctant servants, qualities that would surely have endeared themselves to those promoting imperial expansion, values that Bradburd and Napier allude to. Indeed, "Activating the craving for adventure was essential for progress," Galton later opined in his influential *Hereditary Genius:*

> Luckily there is still room for adventure, and a man who feels the cravings of a roving adventurous spirit to be too strong for resistance may yet find a legitimate outlet for it in the colonies, in the army, or on board ship. But such a spirit is, on the whole, an heirloom that brings more impatient restlessness and beating of the wings against cage-bars, than person of more civilised characters can readily comprehend, and it is directly at war with the more modern portion of our moral natures. If a man be purely a nomad, he has only to be nomadic, and his instinct is satisfied; but no Englishman of the nineteenth century are purely nomadic. The most so among them have also inherited many civilized cravings that are necessarily starved when they become wanderers, in the same way as the wandering instincts are starved when they are settled at home. Consequently their nature has opposite wants, which can never be satisfied except by chance, through some very exceptional turn of circumstances (Galton 1914: 334).

The Art of Travel provides the nitty-gritty of how these explorers/missionaries/traders claimed they went about their business. It was modeled on guidebooks, which were becoming increasingly popular in Europe and which framed the way travelers and tourists saw and described the world they traversed (Withey 1997; Sillitoe 1995). *The Art of Travel* contains surprisingly little advice on how to deal with indigenes in terms of both general etiquette and "extracting information." They were simply part of the backdrop designed to make the explorer-adventurer look good. In general,

Figure 1.1 • How to sleep with a gun according to Galton

and in accordance with prevailing theories, indigenes were seen, ironically, as adults with puerile minds.

Adventurers must not only have to look the part, they must act it as well. In performing their adventures, they took as role models their predecessors who in turn based their performance on the pantomimes of eighteenth-century Europe (Dening 1994). Galton had a keen sense of theater. A sense of the dramatic was important in pacifying potentially obstreperous natives. In dealing with a chief, Jonker Afrikaner, he describes how he dressed in his finest red hunting coat, jackboots, cords, and hunting cap, "a costume unknown in these parts," and defying the "great etiquette in these parts about coming to a strange place" charged with his riding ox right into the door of the chief's house and proceeded to berate the astonished chief in English (Galton 1889: 68–70). In Galton's world, a kierie (walking stick) became a scepter, and a dance became a ball. As Adler points out, "travels performed in a particular manner do not merely reflect views of reality but create and confirm them" (Adler 1989: 1382). Galton's legacy thus very much underwrote and gave credence to the fantasies of the (aspiring) middle class, which was later given further substance in the famous East African Safari of ex-President Teddy Roosevelt, or "Bwana Tumbo" as the locals

called him. His huge safari led to numerous newspaper reports and articles as well as another bestseller, *African Game Trails* (1910), and film *Roosevelt in Africa* (1910), which apparently did more to stimulate hunting and tourism to East Africa among the American public than any other single event (Bodry-Saunders 1991: 214–5).

In the Victorian Age, explorer's books exerted an extraordinary influence over the minds and fantasies of youth and adults alike. Adventurer's tales supplied entertainment and drama, and had widespread effects like the formation of working-class "Gordon Clubs" (named after the misbegotten hero of Khartoum), not to mention the later development of various youth movements, including the Boy Scouts and Girl Guides (Moorhead 1960). Their effects were multifaceted. In some cases, by treating nineteenth-century migration as an adventure, they facilitated the heavily institutionalized population redistribution in British dominions (Green 1993). In addition, these youth movements arose partially in response to a significant educational movement in Germany, and later the United Kingdom, which argued that a healthy mind required a healthy body. This also led to various schools like Gordonstoun (attended by Prince Charles), the Outward Bound Movement, and NOLS (National Outdoor Leadership School). All this produced and sustained a cult of sacrifice and heroism in late Victorian and Edwardian Britain, themes discussed by Bradburd, Yengoyan, and Napier. Certainly the most striking exemplar of this cult and the major media event of 1911, the very period when Simmel and Burroughs were writing, concerns the tragedy of "Scott of Antarctica." In retrospect, Scott epitomizes the foolish arrogance of the hero. Scott, like Tarzan, was hampered by middle-class prejudice from studying the transportation methods of the Inuit because they believed that the Will of the White male would triumph over technique (Jones 2004).

