



Article

# How things act: An archaeology of materials in political life

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## Abstract

This paper develops a theoretical perspective on how archaeologists might examine the actions of things—objects and materials—in long-term historical processes and political practices. In recent years, anthropological theories pertaining to materiality and new materialisms have challenged traditional philosophical perspectives on things, attributing a degree of social agency to materials, places, and objects that had been previously labeled inert or passive. We critically engage these theories and suggest that they might better account for the social acts and political roles of things by applying a holistic archaeological perspective attuned to how materials and human values converge to produce political action, particularly through their incorporation into specific historical processes that we term “entrainment.” We present recent archaeological and environmental data from South India to demonstrate how researchers might see political action less as an ontological property of a conscious goal-oriented agent or a broad assemblage of things, and more as a potentiality that emerges in politically-inflected and contingent associations of people, organisms, and things.

## Keywords

Agency, materiality, new materialism, political practice, symmetrical archaeology, Iron Age, South Asia

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## Introduction

Recent years have witnessed a number of academic and public discussions about the roles things play in political life. Politicians and interest groups have engaged in heated debates about the actions of things and their effects on human affairs and built environments. They argue over, for instance, whether or how pipes and valves cause oil spills, fossil fuels generate climate change, coalfields spontaneously combust, and garbage dumps move on their own (e.g. Gold, 2014; McCarthy, 2015; Pearce, 2015). At the same time, scholars have posed new arguments about the nature of things. Anthropologists and political ecologists have focused on the power relations and ontological presumptions that inform the categories through which people define and value things and environments (cf. Biersack and Greenberg, 2006; Peet and Watts, 1996). More recently, “new materialist” and “posthumanist” scholars have emphasized how materials, nonhuman organisms, and people together constitute the social spaces we inhabit (e.g. Bennett, 2010; Coole and Frost, 2010; Latour, 2005; Sundberg, 2011). Archaeologists have joined this discussion, advocating a “symmetrical” approach that examines mixtures of materials, organisms, and processes that assembled historical periods and cultural worlds (e.g. Webmoor and Witmore, 2008: 64; see also Olsen, 2010).

These political and academic discussions often concentrate on the characteristics of things but require an inquiry into the nature of action. That is, if we accept that things can participate in and affect human social practices, we must examine differences between things, in terms of the properties they hold and the perceptions they elicit, and how these differences condition the possibilities for things to act. Such an approach moves beyond ontology, or the description of assemblages of things and people in terms of their properties, characteristics, or relationships. It inquires into politics or the situated contexts in which some things and actions are attributed significance, by exploring how human political intentions and practices combine people, organisms, and matter in flows of action, which might have unintended effects and consequences. Archaeology is well suited for this inquiry because of its unique ability to integrate analyses of social practices, materials, and environmental processes (e.g. geological, ecological, pedogenic, fluvial) over various scales of time and space.

This paper offers an archaeological perspective on how things affect politics within long-term historical processes. It defines politics in terms of the practices and processes by which people establish social differences and ties as they constitute a collective body, a “public” oriented toward a specific problem or concern (e.g. Dewey, 1927). By advocating this view of a public we in no way seek to universalize Western Enlightenment notions of politics, civil society, collective will, or individual free association (Chatterjee, 1998). Rather, we consider the notion of “public” to be general enough to capture a range of overlapping (and at times contradictory) collectives—from extended family, to agricultural labor group, to ethnic community, to state—that may have differently defined political action and political actors in the past and present. Scholars of political processes, however, often neglect to

consider how things are essential to the constitution of a public (see however, Bennett, 2010; Smith, 2015). In one sense, things are, of course, the equipment people use to build their environment, to stake political claims, and to mark social differences (Dreyfus, 1992; Meskell, 2005; Smith, 2015). But in another sense they play social roles because their material properties, for instance the physical changes of a smoldering garbage dump, can shape political discourse or engender potential human actions.

To explore these themes we attend to the flows of social action—herd management, soil erosion, and monument building—that characterized politics in the South Indian Iron Age (1200–300 BCE). Our example illustrates how things are both enveloped by, and crucial participants in, these flows of action. To describe these flows we employ the term “entrainment,” a term borrowed from geomorphological studies that describe how sediments not only get caught up in the flow of a fluid, but also change the physical characteristics and the material effects of the fluid in the process (cf. Knighton, 1998; Leopold et al., 1995). We think of *entrained action* as associations of social practices, things, materials, and people that have taken on lives of their own. When these entrained actions come to be perceived as problems they contribute to the generation of a public.

## Materializing action

An archaeological perspective attuned to how materials and nonhumans contribute to political processes could take several starting points from anthropological literature. Drawing on a variety of theoretical approaches that range from cultural ecology (e.g. Steward, 1972) to symbolic anthropology (e.g. Geertz, 1973), archaeologists have long been concerned with how environments and materials affect and reflect cultural values and social organization (e.g. Bradley, 2000; Flannery, 1968). Though we recognize the importance of this long tradition of scholarship, we necessarily limit our emphasis to recent research that has explicitly theorized the actions and behaviors of people and things (see also Joyce, 2015; Joyce and Barber, 2015; Van Dyke, 2015).

