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Anthropology is traditionally broken into several subfields, physical/biological anthropology, social/cultural anthropology, linguistic anthropology, archaeology, and sometimes also applied anthropology. Anthropology of the environment, or environmental anthropology, is a specialization within the field of anthropology that studies current and historic human-environment interactions. Although the terms *environmental anthropology* and *ecological anthropology* are often used interchangeably, environmental anthropology is considered by some to be the applied dimension of ecological anthropology, which encompasses the broad topics of primate ecology, paleoecology, cultural ecology, ethnoecology, historical ecology, political ecology, spiritual ecology, and human behavioral and evolutionary ecology. However, according to Townsend (2009: 104), “ecological anthropology will refer to one particular type of research in environmental anthropology—field studies that describe a single ecosystem including a human population and frequently deal with a small population of only a few hundred people such as a village or neighborhood.” Kottak states that the new ecological anthropology mirrors more general changes in the discipline: the shift from research focusing on a single community or unique culture “to recognizing pervasive linkages and concomitant flows of people, technology, images, and information, and to acknowledging the impact of differential power and status in the postmodern world on local entities. In the new ecological anthropology, everything is on a larger scale” (Kottak 1999:25).

Environmental anthropology, like all other anthropological subdisciplines, addresses both the similarities and differences between human cultures; but unlike other subdisciplines (or more in line with applied anthropology), it has an end goal—it seeks to find solutions to environmental damage. While in our first volume (Shoreman-Ouimet and Kopnina 2011) we criticized Kottak’s anthropocentric bias prioritizing environmental anthropology’s role as a supporter of primarily people’s (and particularly indigenous) interests rather than ecological evidence. In his newer

publication, Kottak (2010:579) states: “Today’s ecological anthropology, aka environmental anthropology, attempts not only to understand but also to find solutions to environmental problems.” And because this is a global cause with all cultures, peoples, creeds, and nationalities at stake, the contributors to this volume demonstrate that the future of environmental anthropology may be more focused on finding the universals that underlie human differences and understanding how these universals can best be put to use to end environmental damage.

From a cultural relativist perspective, anthropologists have long been tasked with contextualizing, understanding, and appreciating cultural differences (Herskovits 1973). Anthropologists traditionally highlight local, culturally specific contexts in which humans relate to their environment and largely contend that few general patterns can be discerned, as environmental problems are the products of particular historical and cultural configurations (e.g., Everett 2012). However, when grappling with questions and behaviors that have universal impact—like the far-reaching effects of pollution, global consumption patterns, and the increasing tendency to view nonhuman species in terms of “natural resources”—we are confronted not only by cultural differences in reaction, perception, and adaptation but also by cultural commonalities in terms of health risk, habitat loss, and resource scarcity.

The unfortunate reality seems to be that while environmental problems caused by factors such as consumption patterns differ cross-culturally, “developed” and “developing” countries alike, though at different rates, tend toward the accumulation of material goods. Consumption issues can be addressed through distinctions outlined by environmental anthropologist Richard Wilk—namely, with individual choice theory—as well as through social and cultural theories of consumption. According to Wilk (2002: 6), “each type of theory is grounded in fundamental assumptions about human nature and is connected to deep philosophical issues about the causes of human behavior, as well as methodologies for studying people” (Wilk 2002: 6). In social theory, the underlying assumption is that desire for social distinction and social solidarity are a part of human nature, part of what makes it possible for us to live in groups, and that consumption seeks (unsuccessfully) to satisfy these needs (Wilk 2002: 6).

Thus investigations into the tragedy of the commons—as well as certain failures of capitalist, communist, and most other political, social, or religious systems to control consumerism and to foster ecological morality (Hobson 2002)—lead not so much to questions of which cultures are to blame but, more rationally, to one of “human nature” and an investigation into the basis of human consumption and how to curtail it before all cultures are forced to suffer the shared consequences (Shoreman-Ouimet and Kopnina 2011). In the following sections we address the threats against humans and nonhuman species posed by environmental injustices; the suitability of theories and investigations into human biases, human nature, and human universals to help us understand and remedy these tendencies; and the various ways in which environmental anthropologists are addressing these issues, namely through engaging in interdisciplinary efforts, increasing reflexivity, and focusing on solutions-based research.

