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# Hot and dry: stability and simplicity in dormancy and austerity

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**Abstract** With climate change at the forefront of the popular imagination, understanding how heat shapes human experience of place can provide insight into how human systems have persisted and can persist as temperatures rise. Exploring the human-environment interactions that shape human experience in different types of hot places complicates the perception of heat as being hopeless and dreaded. Dormancy and austerity are human articulations of characteristics of the natural environment in hot dry places, characteristics that are reflected as well in stable and simple social systems. When expectations for the human experience incorporate fundamental aspects of life in a specific climate, the innovations of history and necessity rise to the surface and provide a road map for sustaining viable societies as temperatures change and rise.

**Keywords** Climate · Place · West Africa · Arid

## Introduction

Heat has become a ubiquitous trope over the past few decades as a key indicator of environmental chaos. Although "global warming" is a bit of a passé term, having been replaced with "climate change," the hockey stick graphs continue to predict overall increases in average global temperature and hot summers are held up as evidence that something is wrong in the stratosphere. Conversely, when winters are especially cold, those who question the validity and causes of a changing climate suggest that the hullabaloo is overblown, since look, there are still blizzards in New England (and snow in Atlanta!). While heat is a climatic adjective as well as a rhetorical device, hot is often a relative term. Changes in global temperatures are generally measured against monthly or annual means, so that a specific place is getting hotter or colder relative to its own history. As an absolute type, hot climates are less clearly defined, with seasonal variation in temperature and humidity and dramatic daily swings of the thermometer making it difficult to standardize the meaning of hot and the role that heat plays as a defining characteristic of a physical place (see Peel et al. 2007 for a detailed description of contemporary climate classification).

Heat, I think, is for humans as much experiential as scientific. Hot locations are those in which heat is a key characteristic of the climate, but hot places are much more than simply data points on the global thermometer. In this paper, I explore the relationships between heat and human experience and argue that hot *places* are shaped by both elements of the natural environment and human interactions to these realities. This is not meant to be an overly deterministic or circular understanding of how people adapt to their climatic surroundings. At the same time, the ideas in this paper are inspired by academic reflections on how humans and human systems relate to their natural context. By focusing on experiential and social aspects of life in hot places, I make reference the broad frames of political ecology and resiliency theory, both of which suggest that human experiences of the nonhuman environment are political insofar as they are interpreted through and incorporated into social systems, which in turn interact with the environment going forward (Zimmerer and Bassett 2003; Folke 2006; Robbins 2012). In this piece, however, I seek less to be critical and more to be descriptive, exploratory, and allegorical about certain kinds of environments—those characterized by

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heat and aridity—and the social systems that have coevolved with them.

I owe a debt as well as to the philosophers and writers who have spent time reflecting on the human condition in hot places. From Merton (1960) to Abbey (1968) and Lopez (1976), many have observed the heightened awareness of human experience that occurs in and in turn helps define hot, and especially hot and dry, places. I have felt this as well, as I have spent close to a decade living and working in Sahelian West Africa, in regions just south of the Sahara desert, focused on understanding the social systems that support, and adapt to dryland agriculture in arid and semiarid environments (see Jalloh et al. 2013 for description of the Sahelian climatic zones). Reflecting on my experience and observations there, I focus this discussion on hot, arid places, using the Sahel as a descriptive case study, and the ways that heat is experienced by humans in dry environments. As a climatic category, arid places can be hot or cold, and hot, arid places are a subset of tropical climates (Peel et al. 2007). Temperature remains the foundational to human categorization and, I think, to human experience of the natural environment. However, heat and the rhythms that reflect it differ based on other aspects of the climate. Steamy equatorial rainforests and sandy deserts might share a thermometer reading many days of the year, but the natural and human systems that have coevolved in these places reflect different interactions and particularities of climates.

This article explores characteristics of hot, dry places that help to illuminate unique elements of human-environment interactions within them. Dormancy and austerity are essential features of hot, dry places and are reflected in human systems that are stable, simple, and self-sufficient. Exploring and providing language to better describe how human systems engage with and at time reflect these characteristics of place has the potential to increase understanding of the challenges and unexpected possibilities for change that exist in hot, dry places. If even one of the hockey sticks is indeed correct, and both the relative and absolute temperatures in many places around the world are increasing, we and our descendants are all more likely to be 1 day living with heat. Rather than simply despairing for the changing diets and lack of winter recreation that come with that prospect, this paper is meant to highlight the hard, beautiful, and simple aspects of life in certain hot places.