A common point of view in the social sciences and humanities distinguishes between action and behavior: humans often *act* with intention, while materials and things *behave* according to predictable structural and chemical properties (e.g. Anscombe, 1957; Latour, 2005: 61). Such an understanding establishes an ontological difference between person and thing, and a dichotomy between a human subject’s goal-oriented blueprints and a material object’s brute physical reactions to external stimuli (see Stout, 2005). This point of view, derived from philosophies of Descartes and Hume, holds that human action is the product of motivations and emotions that people formulate according to paired cultural beliefs and desires (Davidson, 1980: 3–4; Williams, 1981). Things, in this view, are secondary. They are the instruments for and props of culturally-informed intentions, desires, and actions. But it is clear that within particular circumstances, such as the examples with which we opened the paper, some things act on their own,

contrary to the intentions or desires that set them in motion. In many of these instances, the actions of the thing affect and warrant political explanations and decisions. To consider how things enter into politics, we must move beyond theories that solely define action as realized intention, and instead consider the contexts under which things and their material properties might provoke social responses or invoke historical explanations.

Anthropologists have repeatedly shown that, when studying political action, it is difficult to distance practice from its explanation. On this point, the late historian and anthropologist Michel-Rolph Trouillot distinguished two forms of historicity: that which happened (Historicity 1), and that which is said to have happened (Historicity 2) (1995: 2). For instance, if a group of people do not show up for work one day (Historicity 1), they might say that they are on “strike,” an actual event that is happening and that is meant to be perceived (Historicity 2) as an intentional political action undertaken by a conscious “public” (cf. Trouillot, 1995: 25). But if 20 people who worked with the others did not show up on that day because the electrical grid failed then, even though it is unclear whether those 20 people were *actually* on strike, one could claim (Historicity 2) that those 20 people contributed to the strike and were part of this public. To what degree did the power grid participate in this action and precipitate the creation of this public? In other words, how did the workers’ dependency on the grid condition the possibility for both this collective action and its perception? To ask these questions is to inquire into the conditions under which things act within historical processes.

### *Agency and materiality*

Archaeologists often relegate action to human subjects, distinguishing intentional *agency* and everyday *practice*. They conceptualize intentional agency as an individual or collective human subject’s capacity to effect social change or maintain a social structure as they pursue their interests (e.g. Dobres and Robb, 2000; see critique in Patterson (2005)). Such notions of agency often assume some degree of conscious intention or methodological individualism, views in which subjects alter social affairs because they seek self-aggrandizement, a better life, or what they might define as a more ethical social organization (see critiques in Pauketat (2000), Smith (2001: 157–158), and Thomas (2000: 148)). In contrast, other archaeologists draw on social theorists who conceptualize practice as the doxic everyday routines and dispositions that reflect, reproduce, and at times alter the structures of social life (Bourdieu, 1977, 1980; Dreyfus, 1992; Giddens, 1984; Sewell, 2005). Archaeologists who employ these theories call attention to how people, when acting alone or collectively, act according to bodily dispositions or habits that are recognizable to, but not always planned or understood by, the people engaged in the practices.

When archaeologists and anthropologists account for the actions of things they often concentrate on their social positions and relationships within a cultural or semiotic framework. Indeed, much of the “materiality” scholarship that began to

emerge in the late 1990s focuses on how “social worlds were as much constituted by materiality as the other way around” (Miller, 1998: 3), emphasizing how things, because of their relationships to other things or their signifying properties, structure social life (see also Miller 2005). Keane (2003), for instance, suggests that anthropologists examine how people, things, and particular material qualities tend to be *bundled* together in forms that embody, index, and objectify social affairs. Hence, a house, because of its durable features and its static spatial position, can take on a special social role as an enduring object that authenticates authoritative speech and validates ritual (Keane, 2003: 414, 421). Similarly, Miller (1998: 6–7) contends that a major goal of materiality studies is to move away from a general understanding of the functions and uses of things, and move toward a more particular analysis of the “specificity of material domains and the way form itself is employed to become the fabric of cultural worlds.” As an example of this kind of scholarship, Siân Jones (2010: 189) examines how some things are considered “authentic” in scholarly discourse, arguing that scholars might focus on the biographies of art objects in terms of their social positions, as they entered into, came to index, and were arranged within, social relationships of people, places, and other things.

In such cases, materiality scholars take into account the positions of things within social interactions. These approaches have greatly advanced archaeology by erasing conceptual boundaries between symbol and object, representation and material, and constructivist and materialist approaches (e.g. Hodder, 1982; Meskell, 2005). Indeed, instead of treating materials as products or instruments of human intention, these approaches see materials as essential parts of active “social practice[s] constitutive of the social order” (Preucel, 2006: 5). Many of these approaches, however, implicitly employ a model of action in which broader cultural frameworks and semiotic ideologies drive, determine, or structure the potential for humans and things to affect social affairs and orders. Often overlooked are long-term and highly contextual relationships between people and materials that operate at scales more particular than a broader cultural framework. In consequence, though materiality approaches are valuable to our understanding of how people in the past used things to construct social differences, they provide only a faint rendering of the substantive and highly situated material relationships between people, things, and their environments that both conditioned the possibility for social action and shaped its outcomes. This is, in part, because things are granted only “secondary agency” to the degree that they come to embody, objectify, signal, and (re)produce social values or relationships through cultural practices (e.g. production, exchange, and circulation, etc.) or projections (cf. Gell, 1998). Things are solely imbued with social efficacy through the cultural imposition of meaning, or as Martin Holbraad (2011: 7) has suggested, through the “effectuation of a human intention.”