In New York, clubs like the *Adventurer's Club* and the *Explorer's Club* were so successful that they formed chapters in other American cities, like Pittsburgh, as Napier notes. In the 1930s and 1940s the *Explorer's Club* would publish books like *Told at the Explorer's Club* (1931) (three printings within three months) and *Through Hell and High Water* (1941). These clubs served as urban havens for the middle and upper class males who ostensibly met to promote expeditions of a quasi-scientific nature (Bradburd calls this "instrumental traveling"). Vetted expeditions were granted the right to fly the Explorer's Club flag, which "is a simple design one that is easily remembered by the natives of distant countries and had been loaned to 107 expeditions in the fifteen years prior to the Second World War" (Explorer's Club 1941).[2]

In the aftermath of the First World War, the new affluence and higher educational standards in the United States meant that as an "educational experience" one could more readily go abroad. Improved ease of global travel and development of technology like cameras provided a major stimulus to "adventure travel," an exercise actively promoted by fledgling national tourist authorities, steamship lines, *National Geographic* and Kodak (O' Barr 1994). The more "off the beaten track," the more "adventurous" it was portrayed, the more status accrual for the participants. The interwar years saw a slew of motorized expeditions, ostensibly engaged in scientific collection but with surprisingly few credentialed scientists accompanying them. The success, and indeed possibility, of these expeditions was fed by the nature of the socioeconomic boom of the 1920s. The myth was common, echoing Galton, that self-motivated persons could make a success of any career, and many of these early Adventurer-Impresarios were typecast in this regard. There are many candidates for the archetype, including filmmakers Martin and Osa Johnson, discussed by Lindstrom. Robert Ripley (of *Believe It or Not* fame) is also representative, as is the traveler-broadcaster Lowell Thomas, friend of presidents and other glitterati (Thomas 1976), who in the interwar years was more famous than any contemporary TV anchor. Finally, the interwar years were the heyday for that unique cult figure, Burton Holmes, "Everyman's tourist," who invented the term travelogue and gave over approximately eight thousand illustrated lectures and grossed over five million dollars for his efforts (Holmes 1977: 11). After the Second World War the tradition continued as variants of Tarzan metastasized. One of these is the Amazonian figure of Jacaré, who, as Neil Whitehead observes, was a key figure in helping shape and channel certain Cold War tensions and fantasies.

There exists a stereotype of the adventurer as the "strong and silent" type, that is, people who do not promote themselves for self-glorification. But adventure's close relationship with visual media complicates this stereotype, and this is one of Tarzan's most important lessons. In fact, visual representation has been crucial in framing public imagination of adventure, and the rise of photography and cinema go hand-in-hand with modern adventuring. It is a well-established truism that pictures by themselves do not create or perpetuate stereotypes. They need to be underwritten by narratives. It is no coincidence that as the machine gun, that tool of mass killing, was being developed and field-tested in the colonies, the camera was spew-