Environmental Justice

The recent shift toward the interdisciplinary study of the human–environment relationship and ethics is largely driven by issues related to social and environmental justice and environmental concern (Shoreman-Ouimet and Kopnina 2011: 2). *Environmental justice* refers to the equitable distribution of environmental goods such as natural resources and clean air and water among human populations as well as between species (Hornborg 2001; Rhodes 2003). The ethical dilemmas embedded within the concept of environmental justice are fourfold (e.g. Kopnina 2010). First, proponents of environmental justice seek to redress the inequitable distribution of environmental burdens such as hazardous and polluting industries to vulnerable groups such as ethnic minorities or the economically disadvantaged populations (e.g., Carter 2007). Second, *environmental justice* refers to developed and developing countries’ unequal exposure to environmental risks, such as the consequences of climate change (e.g., Lidskog and Elander 2010). In both cases, environmental justice entails the equitable spatial distribution of burdens and benefits to different nations or social groups (e.g., Elliot 2004). Within this conception, some anthropologists advocate indigenous rights in opposition to conservationist groups’ efforts to limit

indigenous groups' practices—such as hunting, fishing, or whaling (Pountney 2012)—or criticize the failure of local governments to compensate local populations for creating protected land areas (for different perspectives on this issue, see, e.g., Igoe 2004; Kopnina 2012b, and the Facebook group Just Conservation:

<http://www.facebook.com/JustConservation>). Third, *temporal environmental justice* refers to the issues associated with intergenerational justice: concern for future generations of humans (but not of other species). The final issue involves so-called biospheric egalitarianism—concern with other species and their exclusion from anthropocentric priorities such as social justice (e.g. Eckersley 1997, 2004).

Environmental anthropology gets increasingly engaged with ethical dilemmas as well as the need for practical solutions surrounding these issues. The first dilemma is illustrated by the definition of environmental justice as a condition when members of disadvantaged, ethnic, minority or other groups suffer disproportionately at the local, regional, or national level from environmental risks or hazards, and/or suffer disproportionately from violations of fundamental human rights as a result of environmental factors (Marino, this volume). The U.S. Environmental Protection Agency defines environmental justice as the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.

As Oxfam publications indicate, the poor suffer most from the effects of globalization and environmental degradation. Global warming is believed to affect the world's poor—those least able to protect themselves against crop failures and rising sea levels—far more severely than the more affluent. This is due in large part to the fact that the poorest people tend to live in the poorest environments, since the poor have been forced onto marginal areas by the process of enclosure, leading to deforestation, soil erosion, and agricultural failure in the rural areas of the developing world, McElroy and Marino (in this volume) indicate that these concerns are of great importance to morally engaged environmental anthropologists. This is well illustrated in Singer and Evans's chapter in this volume, which discusses water justice, referring to the ability of communities to access safe, affordable water for drinking and other physical and cultural uses. A related concept

they discuss is environmental racism, which refers to the enactment or enforcement of any policy, practice, or regulation that negatively affects the living environment of low-income or ethnically marginalized communities at a higher rate than affluent communities.

Temporal concepts of environmental justice associated with intergenerational justice reflect concerns for future generations of humans and underlie the definition of sustainable development encompassed by the Brundtland report (1987): meeting the needs of the present without compromising the ability of future generations to meet their own needs. Environmental anthropologists engaged with issues of development (e.g., Mosse 2005; Charnley and Durham, this volume) attempt to find the balance between increased needs of the people and decreased ability of our planet to provide enough natural resources.

Related to the concern about future generations is the final issue of biospheric egalitarianism or concern with other species independent of their instrumental value for humans. Many anthropologists question how *resource use* translates into western or local discourses, criticizing the very idea of converting *nature* or *wilderness* into *natural resources* or *ecosystem services*, the way powerful western institutions such as the World Bank or the United Nations conceives of *the environment* (Kopnina 2012a and 2012c; Shiva 1993). Environmental anthropologists insert complexity into the representation of the crisis as one of its unavoidable features (Crate and Nuttall 2009). Taddei (this volume) cautions that bureaucratic approaches to environmental problems tend to reproduce the flattening of existential perspectives, and this simplification takes the form of advocating the creation of a single global discourse for the problem through mass education, mass communication, market mechanisms, and international diplomacy.

From a conservationist point of view, the growing human population and level of well-being associated with greater consumption may have a negative effect on pristine areas of nature and contribute to further declines in biodiversity. In their contributions to this volume, McElroy and Kopnina question the anthropocentrism inherent in neoliberal, procapitalist, or western discourse and inquire how traditional ecocentric values map onto the global patterns of consumption, competition for resources, increasing cultural homogeneity, commercialization of trade, and above all the spread of the global ideology of neoliberal capitalism. Some speculate that social scientists

themselves might have been influenced by this historical anthropocentrism (Callicott 1999; Dunlap and Catton 1983; Kopnina 2012b; Kopnina and Shoreman-Ouimet 2011), thus emphasizing the need for a reprioritizing of the environment, reflexivity, and interdisciplinarity in our environmental anthropological efforts. This is of such pressing importance now because just as the consequences of environmental damage are shared by all, research is showing that so too is the blame for our human tendency toward such destruction.