This is likely because scholars of materiality are frequently focused on *relationships* between people and things, an approach that by definition downplays the very substances that make things different from one another and influence things to move or act in specific contexts (cf. Boivin, 2008; Ingold, 2007). Yet as has been

pointed out, the research emphasis of materiality studies on signification need not be mutually exclusive with an emphasis on material substances (e.g. Johansen and Bauer, 2011: 14; Rizvi, 2015; Smith, 2015; Weismantel and Meskell, 2014). On this note, some Peircean semiotic analyses have productively demonstrated that people's material interactions and encounters with the substances and behaviors of nonhuman things and organisms greatly affect how those people come to understand, represent, or signify them (e.g. Crossland, 2013; Kohn, 2005, 2013). Similarly, archaeologists have stressed how people at Çatalhöyük continually worked with clay to reinforce their walls and floors, and consequently, formulated ideas of clay as "flesh," largely because of clay's unique ability to layer and encase other materials (Weismantel and Meskell, 2014: 244). In these instances, careful attention to the substances of materials—their constitutive elements and what they physically do in specific contexts—may open the possibilities for new understandings of the actions of things, how things come to be understood in specific cultural contexts, and how things affect human affairs. These are the grounds that much of the new materialisms take as a point of departure.

### *Material mediation*

More recent scholarship, often termed "new materialist," has sought to understand the active social roles of materials, nonhuman organisms, and things. Such approaches demote human subjects from a privileged position of agency and suspend them in ecological and material webs that are, in part, of their own creation. New materialist scholars draw on earlier poststructuralist approaches that saw human agency as a product of relationships embedded in a network of institutions or discursive practices (e.g. Foucault, 1980; see also Deleuze and Guattari, 1987). But new materialists differ from poststructuralists by concentrating more explicitly on how things and matter participate in social practices, and allocating humans and things similar capacities to act and make history. Symmetrical archaeology (e.g. Webmoor and Witmore, 2008; Witmore, 2014), for example, draws influence from Bruno Latour's (e.g. 1993, 2005) rearticulation of the boundaries and associations of "the social," especially his emphasis on the role of nonhumans as *mediators* of social relationships—which is to say that they can "transform" and "modify" the historical contexts that they in part constitute (Latour, 2005: 39).

Instead of examining how humans act with intentions and how materials react to human intentions, such frameworks situate agency within extended sets of relationships and interactions that include humans, other species, and things. Intentionality and agency are diffused across time and distributed across an assemblage of heterogeneous people and materials (e.g. Bennett, 2010). Arguing that things possess a degree of agency within broader assemblages, these approaches challenge us to consider the ways that materials and organisms—because of their substances, material properties, predispositions, and requirements—can shape,

challenge, or hinder human objectives. For instance, Juanita Sundberg (2011) develops a political ecology that considers how precipitation, rivers, plants, and topography work together to define the geopolitical border between the United States and Mexico. Sundberg emphasizes the agentive substances of material things by arguing, for instance, that the hills and arroyos of the Sonora Desert contribute to the policing of the border because they make it difficult for border guards to spot migrants (Sundberg, 2011).

Such approaches join the human and material constituents of action, and in so doing, they advance our understanding of social relationships and interactions between people and things. But, similar to many materiality studies, they often neglect to consider how the physical material properties and dynamic characteristics of things can contribute to social action. Indeed, the things that are joined to humans in many symmetrical analyses are often treated as static and stable entities, lacking any kind of dynamics or “primary agency” to act without humans (see discussion in Hodder (2012)). As a result, many new materialist and symmetrical studies often resort to analyses of the “affective” dimensions or “affordances” of these things—the ways things “call out” to people, draw people in, or constrain human activities—in order to understand their actions or roles within social relationships. The new materialist approaches, then, are generally unable to account for the actions and roles of things in terms of differences in their physical properties or potential asymmetries in the extent to which people and/or things can instigate action; consequently these approaches have been criticized for being rather blunt tools for understanding social inequalities and power relations (e.g. Harman, 2009: 147; White, 2013). With agency distributed across an assemblage, for instance, how can we analyze political action? These problems force us to address the historical contexts in which materials come to have social effects, and in which some people can claim that these effects matter.

In other words, the agency of people and things cannot simply be distributed across a broader assemblage. The conditions for agency derive from potentialities that emerge within *situated contexts* of people and things, assembled together in the confluence of environmental processes and cultural practices. For example, the physicist Karen Barad (2007: 33) shows how electrons and particle waves act differently when placed in different environments, with or without obstacles or screens (Barad, 2007: 103–106). Such insights challenge assumptions of a Cartesian “substance ontology,” which would hold that matter is stable or static and will act in accordance with its inherent properties. But they also challenge the assumptions of what materiality and new materialist theorists often term a “relational ontology,” that is, a theory that the “being” of things depends on their associations with other things. Indeed, Barad shows that the context *and* substance of materials *together* contribute to how they act *when* they enter into situated relationships with other things and people. This insight requires a further consideration of the contexts in which materials and things become entrained in specific historical processes, and how these processes condition the potentialities for human social and political action.