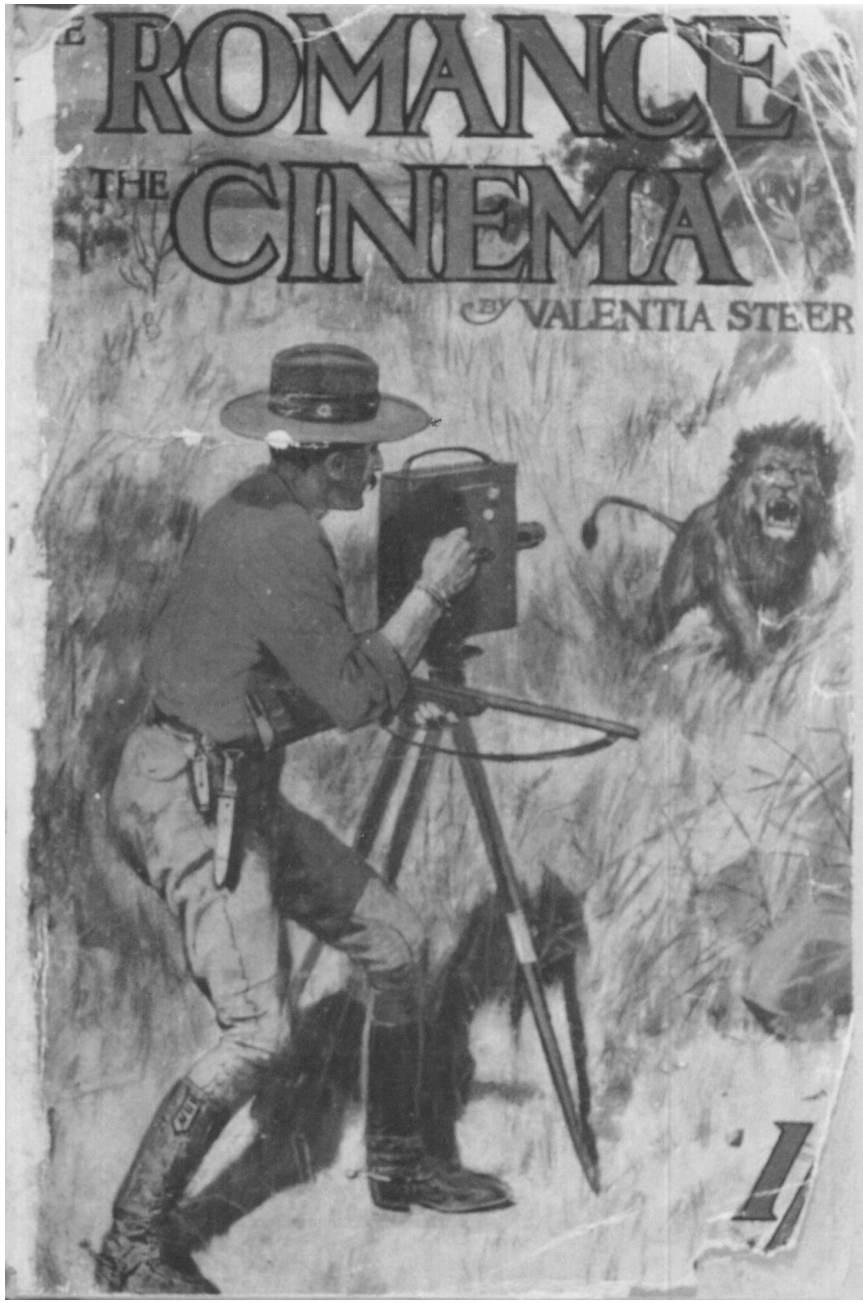

Figure 1.2 • Cover of Valentia Steer's *The Romance of the Cinema.* 1913

ing forth images in the form of postcards. Benedict Anderson has made much of "print capitalism" in the rise of the nation-state in the nineteenth century, but what we are dealing with here is an oft-ignored sequel, the transformation of print capitalism into picture capitalism. One consequence of these technological advances was that the borders between popular entertainment and scientific endeavors became increasingly blurred (Haraway 1989; Mitman 1999).