Environmental Values, Anthropocentrism, and Ecocentrism

The differences between anthropocentric and ecocentric views can perhaps be more realistically depicted not as a divide but as a gradient or continuum. Yet it increasingly appears as though more and more cultures are sliding toward higher consumption and thus a heightened level of anthropocentrism. An example could be humans' basic utilitarian relationship to nonhuman species. In instances involving human and animal encounters, animal death was rarely seen as anything other than the result of cultural practice (such as hunting or whaling), economic interest (as in the case of animal trade—e.g., Thorne 1998), basic necessity (as in the case of animals used for medical testing or consumption—e.g., Shepard 1993), or symbolic ritual (as in the case of animal sacrifice—e.g., Levi-Strauss 1962). These acts toward animals rendered animals as culturally, socially, or economically significant objects and not as “victims” from the engaged anthropological perspective. Animals are also viewed as regulative property “such as Aquinas's disturbing argument that he who kills another's ox does indeed commit a sin, not, however, the sin of killing an ox, but rather the sin of inflicting loss of property on another human” (Fudge 2006). The work of anthropologists such as Donna Haraway who are engaged in multispecies ethnographies provides one key starting point for the “species turn” in social sciences: “If we appreciate the foolishness of human exceptionalism,” she writes in *When Species Meet*, “then we know that becoming is always becoming within a contact zone where the outcome, where who is in the world, is at stake” (2008: 244). While traditional or indigenous societies, such as the Inuit, used to express ritualized respect to whales and seals (e.g., McElroy, this volume), this relationship

has drastically changed to that of Western-style consumerism. However, McElroy also shows that some of the traditional ecocentrism still remains and that not all individuals share "new western values." Similarly, the reverence once shown for forest animals and other nonhuman species by Native American populations has been all but eradicated in American society by the cultural prioritizing of transportation and energy policies that place "mobility" and "modernity" before sustainability. Yet some groups or individuals still feel strongly about the loss and recognize the subjectivity of the "collateral damage," such as the roadkill (Desmond, this volume).

One explanation for current environmental problems could be historical, embedded in particularly western philosophical and religious traditions, which enshrine anthropocentrism (Taylor 2010). Plato and then Aristotle assigned eminence to humans on the basis of their being rational animals who were justified in exploiting unreasoning animals. According to Singer (1975), Judeo-Christian religions justify humanity's dominion over animals, including their use by humans for food, clothing, labor, and—in modern times—medical experimentation and entertainment. While some eastern religions teach that all life is sacred, Christianity contains no such explicit admonition and God's care for animals and plants are often juxtaposed against His far greater regard for humanity (Liddick 2006: 28).

Following this viewpoint of exclusivity, liberal mainstream intellectual thinkers often subscribe to the "shallow ecology" view of environment, which encompasses concerns that connect human health and wealth, where equity in the distribution of natural resources (sic!) takes precedence over concerns about the welfare and very survival of other species that constitute these "resources" (Kopnina 2012a). This in part stems from what Catton and Dunlap (1978) argue was long a fundamental problem with the social sciences' perception of the place of human beings in the natural world. The authors describe this as a sociological paradigm, termed the *human exemptionalist paradigm*, arguing that irrespective of particular theoretical orientation (Marxist, functionalist, symbolic interactionist, etc.)—sociologists have treated modern societies as "exempt" from ecological constraints. We have discussed these authors' efforts as well as more recent ones to rectify this with the development and application of the new ecological paradigm in an earlier volume (see Kopnina and Shoreman-Ouimet 2011). Still, within our own discipline of

anthropology, we see the dominance of an anthropocentric view in which animal rights are subservient to human rights and can be thought about at best when human rights have been fully addressed or at worst as a non-issue (Finsen and Finsen 1994).

Our acts toward animals are judged on the basis of how they affect human beings only and not on how they affect other species (Nibert 2002). This position is particularly disturbing as it has significant implications for many species that are not immediately useful for humankind, either for medical or substance purposes. Biodiversity protection should not necessarily be contingent on social and economic interests, such as deriving medicines from wild plants, because “Mass extinction could conceivably come to pass without jeopardizing the survival of the human species; and because people might be materially sustained by a technologically managed biota made to yield services and products required for human life” (Crist 2003: 65).

Recently some authors have also argued that market-based valuation techniques for prioritizing environmental protection are inadequate as they do not seem to capture the expanse, nuances, and intricacies of many of the ecosystem services as well as ecological identity and emotional attachments to nature, the value of which is not readily understood by economists (Kumar and Kumar 2008). Critics have noted that the green gross domestic product calls for the measurement of the benefits arising from public goods provided by nature, for which there are no market indicators of value (Boyd 2007). It is thus questionable whether a purely economic approach to biodiversity conservation is adequate to address the loss of *all* species. In the words of Quammen (1998: 1):

If the world’s air is clean for humans to breathe but supports no birds or butterflies, if the world’s waters are pure for humans to drink but contain no fish or crustaceans or diatoms, have we solved our environmental problems? Well, I suppose so, at least as environmentalism is commonly construed. That clumsy, confused, and presumptuous formulation “the environment” implies viewing air, water, soil, forests, rivers, swamps, deserts, and oceans as merely a milieu within which something important is set: human life, human history. But what’s at issue, in fact, is not an environment; it’s a living world.

In an age when food can be purchased from supermarkets and subsistence activities are largely substituted by wage labor, elaborate rituals of respect for nature, observed in too many indigenous societies to be referenced here, might have given way to the anthropocentric ideology of corporate and political power holders.