### Entrained action

Though both materiality and new materialist perspectives offer novel insights into the social roles of things, they share similar shortcomings. Both perspectives concentrate on relationships between people and things, but often overlook how the physicality and constant dynamism of things—whether decomposition, erosion, or combustion—contributes to social assemblages and practices (see also Hodder, 2012: 215–216; Ingold, 2007). In other words, to refer to an earlier example, if we are to account for whether and how the electrical grid contributed to a strike, then we also have to account for the contextual historical circumstances and material dependencies that allowed copper winding or silicon steel cores of electricity transformers to fail in such a way that they could affect a collective social action. Such an account would require an examination of *both* the social and material conditions of labor—the physical spaces, discursive institutions, disciplinary technologies, people, and materials that constituted the landscape of wage labor within modern capitalism.

To this end, we build an approach that differs from new materialist and symmetrical theorists by suggesting that archaeologists focus less on the things that *mediate*, or the sociomaterial assemblages that *join* people and materials, and more on the *kinds* of differences such assemblages and mediations can make when combined with social values and intentions. The process of combination is an entrained action, a process by which particular materials and people are given direction because of values or intentions. This direction may change due to the intentions of people, the dynamic characteristics of materials, or other contingencies of culture and history. In these entrained actions, things become particular kinds of actors that can affect historical processes precisely because of how their material properties articulate with cultural values. These material actions can become political when people emphasize how particular materials, things, or other people in a broader assemblage are the causes of social problems.

In advocating this perspective we seek to reorient current theoretical discussion of material things from a focus on ontology toward an inquiry into politics. The political theorist Jane Bennett (2010) is one of the few scholars to explicitly consider how nonhuman things and organisms participate in politics. One way she does so is by integrating things, people, and their conjoint actions into John Dewey's notion of the *public*—a political collective that is generated through concern for a shared “problem” (Dewey, 1927). For Bennett, publics form because of circumstances in which its coalescing constituents experience “harm,” a notion that establishes a common ground for humans and nonhumans, both of which are material bodies that can be harmed. She suggests that:

harméd bodies draw near each other and seek to engage in new acts that will restore their power, protect against future harm, or compensate for damages done—in *that* consists their political action, which, fortunately, or unfortunately, will also become conjoint action with a chain of indirect, unpredictable consequences. (Bennett, 2010: 101)



But Bennett's metaphysical account of coalescing "harmed bodies" leaves much to be explained. It simply describes an assumed action through which people and things assemble together, evacuating the action of assembly of its meaning by spreading agency among a variety of materials, things, and people that simply react to some harm. Moreover, a focus that is exclusively on bodily harm does not provide tools to analyze those "perceived" or "invented" harms, which are after all the causes and conditions for many human formulations of publics.

This last point demonstrates how a "problem" necessarily entails the explanation of a flow of action as it relates to perceived or experienced social harm. Hence, the formation of a public around a problem requires *awareness*. Materials contribute to the awareness of a problem: as Dewey and other social theorists from Marx to Geertz remind us, cognition and awareness are not properties of an individual ego or intention, but rather processes that emerge from human-environmental interactions, what Dewey calls "transactions" (Johnson, 2010: 129). Given this process of transaction, materials play a part in creating problems but cannot directly participate in how a public *defines, conceptualizes, or seeks to resolve* the problem. Consistent with other pragmatists, the emergence of a public for Dewey is predicated on perception, recognition, and rendering of how the actions of some (humans and nonhumans) potentially affect others, however imperfect such understandings might be. In Dewey's words, "...*perception of consequences* which are *projected* in important ways beyond the persons and associations directly concerned in them is the source of a public" (Dewey, 1927: 39, our emphasis). For instance, a dearth of groundwater replenishment in irrigated agricultural areas of California may generate a public and structure people's awareness of this problem; however, our point is that it only does so through culturally mediated perceptions of harm that will differ according to people's socially unequal interests and stakes. Thus, while we agree that nonhumans should be considered dynamic and "vital" (*sensu* Bennett, 2010), it is only in political debate that their dynamism and vitality becomes an object of concern, a problem. In other words, it is humans—how they differentially assemble nonhumans and negotiate the meanings of their actions—that largely condition the contexts for nonhumans to affect politics.<sup>1</sup>

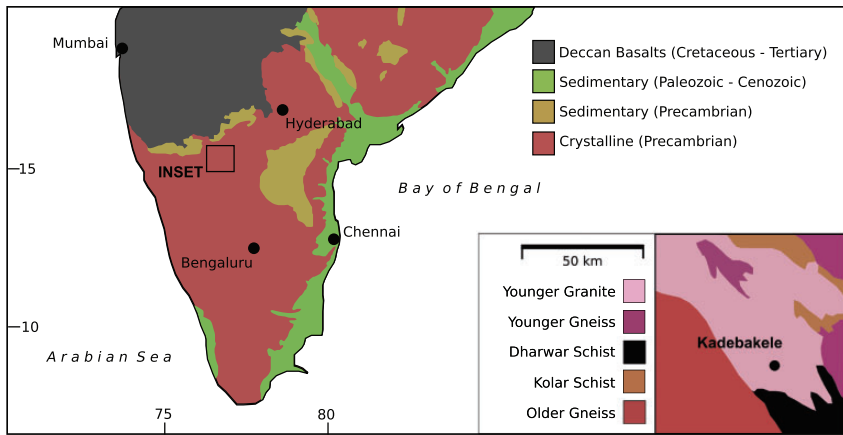
In analyzing publics and problems, we consider the role of materials in politics as a process of *entrainment*. That is, materials' abilities to affect political processes are neither simply derived from cultural and semiotic frameworks, nor are they the mere effects of symmetrical and extended human-thing material associations. Rather the social roles of materials arise from potentialities that emerge in historically and contextually specific flows of action, which are given direction by the perceptions of people, the values of a community, *and* the dynamic properties of physical forms and materials. This point has firm roots in Aristotelian and Marxian philosophical traditions (e.g. Stout, 2005), which see action less in terms of cultural intentions or beliefs flowing through human agents, and more in terms of the elements of a social context that condition (but do not determine) the possibility for people and things to move and act.