Not only was the public enthralled by adventure stories, but their imaginations were also fired up by the numerous "People Shows" or *Volkerschauen.* Here the living "savages" would be narrativized by some ostensible "expert." By the beginning of the twentieth century these shows were being displaced, initially by magic lantern and then stereoscopic shows and the illustrated Travelogue, and finally movies. As Valentia Steer observes in her remarkable 1913 book *The Romance of the Cinema,* "There is scarcely a town of any size in the world that has not at least one picture theatre" (1913: 11), and in the U.S. alone there were some sixteen thousand picture theatres at that time, estimated to patronize more than six million people a day. According to Steer, "topicals" (events of the day, such as the visits of royalty and politicians) and travel (especially wars and expeditions) were the main focus of cinema. The camera was and remains an important component of modern adventure. It provides a visual authentication that one has "been there," that indeed, the visual documentarian is very often the hero.

Indeed, perhaps the most ubiquitous form of adventure in the new millennium is *Exhibitionary Adventurism.* It is no accident that the first person to reach the North Pole, Robert Peary, had as a major sponsor the National Geographic Society, and that he took numerous photographs. Or that Captain Scott's famously disastrous expedition to Antarctica produced nearly five miles of film (Steer 1913: 97). The camera, that exemplar of modernity, is important because "its mediating function serves to make the explorer capable of the act of creation itself. Once legitimized in terms of his particular relation to photographic technology, the explorer can claim complete authoritativeness for his vision" (Bloom 1993: 87–88). Given the authority attached to visual evidence in Western society, photographs and especially documentary film footage represent events as authoritative and natural. Houston's father lugged a heavy camera on his trips to the Himalayas. The camera is the immortal eyewitness, documenting both triumph and disaster. Vivanco's examination of the connections between televisual worlds and adventure speaks directly to this legacy.

Postmodern Adventures and (Ad)venture Capitalism

There were other developments as well in the early 1960s, apart from massive time-space compression brought about by improved and more accessible communication and travel. In 1961, Daniel Boorstin notably defined a celebrity as someone who was famous for being famous. The rise of mechanical means of communication and reproduction, and subsequent emergence of media "sciences" like public relations and advertising, had produced a culture of "pseudo-events," events neither genuine nor fake, neither illusory nor real. Manufactured spectacles were designed to generate further manufactured spectacles. The Image had taken over, Boorstin suggested, because Americans could not face ordinary life anymore, in which the excellent and extraordinary were extraordinary and most of the things in life were mundane. Much of what passed for Adventure nowadays, he claimed, was a "pseudo-event." The problem with such a claim, as with the claim of false consciousness, is that it bespeaks an elitism, complete with the irony that it is often the rich and powerful who now can afford to have these "pseudo-events" largely as a status-collecting symbol. The rhetoric of adventure as "pseudo-event" allows for some people to claim the moral high ground, and it can thus be seen as a form of symbolic leveling. Indeed, says Hughes-Hallett, what heroes and adventurers are supposed to do nowadays is dazzle. "The capacity to stage a splendid tableau is a more important qualification for admission to the gallery of heroes than either survival or success" (Holland 2004: 16). This is indeed something that politicians like George W. Bush have realized, as McBride suggests.

Globalization has again transformed the role of our popular hero as his spectral presence is felt in television "reality shows." *Survivor, The Amazing Race,* and *Big Brother* now capture popular attention. Indeed, in Britain, it is estimated that ten million eighteen-to-twenty-five-year-olds voted during the *Big Brother* series, eight times more than voted in the last general election. As Bauman (2002: 61–68) points out, these shows do not simply explain what there is to be explained. More insidiously, they also suggest what viewers should think, and how to think about it. Rather than promote teamwork and community or solidarity as in "old school mountaineering" (per Houston), these shows suggest that one should use the team or larger group for one's own advancement. *Survivor* is about the disposability of humans, and the motto for shows of this ilk is, indeed, "Trust No One." These reality shows encourage lack of commitment, and since trust and faith are

the bases of society they are profoundly antisocial. Indeed, Bauman (2002: 72) cites a study that shows how creative energy was based on confidence in oneself and others, and supported by trust in the longevity and undisputed authority of social institutions. With no trust there is no courage to take risks, to assume responsibilities, and to enter long-term relations. Adventurers nowadays have such a degree of emotional and financial security that they can dispense with any need for personal involvement (Bauman 2002: 52). Tarzan or Crocodile Hunter, as Vivanco suggests, does not demand love, loyalty, or devotion.