Largely in response to these and related problematic realities, the chapters in this volume demonstrate that environmental anthropology has entered into a mode of solution-based methodologies and interdisciplinary theories for understanding the mundane human– and cultural–environmental interactions at every point on the consumption gradient. Research today appears to be focused on postural existence, on the actions of the self and the realm of alternative actions, emphasizing the necessary steps toward preventing an environmental crisis.

Human Nature and Universals

Ironically, in these progressive steps to understand what we do and why and how to change it, we see an almost necessary return to one of the fundamental elements of anthropology: an examination of human nature. Anthropology moved away from the study of human nature in the past in order to meet the detailed demands of a cultural relativist approach. Yet today we can see how at some level these collections of cultural details can and perhaps should be put to use to understand why humans, as individuals and once again as groups, continue to strain the environment.

This type of understanding—of the nature of human beings and the human psyche—as demonstrated by the following chapters can come largely from interdisciplinary research, behavioral modeling and statistical analysis, reflexivity, and intensive historical and ethnographic research (Casagrande and Peters, this volume). For instance, we have a better understanding of how humans perceive their world as well as environmental risk through an analysis of forecasting and people's inherent reactions to the science of climate modeling (Taddei, this volume); how they tangibly interact with the world around them in urban as well as rural settings as they transport themselves and oppose state-delineated space for food production (Moates, this volume); and, at

an almost morbid level, how we have become so immune to the violence and tragedies of roadkill (Desmond, this volume). In short, as their activism intensifies, environmental anthropologists are also coming home—geographically, where they are examining the impacts of their own daily paths; methodologically, where they can now attempt to influence human behavior with their data and research; and theoretically, where they are revisiting the fundamentals of human nature in order to dissect and redirect our collective and destructive course on earth.

Human Nature

One of the persistent themes in the anthropology of environment and environmental anthropology is the relationship between nature and humans and indeed the very notion of human nature. Over time, however, the notion of human nature has been devalued from the status of grand theory to a marginal anthropological debate (Sahlins 1976). Clifford Geertz once stated: “There is no such thing as a human nature independent of culture. Men without culture . . . would be unworkable monstrosities with very few useful instincts, fewer recognizable sentiments, and no intellect: mental basket cases” (1973: 49).

Thus cultural or structural explanations have been called upon to explain why common patterns of consumption or destruction of habitat have emerged without references to any genetic or “natural” commonalities between people. One of these structural explanations is the role of power (the influence of western ideology, the role of corporate elites in influencing government decisions, the power of neoliberal state and market mechanisms, etc.) in influencing how local, indigenous, or “minority” communities behave and even think (Crossley and Watson 2003). As Casagrande and Peters argue in this volume,

power elite[s] discursively manipulate cultural models and cognitive dissonance to maintain power. As information systems become more complex, the potential for dark information, or intentional disinformation, increases. This is largely a function of inequalities in the abilities to produce as well as consume information. Dark information, evasion of cognitive dissonance,

epistemological pathologies, and nonoptimal patterns of variation around consensus reduce the resiliency of human systems—often resulting in socioeconomic and environmental collapse.

Yet as a review of interdisciplinary literature suggests, the notion that human capacities are not genetically specified and thus purely structurally or culturally dictated is largely debated by recent discoveries in the fields of biology, genetics, neuroscience, social and evolutionary psychology, and sociology. As the following chapters demonstrate, however, contributors to this volume share an interest in both culturally specific and universal features of humanity and the ways in which these factors influence human behavior in the environment from contextual, empirical, and general theoretical points of view.

Human Universals

According to anthropologists Pinxten (1976) and Brown (2000), human universals comprise features of culture, society, language, behavior, and psyche for which there are no significant exceptions within the cross-cultural perspective. Universals may refer both to capacities and to propensities. While propensity is generally understood to be inner and innate, capacity is something that can be cultivated or repressed. Universals can be seen as capacities that are contextually dependent and not necessarily present in all times and places and that tend to innovate within structural forces, historical events, or practical problems of daily life.

Pinker, an experimental psychologist and cognitive scientist, believes that universals are situated somewhere between nature and nurture” (Pinker 2002: ix). However, Pinker’s classification of 200 human universals (based on Brown 1991) falls short of critical reflection upon what such universals as “adjustment to environment” mean in a contemporary industrial system. Universals such as the capacity for technological innovation, desire to elevate one’s status through material possessions, and preoccupation with social justice in combination with conditions of global industrialization can add additional insights to the existing theories that explain causes of environmental degradation as well as providing possible strategic solutions for addressing the current environmental problems (Kopnina 2013; Miller 1999).

Human universals intertwined within complex and constantly changing political and social systems, have not historically led to the negative environmental effects on the scale we are experiencing now. However, they do lead to environmental degradation in the context of industrialization, the spread of consumerism, and the politics of global power.