## Stability in dormancy and dynamism

> The desert is like a boulder; you expect to wait. (Lopez 1976: xi)

The rhythm of life in hot, dry places, both of the day and of the year, is characterized by dormancy, a lack of movement that reflects the difficulty for living things to cope with extreme heat. Dormancy is different than death or absence, however, and as anyone who has spent a night in the desert knows, there is plenty of life in hot places; life simply moves more slowly in the heat than in many other environments. Seeds lie in wait for months or years, until a seasonal (but not necessarily annual) rain event, and the desert then blooms. Animals seek out shade and remain motionless throughout much of the day, emerging only at dusk to begin perambulations under the cool cover of night. These rhythms are reflected in human routines in hot places as well. When in the Sahel, my fieldwork schedule often includes engagements from 7 to 10 am, and then no more appointments until 5 pm. The middle of the day is set aside, almost without thought, for simply sitting. To outside observers, people in hot places are sometimes seen as lazy, lolling about in the shade throughout the working hours of the day (I challenge those observers to weed a field in direct, 110° sun). Human systems in hot places, however, reflect the rhythm of the natural environment. Abbey (1968: 133) calls the necessary down time the "static period." This impetus to stillness in heat is common in hot places; my midday respite during fieldwork in Mali reflects human experiences similar to those that encourage the southern European siesta.

Cycles that include long dormancy and intermittent awakening emphasize and at the same time belie the dynamism that exists in hot places. Charney et al. (1975) discuss the "biogeophysical feedback mechanism" of albedo associated with some desert environments. The higher the surface albedo, the more reflective the surface; light colored sandy soil is two to three times more reflective than ground covered in green plants (Norman and Campbell 1998). Early research on surface albedo effects in the Sahelian region suggested that surface air temperatures rise due to diminution of land cover, leading to less vegetation and ongoing heat (Charney et al. 1975). In other words, the cycles of some hot, dry places can create self-perpetuating natural systems. More recent studies have noted that in arid and semiarid environments, the interactions of surface albedo, temperature, and humidity determine surface heat, and found that changes in the type or extent of land cover (and so surface albedo) interact with temperature and humidity in ways that are variable across the landscape (Rotenberg and Yakir 2010).

The cycles of the natural environment that generate and moderate heat and aridity are both dynamic, creating some uncertainty that must be accounted for in human systems, and stable over time, as reflected in the continuity of crops historically cultivated by people in specific hot, dry places. In the Sahel, cropping systems include pearl millet and sorghum, native grains that are among the most drought- and heat-tolerant in the natural world and that have long been integral to the agricultural and social systems of the region (Moseley 2008; Jalloh et al. 2013). At the same time, people in the Sahel interact with the certain uncertainty of cycles of heat and aridity by diversifying their agricultural production, which has historically included incorporation of livestock into cropping

systems and rotations through fields over several seasons (Hill 1966; Moseley 2008; Timler et al. 2014). This diversification reflects the need for some buffer against fluctuations in heat and rainfall, and yet the dynamic decision-making that goes into managing integrated systems in hot, dry places creates over time stability within broad climatic parameters.

Analyses of human interactions with the natural environment have also generated hypotheses about how social systems might in some cases generate or perpetuate climatic conditions that undermine stability. For example, observations of environmental change and increased drought throughout the 1970s in sub-Saharan Africa set off an ongoing debate about if and how humans might actually cause climatic patterns through land-use decisions that change vegetative cover (for just a few examples of this debate, see Baier 1976; Leach and Mearns 1996; Turner 2003; Sendzimir et al. 2011). Many analyses of desertification and land cover change fall squarely within the realm of political ecology, which has offered extensive and insightful critique about human-environment interactions and the political implications of causally linking human actions to environmental change (see Blaikie 1985 for an analysis of the political ecology of soil; see also Zimmerer and Bassett 2003; Robbins 2012 for overviews of political ecology). More recently, resilience theory has emerged and has implicitly flipped the political ecology framework on its head, asking questions about the social and political implications of a changing natural environment and ways for humans to persist in the face of uncertainty. Resiliency theory provides a frame to analyze the ways that environmental change impacts human actions, by first identifying key permanent and changing features of the ecological half of social-ecological systems, and then challenging human societies to identify adaptive actions that can maintain or amend the integrity of the overall system while adapting to change (Holling 2004; Folke 2006). Understanding social-ecological systems in hot, dry places as generating stability through both dormancy and dynamism provides a useful, if metaphorical, starting point for how to support human resiliency as global temperatures rise.