One of the attractions of adventure has been the camaraderie of the small group. But contemporary adventure tourism, with its clear time constraints and well-structured activities, allows not for *communitas,* but for the creation of what Bauman calls "peg communities," which are formed by the hanging of individual concerns on a common peg, to be a one-day hero (Bauman 2002: 176). Furthermore, survival both in "reality shows," and increasingly in global capitalism, is now predicated on the new keyword: flexibility (Martin 1994). Flexible production procedures create short-term superficial relations at work, and in the local community. In addition, to cope with this short-term flexibility and increased mobility, workplaces and environments have become increasingly standardized, like many so-called "adventure tours," which are supposed to provide a sense of instant achievement. Flexibility and rapid reaction teams are the current fashions. Tarzan swinging from the trees epitomizes mobility, and this is one of the key consequences of the emerging global division of labor that rips asunder ties to place and people.[3]

Furthermore, it is the system of global capitalism that makes it possible for a small segment of the world's population to have the resources to journey afield in order to have ludic adventures. Indeed, one could argue, such is a product of hedonistic affluence. The rich assume a right to travel wherever they want, and do it with a sniff of ethical casuistry and self-indulgence as they wander around poor countries trying to find themselves or "develop" the poor and unfortunate (Iyer 1986). They believe they can escape to places where reality and time are suspended, miracles occur, and they meet the proverbial whore with the golden heart. Adventure tourism thrives on myths and ignorance. In this sense, adventure serves to display the adventurer's economic and cultural power. For many of the locals, the Adventure is a form of conspicuous consumption that exhibits the adventurer's powers of acquisition and taste. Indeed, the economic power of the ad-

venturers remains at the center of the threads that link adventure and sex (Littlewood 2001: 93). Even the feminists who demonstrate their sexual independence by taking black lovers are at the same time rebels against dominant values in their own society and exploiters in the host society, as Mathers and Hubbard show. One can be a rebel against dominant values and exploiter of them at the same time.

Hans Magnus Enzensberger has pointed out that nowadays the global elite see it as a human right to distance themselves as far as possible from their own "civilization." Paradoxically, the destination has to be both accessible and inaccessible, distant from civilization yet comfortable, dangerous yet safe (Enzensberger 1997: 127). It is hardly ever an adventure in Simmel's sense because if things got bad they could leave: "As we point to the return ticket in our pockets, we are admitting that freedom is not our goal and that indeed we have already forgotten what freedom is" (Enzensberger 1997: 135).

Ironically perhaps the person who has done more to undermine contemporary Western Adventure and contribute to its *ersatzization* is Galton. Among his many innovations and discoveries was his seminal contribution to the burgeoning industry of "risk management." He did this by "transforming the notion of probability from a static concept based on randomness and the Law of Large Numbers into a dynamic process in which the successors to the outliers were predestined to join the crowd at the center.… Regression to the mean motivates almost every variety of risk-taking and forecasting." This was to form the basis of the actuarial tables used in the insurance industry to insure against risk (Bernstein 1998: 170). According to the U.S. Census Web site, in 1997 the insurance industry was worth over $59 trillion and there were more than 352,603 licensed insurance agents. By 2002 the value of the industry had almost doubled to $105 trillion. With such insurance coverage, does any member of the privileged classes take an adventurous risk?