From a historical point of view, human adjustment to the environment involved learning basic survival strategies for our ancestors, who were vulnerable to environmental changes, resulting in a gradually adaptive and responsive system of learning. This learning involved the development of physical and mental survival capabilities relevant to the geographical area where our ancestors lived and the practice of habits, customs, and collective memories that facilitated family and tribal group membership.

Environmental adjustment today is very different in kind, often involving learning nature facts about distant places far removed from industrial, (sub)urban, or rapidly developing agrarian communities and technologies for efficient food production, safety control, and “environmental management” systems in which “environment” is increasingly viewed as “ecosystem services” and “natural resources” (Anderson 2012). While the human capacity for adjustment to the environment is constant, its content is dramatically changed; this has far-reaching consequences not only for the way “environment” is conceived but also in the way the environment is *used* in order for humans to adapt. In the age of the Anthropocene (Crutzen and Stoermer 2000), it is the environment that needs to adapt to human needs and not the other way around. To illustrate this point, Marino’s chapter in this volume discusses not only the question of the environment (and the particular case of climate change) influencing human migrations but also that of human migrations influencing the environment.

It seems plausible that the same universal features that have probably contributed to the degradation of the environment can also contribute to its protection through the very same mechanisms of technological innovation, desire for higher status, and sense of justice (Stevenson and Haberman 2004). If individual choices can be channeled by ecologically well-informed governments and environmentally educated individuals in a way that would allow individuals to go *with* and not *against* the grain of human nature, some positive changes could perhaps be seen

(Kaplan 2000). We may recall Kant's dictum: "Our human nature has this aspect that it cannot be indifferent to even the most remote epoch at which our species may arrive if only that epoch may be expected with certainty" (Kant 1949: 127). As contributors to this volume convincingly argue, our human concern for the future and our ability to care are, too, the persistent universal features of human nature.

Interdisciplinarity

Questions of human universals as well as cultural differences and similarities in regard to issues such as consumption lead anthropologists to ponder their academic interceptions with other scholars of the human–environment relationship, such as social geographers, political scientists, conservation psychologists and ecological sociologists, as well as social scientists concerned with the relationship between their discipline, ethics, and philosophy. Until recently, it appears, anthropologists had not fully engaged with sociologists or psychologists employing mostly quantitative methodologies, preferring to stick to the traditional anthropological methodology of participant observation and in-depth interviews while shying away from generalizations that might have resulted in useful policy recommendations (Charnley and Durham 2010). With the exception of applied anthropologists, mainstream academics were cautious to engage in advising positions within international organizations for the sake of preserving academic independence and moral integrity (Lewis 2005; Mosse 2005).

Perhaps not so coincidentally, in 1994 a survey of departments by the American Anthropological Association reported the following predictions by department chairs concerning the directions of anthropology in the next twenty-five years:

1. There will be "greater emphasis on the contemporary world and processes of global change."
2. Anthropology will become "more interdisciplinary."

3. Sociocultural anthropology will find it increasingly advantageous to “involve its faculty [in programs] . . . such as sustainable development, world ecology, environmental studies, comparative global perspectives, global interdependence and internationalization” (40:1).

In this volume on the future of environmental anthropology, we see newcomers and respected pioneers in the field fulfilling these department chairs' prophecies. Contributors to this volume are working in collaboration with other social scientists, economists, statisticians, city planners, biologists, educators, policymakers, and medical professionals to actually institute change and follow through with the applications of their research for the benefit of societies and the environment. Furthermore, they are bringing these very theories, questions, and solutions home—they are examining their own behavior, analyzing the psychological basis of their subjects' behavior, and in many cases contributing to policy to enact change in their own departments, communities, and governments. Some anthropologists, like Chawla and Cushing (2007) and Isenhour (2011), have argued that anthropologists need to engage with consumer behavior theorists, political scientists, and educational professionals to understand social and political barriers to sustainable behavior. We are beginning to see this type of interdisciplinary work here with chapters emphasizing the pressures and challenges that are facing people in the contemporary world as well as the diversity efforts being made to alleviate these hardships.

Given that environmental anthropologists will be increasingly called upon to address complex problems of conservation and sustainable livelihoods around the globe and to contribute to policy initiatives that support social and ecological resilience, Charnley and Durham, contributors to this volume, ask: “How can we best contribute, methodologically and analytically, to help solve this perplexing challenge?” Along with several other contributors to this volume (see Vayda and Casagrande), these authors propose interdisciplinary methodologies that embrace the fields of biology, geoscience, ecology, genetics, neuroscience, social and evolutionary psychology, and sociology.