## Simplicity in austerity and independence

> [Desert people] lived here, it may be from necessity at first, and then stayed on because they loved the open wind-blown country, the shining orange-hued sands, the sweeping mesas, the great swing of the horizontal circle, the flat desolation, the unbroken solitude. Nor ever know why they loved it. They were content and that was enough. (Van Dyke 1980 [1901]:19)

Many of the adjectives used to describe hot places suggest the severity of the natural environment: inhospitable, stark, unrelenting, searing. (Interestingly, all but the last are also often used to describe cold places.) The austerity of the landscape in hot places has drawn many people to them, from the Desert Fathers described by Merton (1960) to artists and activists who appreciate the lack of clutter and color as a way to focus on that which is most meaningful. If this austerity has pulled some people to hot places, it has also kept others in them and has interacted with human systems in ways that provide some insight into how to support these social-ecological systems in a changing world. At a material level, the severity of the natural environment sets limits on resource use, leading to agricultural systems, for example, that must maximize scarce water and soil nutrients. As questions are raised about what resilient hot places can look like, some of the most promising ways to support food production have centered on simple technologies rather than complex fixes. Zai holes, an old and simple practice common in Sahelian West Africa, are to me an elegant representation of how austerity both demands and breeds simplicity. Though not a silver bullet to deal with drought and extreme weather events, these rock bunds are sunk in the ground in crescent shapes to hold water from running off a field or away from a tree, mimicking the natural micro-ecosystems most suited to agriculture in hot, dry places (Haggeblade et al. 2010).

Simplicity and austerity can also be seen in the distribution of the human population across the landscape of hot, dry places; solitude and space are adjectives often used to describe deserts. Human settlement patterns reflect the reality that there are few and scarce natural resources, and hot places often feel empty, scattered, and dispersed. Anthropologists have noted scattered spatial distribution of households in hot places (see for example, Gould and Yellen 1987), and social scientists and historians have theorized about what kind of economic and political systems might develop given this dispersed nature of human settlement (for examples from the Sahel, see McIntosh 1993; Webb 1995). Much like Pitt (1980) argues for a sociology of island societies that can illuminate broader social concepts like boundaries, I see a sociology of hot, dry places starting with the recognition of how extreme and austere natural environment shapes human experiences and hence the types of social systems that support human life.

Hot, dry places as I have experienced them generate a social orientation toward independence that can be simple in its conservative orientation toward maintaining the status quo. At the same time, valuing independence and self-sufficiency at a range of social scales is also a pragmatic recognition that in extreme environments, action taken outside of long-established cycles can, if gone awry, have significant consequences for human health and well-being. Independence often exists at the communal level, as a buffer against the uncertainty of receiving help from either distant "neighbors" or from the austere natural environment. In my own research on the social role of seeds in the Sahel, I have found that even when

improved variety seeds are available for purchase by farmers, they will continue to save, reuse, and exchange less-productive local varieties. The ability to save local seeds provides both literal and symbolic independence from the vagaries of rainfall, the uncertainty of having cash on hand to purchase improved seeds outside of the village, and also provides the community with a self-governed natural resource. Conservative or change-averse social and political systems in hot dry places, many of which include very old societies and civilizations, reflect the austerity of the natural environment. Understanding the ambiguities of these socio-ecological systems requires embracing the combination of dormancy and cyclical existence, of austerity and beautiful simplicity, and identifying key characteristics of resilient hot places on their own terms.

## The paradox of stability and simplicity in hot dry places

Perhaps one of the most well-known, unique features of hot, dry places is the mirage, a shimmering vision of what is not, generated by heat waves and parched minds. The paradox of the mirage—that imagined images of water or trees can only be generated in places where those things cannot exist—offers a fitting metaphor for understanding hot, dry places in today's world. Their natural rhythms are slow and cyclical, without demonstrable or dramatic differences over time, an orientation that has preserved and defined human existence as well in these environments. At the same time, predictions for environmental change in the future suggest that movement and adaptation will be keys to human survival. And from a political angle, a conservative orientation toward rapid change that coevolved with extreme natural environments challenges the prevailing goals (from Western, temperate climes) of encouraging adaptive governance and innovative capitalism as responses to climate change.

If climate change predictions are even broadly accurate, today's hot places will get hotter at a faster rate than the rest of the world and many more places will become newly hot. This will likely increase pressure and well-intended interest from the world at large for supporting adaptive changes in food production, environmental management, and human governance in hot places. And certainly, some "response" to the changing climate will be necessary. Diamond's (2005) *Collapse* offers examples of how a conservative, static orientation in the face of environmental change can lead to societal destruction. Rather than assuming that shifts in ecological systems will necessitate quick and profound changes in social systems, however, an exploration of human experience in hot dry places suggests that perhaps adaptations should emerge from the characteristics of those places. Stability, simplicity, and self-sufficiency are human constructs that reflect the natural environment and define certain hot places, and that can be reflected in agricultural production, city planning, and governance systems. Interestingly, these constructs are also trumpeted as characteristics of progressive, forward-looking communities across most of the temperate, developed world. Embracing and learning from these features of hot, dry places, especially as more and more places heat up, will support adaptation through perpetuation of the enduring wisdom of the desert.

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