This point suggests that an archaeology of how things act in political life should be deeply concerned with *situated action*, inquiring into how and what materials could do within particular cultural and historical circumstances. To do so, it is necessary to draw on a broad range of scientific methods that can identify how material things and matter contributed to and shaped social actions in the past. It is also necessary to recognize the epistemological difficulties in identifying the “problems” that people perceived and defined in specific cultural contexts. A case study from the South Indian Iron Age (1200–300 BCE) illustrates our point by employing interdisciplinary methods to demonstrate how things can act in politically salient ways when they become entrained in situated human social practices and environmental processes.

### Entrainment during the South Indian Iron Age

Archaeologists have long pointed to megalithic memorial architecture and socially valued grave goods to suggest that the South Indian Iron Age was a period of social transformation, during which social inequalities developed out of egalitarian relations of the previous Neolithic Period (e.g. Brubaker, 2001; Gururaja Rao, 1972; Moorti, 1994; Tripathi, 2001). Social inequalities were, in part, manifested and represented through the production of different mortuary and commemorative monuments and places (e.g. Bauer and Johansen, 2015; Bauer and Trivedi, 2013). But systematic surveys and excavations have yielded other evidence of new cultural practices that generated social differences during the Iron Age, including symbolically distinct and spatially segregated residential zones within settlements, differential consumption practices among settlement populations, and feasting activities (Bauer, 2015; Bauer et al., 2007; Johansen, 2011; Sinopoli, 2013; Wilcox, 2012). These practices produced a “political landscape” of differently valued and positioned people, places, and things, while allowing some people to mobilize large collectives of people and things (see Bauer, 2015; Kosiba and Bauer, 2013; Smith, 2003). Here, in an effort to consider how nonhuman materials and things contributed to political processes in this period, we analyze how the actions of people and materials (e.g. water, soils, stones) became entrained with these categories of social difference and value.

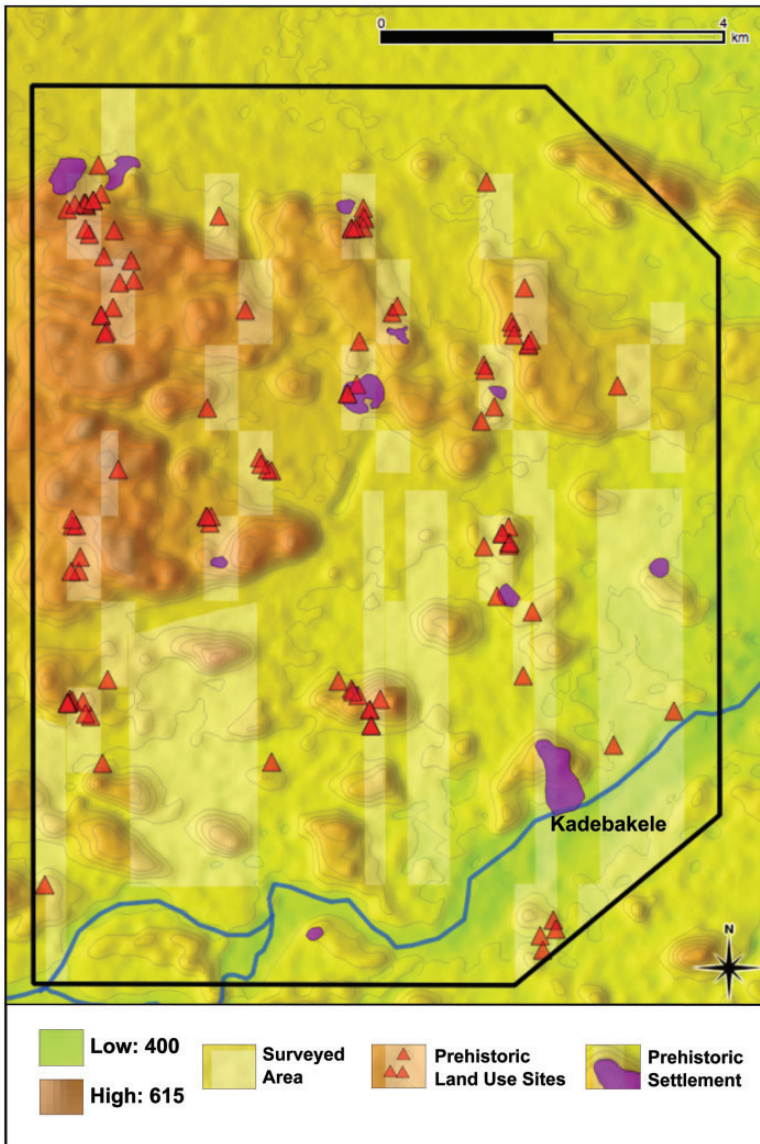
Iron Age inhabitants of central South India were primarily agro-pastoralists who raised a variety of pulses, cereals, and animals in the semiarid conditions created by the orographic effects of the Western Ghats (Figure 1) (e.g. Bauer et al., 2007; Morrison et al., 2014; Wilcox, 2012). Faunal data from excavated sites have been particularly informative about the role of herd management to the politics of social differentiation during the period. At Kadebekele—a large Iron Age settlement situated on a granitic hill of northern Karnataka—differential consumption of wild and domesticated species, demographic age profiles, patterns of burning, and contextual associations suggest that select people were able to orchestrate feasting events featuring meat from cattle and other domesticated mammals (e.g. sheep and goats), which were