An additional example of interdisciplinary engagement is between anthropology and ethics. Within the deep ecology perspective, concerned with the intrinsic value of “environment” with or without humans and rights that are associated with this value (Devall and Sessions 1985), there is an

ethical debate as to what degree intrinsic value should be attributed to individuals within the species (Regan 1984), entire species (Ferry 1995), or even entire ecosystems (Regan 2003; Singer 1975). Ecocentric thinkers argue that if moral considerations underlying present-day social issues—such as racism, sexism, and wealth inequality—were to be extended to other species, the contrast in ethical values and anthropocentric bias would be quite striking (Ehrenfeld 1978; Foreman 1998). In their engagement with environmental ethics, environmental anthropologists have developed an ongoing debate on whether traditional or indigenous societies have ever espoused or do still hold onto the position of deep green ecology (for review of these debates, see Shoreman-Ouimet and Kopnina 2011). Many environmental anthropologists argue that there is a range of ecocentric positions in traditional societies that needs to be understood in relation to these dominant ideologies (McElroy, this volume).

Interdisciplinary efforts toward answering these broad questions can be illustrated by an examination of the theory of postmaterial values. Its proponents (Inglehart 1971) have assumed that poor or marginalized communities simply cannot afford to care about the environment. However, as conservation psychologists have demonstrated, defenders of these values may stem from both indigenous and nonindigenous societies and be individual rather than culture-based (Stern and Dietz 1994). Environmental sociologists and social psychologists have employed international surveys to demonstrate that national wealth is not correlated with environmental concerns of a global nature, challenging the claim of adherents to the postmaterialist value theory that the poor are too preoccupied with their material needs to support such “luxury” issues as environmental protection (Dunlap and York 2003).

Environmental anthropologists, on the other hand, have complemented insights from quantitative data by stressing that, in the words of Casagrande and Peters (this volume):

Belief in core symbols bind people together, but variability in the interpretation of symbols and diversity of knowledge allow for cultural adaptation—much like genetic variability does for biological adaptation . . . Diversity may provide greater potential information, but whether access to decision making is egalitarian or socially stratified determines how and whether potential information is realized.

Another example of interdisciplinarity in this volume is provided by Vayda in his reflection on research starting with environmental events, such as forest fires, and proceeding to their causes. In his chapter and his earlier work (Vayda 2006), he argues that environmental anthropologists can contribute effectively to such research by giving up their discipline-based explanatory priorities and being consistently guided instead in their inquiries by the clearly defined and concrete goal of causally explaining the environmental changes or events in question.

The Future of Environmental Anthropology: Introducing the Chapters

In this volume, we find a burst of new theoretical approaches, methodologies, subject pools, and topics. Characterizing these works are several broad themes, including reflexivity, pathways, risk (health and environmental) assessment, and human nature; underlying all of them is an emphasis on interdisciplinarity and solutions-based research. Drawing on interdisciplinary research or centuries-old philosophical questions associated with the epistemology of our knowledge of ourselves, of others and of our environment, contributors to this volume demonstrate that reflexivity can also link biophysical, sociocultural, and ethical theories addressing the complexity of the world we live in from more than just an anthropological perspective. Contributors to this volume have also provided direct and indirect references to reflexivity in environmental anthropology and the growing importance of looking at the way in which we affect the world around us as we analyze it and move through it. This reflection is directed not only toward the self and the paths these anthropologists travel in their daily lives and their actions and impacts on research subjects (people) and “field” (environment) but also toward the reflexive qualities of their subjects and the extent to which the individuals they are working with are questioning their own environmental behavior.

In our earlier volume, we divided the chapters into three sections: Theory, Methodology, and Ethnography. Yet as we found further evidence of the evolving nature of the field, we have found that breakdown to be less applicable in our present work. As our contributors demonstrate, the future of environmental anthropology entails the development of interdisciplinary methodologies

or the investigation of novel questions as well as the mundane aspects of human life. From these studies, theories are born and models are built, evolving and generating new questions and theoretical constructs. Thus in this volume, instead of grouping the chapters, we are simply ordering them according to shared emphases and themes—namely, pathways, risk assessment, and alternative methodologies and lifeways. Thus we are recognizing that the true underlying link between all of these contributions is an emphasis on interdisciplinarity and solutions-based research.

Pathways: Reflections on Self and Society

Contributors to this section are largely united by the concept of the pathways that people take, literal and figurative, through their environment and how they interact and affect that environment on their way. The theme of pathways emphasizes a number of themes in environmental anthropology, including the self and society as well as reflexivity and self-reflection.

Cycling, highways, life histories, paths from the past, roads (or misty vistas) into the future are all themes explored by the contributors to this volume. Whether be it bike paths (Vivanco), highways (Desmond), or water flows (Singer and Evans) learning trajectories (Kopnina), progression of indigenous knowledge (McElroy), and progression of our own discipline (Taddei, Vayda) from small-scale to intensive agriculture and urban development (Moates), the pathways that people follow to become part of their experience in the environment and therefore shape the way they feel about, see, and behave in the environment. Both Taddei and Vayda, later in the volume, reflect on what the future of our discipline might look like, taking both the mainstream roads and the smaller, less traveled paths.