Anthropologists and/of Adventure

And what about anthropology? Anthropology has long had a romance with adventure. There is little doubt that its public identity is intertwined with it, a fact relevant long before the likes of Indiana Jones came along (as Yengoyan's essay here shows). Franz Boas himself was drawn to anthropology

through its association with adventure: his favorite books were *Robinson Crusoe* and Humboldt's *Cosmos,* and he practiced eating foods he didn't like, "In order to accustom myself to deprivations in Africa" (Pierpont 2004: 51). Many contemporary anthropologists will admit that it was a similar desire for adventure that attracted them to the discipline, a sensibility very much framed by mass media images.

But the association with adventure and adventurers has also been cause for tension within the discipline, as demonstrated in *Tristes Tropiques,* Levi-Strauss's most famous book, which opens with the words, "I hate traveling and explorers. Adventure has no place in the anthropologist's profession." Of course, in denial he emphasizes its place, reflecting the contradictions in the discipline's efforts at differentiating itself from Euro-american others (missionaries, explorers, traders, administrators, travelers, etc.), those figures often present in fieldwork but muted in traditional ethnographic writing and monographs. This is perhaps what makes adventure such an intriguing and productive theme for thinking about and contextualizing anthropology itself, for it means exploring the discipline's emergence out of the same historical and political contexts that produced adventure-seeking sensibilities and the visual spectacles associated with knowing otherness. It also entails an examination of how the discipline's own conventions of professional fieldwork and ethical praxis have been shaped in relation to (often in differentiation from) adventurers and adventuresome experiences, issues which Stoll's chapter in this volume directly addresses.

Adventure is also a rightful topic of anthropological inquiry, as a cross-cultural phenomenon. Can shamanism, which is intimately connected with the notion of a break with the mundane and an epic and highly hazardous journey, be conceptualized as adventure? Rubenstein addresses such a question, showing a sharp contrast between Shuar and Western concepts of adventure, and arguing that any understanding of non-Western concepts of adventure must begin with appreciation for very different phenomenological precepts and social practices. There are broader lessons here for a cross-culturally nuanced anthropology of adventure. Indeed, in many parts of the world, including Africa, migrant labor is treated as an Adventure (Luig 1996), but the goal is not necessarily self-discovery or self-enrichment. Given that African definitions of the self are not of the autonomous billiard ball variety but rather believe the self to be constructed out of myriad social relations and obligations (Piot 2002), a different version of adventure might be expected. It is suggestive that Rambo is popular in many parts of

Africa and the Third World, not because he is a tough adventurer, but because he is seen as fulfilling (pseudo) kinship obligations and fighting an intransigent and corrupt bureaucracy.

This volume covers the range of these concerns and the distinct kinds of research and analytical approaches they imply. As anthropologists we are convinced that one of the important roles of anthropology in the new millennium is to serve as tricksters and as intellectual *agents provocateurs,* both within and outside the discipline. Regarding the former, this volume is transdisciplinary in its methods and insights, drawing on insights of and in dialogue with disciplines like history, philosophy, literary criticism, film studies, political science, and gender studies. Yet, regarding the latter, this collection aims to do what any good anthropology should do, that is, both teach us something about what people are doing in the world and shake up our most common and taken for granted assumptions about what adventure is and what adventurers do.

Notes

1. In this regard Paul Theroux's essay "Tarzan was an Expatriate" (1998 [1967]) was inspirational.

2. Again the gender dimension is significant. In 1925 four women founded the Society of Women Explorers to encourage and support women engaged in such activities since no "explorer" organization would allow female members. This society, *The Society for Women Geographers,* still exists today with more than six hundred members, still however small change compared to the dominant men's organizations. The National Portrait Gallery has helped to correct this bias with a well-received recent show, "Off the Beaten Track: Three Centuries of Women Travelers" (Riding 2004).

3. Space precludes a discussion of the role of adventure as ideology in the development of capitalism. Suffice to refer the reader to Michael Nerlich's (1987) two-volume classic on this topic in which Weber's famous thesis on the Protestant Ethic is given a thorough airing.