**Figure 1.** Geology and location of the study area in South India.

otherwise chiefly used for secondary products (e.g. dairy) (e.g. Bauer et al., 2007; Sinopoli, 2013; Wilcox, 2012). For instance, high concentrations of partly charred cattle bones suggestive of roasting were recovered from prepared plaster pits that also contained high densities of serving vessels (Bauer et al., 2007; Sinopoli, 2013), indicating the importance of feasting and commensal politics at these sites. At Kadabakele, the evidence of feasting activities is also highly localized, suggesting that only some people could sponsor feasts, perhaps because of their abilities to direct herding activities (see also Bauer et al., 2007; Sinopoli, 2005). Indeed, the localized distribution of faunal remains at Kadabakele coincides with evidence for new kinds of status distinctions and inequalities in large-scale labor mobilization evident in the mortuary record of the period.

Herd management and its requirements thus appear deeply implicated in the politics of social difference during the period, a point that is also illustrated through the production of Iron Age places and landscape features outside of residential spaces. Systematic pedestrian survey of an 80 km<sup>2</sup> region around Kadabakele revealed nearly 100 small prehistoric sites, which were situated on hilltop terraces and rockshelters outside of the region's major settlements. These sites were probably temporarily occupied places used for animal herding (Figure 2). In comparison with residential settlements, there are low densities and a low overall diversity of surface-level archaeological remains at these sites, suggesting that they were ephemerally used by a small number of people (Bauer, 2015). The vast majority of these sites can be dated to the Iron Age based on artifact assemblages, particularly ceramic distributions. Given the prevailing evidence for Iron Age herding activities in the faunal record of excavated settlements, it is almost certain that these temporarily occupied sites represent dispersions by small segments of the population to fodder domesticated animals. This suggestion is further supported by other site attributes, which include broad views of weathered hilltop terraces



**Figure 2.** Topography and distribution of prehistoric land use sites recorded through systematic pedestrian survey of an 80 km<sup>2</sup> region near Kadabakele.

where herbs and grasses grow, ancient artistic representations of herding in rock art motifs evident on many of these sites, and landscape modifications to facilitate herding conditions that are highly dependent on the availability of soil, vegetation, and water on the region's hills (e.g. Bauer, 2015).



**Figure 3.** Examples of archaeological features associated with Iron Age land use sites in the region, including (a–b) soil retention walls, (c–d) modified rock pools and megalithic monuments, (e–f) and ochre rock art depicting herding activities.

At many of these sites, Iron Age people improved conditions for animal grazing by altering the physical environment. For instance, they amassed cobbles and shaped boulders in an effort to retain soils, maintain slopes, and promote vegetation growth on the hilltops. Similarly, they modified rock pools and excavated reservoirs to catch and store seasonal rainfall for both people and animals (Figure 3; Bauer, 2014, 2015). What is more, they built modified rock pools near megalithic monuments, which established historical claims to these places. In fact, the water retention features and monuments often include identical construction

elements, such as shaped stone blocks. And, at several sites, people procured rocks for monument construction from the edges of the reservoirs and used debitage from the quarrying activity to widen and heighten the reservoir banks. In these instances, the process of monument construction was simultaneously a process of reservoir construction.

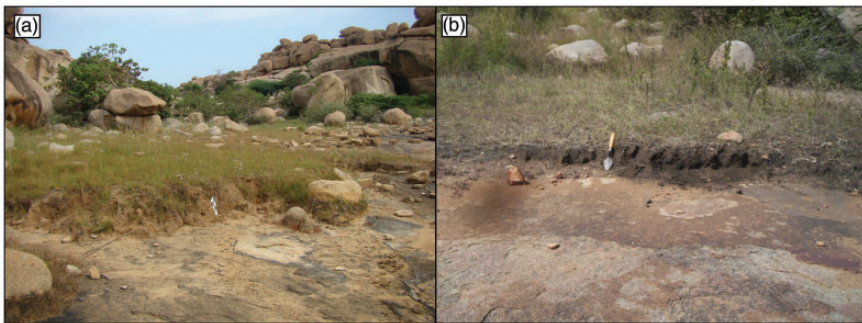
By building monuments next to water retention features, these people not only staked symbolic commemorative claims but also forged material relationships between the substances that constituted monuments and rock pools (Bauer, 2011, 2015). In transforming and aligning these substances they manifested social and spatial divisions. Spatial analyses of monument forms and sizes between and within monument clusters indicate vast discrepancies in the abilities of Iron Age inhabitants to mobilize labor to build such monuments and consequently to produce social connections to the material and symbolic resources that defined these places. For instance, several megaliths in the study area are composed of granitic capstones of more than 3 m<sup>3</sup> on orthostats that exceed heights of 3 m above the ground, while most others are built of considerably smaller elements and are nearly at ground level. Moreover, larger monuments are also more directly associated with water reservoirs. The production of these monuments and reservoirs likely produced or reproduced social inequalities by restricting access to material and symbolic resources according to status, kin, or residential affiliations (e.g. Bauer, 2011; Bauer and Trivedi, 2013).