In his contribution to this volume, Vivanco uses the metaphor of a bike to demonstrate the ethics of simple living or an attempt to get people to think differently about recreation, making use of the ordinariness of the bicycle and its potential to express earthly concerns. From this vantage point, he states, the bicycle is both symbolic—an iconic expression of green discourse—and practical, as a material object of daily use that lends itself to distinctive practices of everyday life.

In the era of public concern over global warming, Vivanco reflects, bicycle riding has come to represent a form of globally aware sustainable living and caring for the earth. Vivanco explores a variety of discourses—within transportation planning and advocacy, environmental social movements and organizations, popular and televisual cultures, and bicycle industry advertising—as well as life at the community level.

In her chapter (“Requiem for Roadkill: Death and Denial on America’s Roads”), Desmond reflects that roadkill or roadkilling is generally seen as a category of human-caused animal death to which no responsibility is attached. The general presumption is that the driver of the car did not intend to kill the animal but rather that the death was unavoidable owing to the conventions of highway travel (high speeds, night and day driving, placing human above animal life if evasive maneuvers would be dangerous, and so on). The notion of “unavoidable” and “would have avoided if I safely could” result in a legal and ethical understanding that does not attach blame to the driver of a vehicle that has caused the death of an animal by driving into it on a road. The road is the province of the car and driver.

Moates investigates agriculture at the urban margin in Montevideo, Uruguay, and discusses the role of urban agriculture in the twenty-first century. He notes that the role and perception of urban agriculture have evolved over the years and is only finally being recognized for its value in increasing food security and improving the urban landscape. Moates believes that continued research on urban agriculture and the rural/urban margin can create a smoother transition to urban agriculture with fewer negative by-products and also provide many benefits, such as increased access to healthy foods for large numbers of urban poor, land tenure security for marginalized populations, and the provision of jobs and income for the most vulnerable members of the population.

Kopnina’s chapter addresses environmental education as an important subject of anthropological inquiry and demonstrates how ethnographic research can contribute to our understanding of environmental learning in both formal and informal settings. The anthropology of environmental education is rich in ethnographies of indigenous knowledge of plants and animals as well as emotional and religious engagement with nature passed on through generations.

Ethnographic and critical studies of environmental education are discussed as one of the most challenging directions of environmental anthropology of the future.

Health, Risk Assessment, and Prediction

This section is devoted to the theme of health, risk assessment, and prediction. As medical and environmental anthropology, as well as sociology and other social sciences, have been historically interlinked (Inhorn and Wentzell 2012; Kopnina and Keune 2010), the future direction of environmental anthropology seems to be intertwined with an anthropology of health and body as well as the sociology of risk, following the work of Beck (1992) and Giddens (2009). The term *risk society* became popular both as a consequence of its links to trends in thinking about wider modernity and also its links to popular discourse, in particular, the growing environmental concerns and spanned interdisciplinary boundaries. Contributors to this section examine the long-term effects of ideologies and lifeways on human environmental health by emphasizing the necessary connection between environmental and medical anthropology in this age of environmental health problems and heightened environmental risk.

In her chapter (“Sedna’s Children: Inuit Elders’ Perceptions of Climate Change and Food Security”), McElroy presents the case of eastern Arctic Inuit, a cultural and linguistic group that has shifted from a foraging economy to a modern cash-based economy. McElroy quotes one of her respondents, Henry Evaluardjuk, reflecting on an injury to his stomach while hunting:

The government asked me to move here [Iqaluit] a number of times after that, so I decided to say yes. I really wanted to return to the community where I lived [Pond Inlet], but the people I was working for kept telling me I couldn’t go back, I had to live in a warm place because of my injuries, they kept telling me. I couldn’t go back because I wouldn’t have a house if I go back.

With this quote, McElroy exposes inherent contradictions that indigenous communities face in being caught between tradition and “modernity” and powerful organizations such as governments and nongovernmental organizations as well as their own rights and self-determination.

Taddei raises an important issue of future forecasting and prediction, observing that anthropologists have often described how their interlocutors make forecasts of all sorts as part of their cultural practices, social organization, and economic systems. Since being able to forecast harvests, rainy seasons, wars, electoral results, marriage, illness, as well as good or bad luck, in general, seems to be an integral part of how societies imagine and organize themselves, forecasting gains special significance in the western imagination. Taddei reflects: “It is widely recognized that both forecasters and those who make promises need to exercise a great deal of caution in the process because authoritarian solutions—disguised by technocratic rhetoric that presents certain techno-political views—may dominate dissenting views.” Taddei concludes that prevention of such domination does not lie in universalizing access to the scientific discourse but instead in the promotion of inclusive political contexts that do not rely on flattening the imagination of future realities around single dominant metaphors.