Although these places and this landscape were very much a result of human actions, they were also partly constituted by the actions of other environmental constituents and substances (e.g. soils, stones, and animals). In other words, entrained actions formed and assembled these places. Ingold's (2000) earlier attempts to problematize "production," and dissolve the common distinction between food producers (e.g. agriculturalists and pastoralists) and food collectors (e.g. hunter-gatherers) in anthropological typologies, is a useful example to frame our point. According to Ingold, agriculturalists and pastoralists do not make crops or livestock; rather, they "set up certain conditions of development within which plants and animals take on their particular forms and behavioral dispositions" through a process of "growth" (Ingold, 2000: 77). Growth is a process through which plants and animals manifest their potential to achieve the properties that humans desire as crops and livestock. This process involves (biochemical and physical) interactions among a multitude of nonhuman materials and organisms (sunlight, rainfall, pests, etc.), as well as human-directed practices such as field clearance, planting, and foddering. Here we argue that just as people do not "make" animals and crops, they likewise were not the only actors that produced pasture and grazing conditions—which in the study region required the growth of particular herbs and grasses, facilitated by slope, soil, and hydrological conditions on the granitic hills (e.g. Singh, 1988). People and these other things worked together to create the hilltops that were important to both pasturage and commemoration.

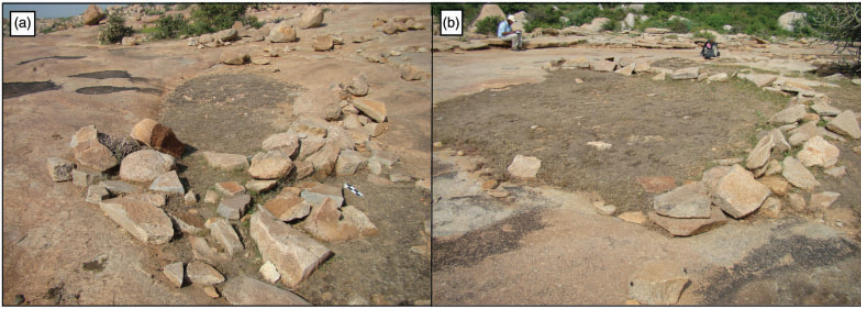
People and materials thus became involved in entrained actions that centered on and produced particular places. Although they were parts of a broader semiotic

framework, these places were created through situational material interventions that both enabled and limited specific kinds of land use, with the consequence of altering environmental conditions and constraining the actions of people and things. Claims and access to resource use by specific kin or residential groups were made and altered through other material interventions. For example, the creation of a reservoir further uphill to capture water before it flowed into another pool on a lower terrace, the adjustment of retention walls so that sediment would be either redeposited or stabilized, or the construction of a megalithic monument to constitute historical connections to places appear to have been modalities of Iron Age political practice. These places not only brought together a variety of materials and things but also linked them together in accordance with their capacities to act or move. The political claims attached to these resources depended in part on the ability of stone to retain, water to accumulate, soil to stabilize, herbs and grasses to grow, and cattle to graze in particular places.

Important to our framing, these nonhuman constituents did not necessarily act as anticipated. Geoarchaeological investigations, mapping, and remote sensing analyses of the hills and plains in the region suggest that soils and sediments did not always heed the retention walls that were put in place to hold them (Figures 3 and 4). For instance, hills with high numbers of herding sites and evidence for more frequent prehistoric land use show higher proportions of soil erosion, and there is a greater quantity of colluvium and alluvium in apron and fan deposits at the base of hills that were extensively used by Iron Age inhabitants (Bauer, 2014). Intensified animal trampling on the hills probably exposed soil matter to erosion, which in conjunction with shifts in monsoonal rainfall and vegetation conditions, significantly altered the hills' geomorphology and ecology, redistributing soils and pasture conditions among the hill terraces and surrounding plain<sup>2</sup> (cf. Bauer, 2014; Caratini et al., 1991, 1994; Fuller and Korisettar, 2004).



**Figure 4.** Examples of thin soils undergoing erosion on the granitic hills that characterize the study region. Previous analyses by Bauer (2014) indicate that proportional differences in remaining soil and exposed rock on the hills of the region are correlated with the intensity of prehistoric land use.



**Figure 5.** Examples (a–b) of sediment-filled cobble-dammed rock pools found on Iron Age and other prehistoric sites.

By recognizing the movements of these soils and sediments in relationship to ancient herding places, soil retention walls, and megaliths, it becomes clear that this prehistoric political landscape was not simply the result of human strategies or the outcome of “natural” processes. Rather, this landscape is the result of people’s intentions, organisms, and things in specific contexts (here, the rocky hills) that came to mutually affect one another and orient action toward a specific goal (here, the maintenance of soils and water on the hills). The rock pools designed to hold water for people and animals had to be constantly cleaned as sediment accumulated and they lost their holding capacity. For instance, many of the pools on Iron Age sites have been in-filled through subsequent depositional processes and no longer hold any standing water at surface level (Figure 5). Moreover, the soil retention walls constructed to facilitate slope and vegetation conditions had to be regularly maintained as soil creep altered their stone courses and destabilized them, evidenced by the many walls that have now collapsed. The propensity of clays to swell and shrink as they absorb water, evidenced in the study region by striated fabrics and structured clays among some deposits on the hills, affected plants and megalithic monuments as the materials expanded and contracted, often heaving roots and stones. Furthermore, the inclination of soil materials to move downslope as they cycled between wet and dry, hot and cool conditions also affected other environmental constituents. The grazing places described above were thus constantly recreated and reappropriated as sediment and soil movements contributed to their material histories and forms. The actions of soils—their abilities to shrink, swell, transform, and move—necessitated the maintenance of pools and retention walls.