In their chapter (“Water Wary: Understandings and Concerns about Water and Health among the Rural Poor of Louisiana”), Singer and Evans use Orlove and Caton's (2010) framework in arguing that anthropological analysis of a Waterworld should be concerned with five primary themes: value, equity, governance, politics, and knowledge. In line with Inhorn and Wentzell (2012: 19), they argue that the intersection between medical anthropology and environmental studies may be the single most pressing direction for future scholarship and activism within the discipline of anthropology. In the conclusion to their chapter they delineate a movement toward an *environmental health anthropology*,

one that encompasses the broad range of environmental health issues global health, examines anthropocentric impacts on the environment that rebound on human health, studies the relationship between healthy ecosystems and healthy communities and their inversions, accepts a one-health perspective on the zoonotic connections of non-human animal and human infectious diseases, adopts a more-than-human, multispecies approach to the study of both human biology and society,

and embraces an ethnographically grounded political ecology of health framework would be a critical step toward achieving this goal.

In her chapter on environmental migration, Marino addresses environmental migration in six parts. First, she traces the literature of environmental migration through the latter half of the twentieth century; then she discusses the link between social vulnerability, disaster, and environmental migration. Following that she introduces the concept of hot spots and hot systems and presents a case study of Shishmaref, Alaska, consequently turning to the role of the media in national and international discourses on environmental migration. Finally, she discusses anthropologists' role in environmental migration research in the future. In conclusion, she argues that the best approach to understanding environmental migration draws upon classical understandings of social vulnerability and the holistic, multicausal frameworks that are the cornerstone of the discipline.

As the above descriptions convey, anthropologists engage in interdisciplinary efforts to institute new ways for their colleagues, subjects, peers, and communities to understand resource use and the preexisting cultural ideologies and risk perceptions that can lead to environmental exhaustion and destruction and also find possible solutions to issues concerned with health and environment.

Solutions-Based Research and Alternative Methodologies and Lifeways

This section opens with the contribution from Vayda, who engages both themes of interdisciplinarity and reflexivity as he touches upon philosophical as well as personal debates in the quest to explain causes of events, be it natural disasters or anthropogenically induced problems. Vayda's chapter describes interdisciplinary research starting with environmental events, such as forest fires, and proceeds to their causes. It is argued that environmental anthropologists can contribute effectively to such research by giving up their discipline-based explanatory priorities and being consistently guided instead in their inquiries by the clearly defined and concrete goal of causally explaining the environmental changes or events in question.

Lockyer reflects on the little-known, widely dispersed movement of “bioregionalists” who attempt to deconstruct the western nature/culture dualism through the “reinhabitation” of particular places or “bioregions.” Reviewing the works of highly interdisciplinary bioregionalists, Lockyer distills the fundamental premise of the idea that, to be sustainable, human societies must gain deep knowledge of and reverence for the places they live and develop ways of living within the constraints presented by those places.

Casagrande and Peters introduce concepts and outline a theoretical perspective needed to move anthropology to the forefront of research on the role of information in human adaptation. Based on the case study of the Tzeltal Mayans’ knowledge of medicinal plants and water management in the American Southwest, the aim of this chapter is to help elucidate why information often fails to help societies respond to environmental challenges. Reflecting on the theme of pathways, reflection, and interdisciplinarity as well, Casagrande and Peters argue for the necessity of environmental anthropology to examine pathways of individual and socially distributed cognition, along with cultural models as shared schemes of reasoning, in relation to the creation of new ecological knowledge and the civil powers of governmental administrative authority faced with the reality of climate change. Related to the theme of risk, the models they develop in their chapter take them in the direction of answering the questions of how new information is created, organized, evaluated, upgraded, avoided, and ignored. They emphasize components, processes and constraints, and alternative individual and societal reconfigurations that might reduce future risk.

In their chapter drawing on previous work engaging interdisciplinary methodology and problem-solving orientations, Charnley and Durham use quantitative and qualitative social and environmental data to investigate the recent decline in both wildlife and pastoral livelihoods in East Africa. Charnley and Durham use this case to highlight some conservation and development challenges that environmental anthropologists commonly face in addressing environmental problems through policy. Their chapter is simultaneously a reflection on an enduring topic in environmental anthropology on how to promote environmental conservation on the one hand and sustainable, natural resource-based livelihoods in rural communities on the other hand while also

an effort to reposition environmental anthropologists in ways that contribute to the challenge of conservation and sustainable livelihoods. The authors conclude that strong, empirically driven science can provide a solid foundation for the development of policy and program solutions for both conservation and sustainable livelihoods by providing a strong empirical basis which entails a methodological approach integrating qualitative and quantitative social and environmental data.

As the contributors to this volume demonstrate, lessons for environmental management and policy making can be drawn not just from direct advice to policymakers (Charnley and Durham 2010 and this volume) but also from deep anthropological inquiries into the grassroots causes of certain events (Vayda, this volume), the analysis of future scenarios that engage cultural practices as well as policy recommendations (Taddei, this volume), and from the intensive study of human nature and how human capacities can possibly bring about a healthier human-environmental relationship that is currently being pursued in the name of consumption and economic prosperity. We hope that this volume will shed some light onto the potential for environmental anthropologists to contribute to these efforts and encourage more researchers to direct their research efforts toward the well-being of all species and the preservation of our natural world. Enjoy.

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