### **Discussion: Materials, actors, and entrainment**

These data suggest that the production of monuments, pasturage, and reservoirs was central to the creation of valued places and the constitution of status during the South Indian Iron Age. Humans, soils, stones, and animals acted together to



produce these places. Soils, by moving downslope or gathering in rock pools, constituted problems for inhabitants. Stones, by retaining soils and water, provided the means to resolve these problems. Animals disaggregated and exposed soils by moving across grazing terraces and altering vegetation, likely enhancing the need to both stabilize soils and clean sediments from water pools. People selected places for pasturage and commemoration and then constantly worked to address problems of soil erosion and water retention. These problems were not strictly material. They were in one sense rooted in a ritual economy of animal herding and feasting, and in another sense, derived from the material properties of soils and stones. That is, the actions of hillside soils and the need to retain them were concerns for Iron Age people largely because of the cultural value of animals, herd management, and feasting during the period. In other words, the entrained actions detailed here demonstrate how the “sensibility” (*sensu* Smith, 2015) of materials—the physicality of things—articulated with cultural notions of value to affect political life.

The case study suggests a theory of action that integrates people and things in particular projects oriented toward problems. Here, the actions of animals and soils were not necessarily intentional or motivated by singular goals, but because they were entrained in processes that generated both problems and socially valued places, they contributed to politics. Soils, stones, and water, of course, cannot act with a conscious intention to effect social change and make a political difference. However, the example above demonstrates how the movement of animals across terrain and the movement of soils downslope can alter a matrix of people and things, creating the potential and need for a public, that is an assembly of people and things oriented to resolve a problem. In our example, the processes of erosion generated new lands and pasturage, which in turn influenced how people selectively valued particular places and constituted social differences. Clearly materials did not conform to the contexts in which humans set them (Bennett, 2010); rather, because of their dynamic material properties, they contributed to the creation of the context itself. An examination of the politics of land use during the South Indian Iron Age reveals the entrained sequence of potentialities and dependencies that fomented political action and conditioned the formulation of publics.

The case study provides an example of how archaeologists might examine the ways that people in the past perceived problems. This is not to argue that archaeologists can access how prehistoric inhabitants explained and narrated soil erosion or the flow of water. But it is to argue that keen archaeological attention to what people did in the past, how they allocated labor and carried out everyday tasks, will reveal the problems they cared about within a broader archaeological context. Given the current evidence it is difficult to know the terms through which South Indian Iron Age people conceptualized the movements of soils, sediments, and water on the granitic hills of northern Karnataka. Indeed, it is difficult for archaeologists to recover how people in specific historical and cultural circumstances perceived problems. But it is clear that, in our Iron Age example, some people built retaining walls, rock pools, and large commemorative monuments, and in so

doing they mobilized labor to resolve issues with soil and water movement. These people repeatedly made concerted efforts to reduce erosion in particular places that were important to both animal grazing and commemoration. Moreover, significant differences in megalithic memorial architecture and a limited distribution of feasting deposits at excavated sites suggest that only certain individuals or kin groups could mobilize labor to build in these ways. Hence, labor mobilized to address a successful resolution to the problem would likely have contributed to or elevated the status of these individuals or kin groups. Social authority, then, was in part rooted in disciplining the labor of people and the actions of animals, soils, and water. To be absolutely clear, this is *not* an argument for environmental determinism or materialism. These material constituents did not *determine* human social affairs; rather, within a cultural system that heightened the value of cattle and herd animals, these constituents generated problems, which require the articulation of material actions with cultural values. Hence, to fully understand the cultural values, we must attend to these material things, and vice versa.

In short, a deeper ecological and contextual understanding of the archaeological record allowed us to evaluate connections between the cultural values that people attributed to particular places (herding locales), materials (soils), and practices (feasting), and the ways that these cultural values interacted with material processes to influence social differences and inequalities. To be clear, this is not to suggest that the entrained actions of people, cattle, soils, and stones described above were the *only* concerns of political life during the period; surely there were others (e.g. Johansen, 2014; Morrison, 2015). Moreover, only some things and materials became significant to ancient Iron Age people, and consequently, to the problems that generated publics. Only careful attention to the cultural and historical contexts in which some things become problems will allow us to identify how everyday practices and material actions become political matters.

This sharp focus on political action distinguishes entrainment from similar anthropological theories of materials. Entrainment emphasizes the constant interplay between political perception, human social practice, and the actions of matter—from pedogenesis to decomposition. This emphasis is distinct, but need not be mutually exclusive, from approaches that seek to understand “alternative” ontologies, such as Strathern’s (1988) theory of the *enchainment* of people and objects in Polynesia and Melanesia, which describes the cultural tropes (*hau*) and culturally specific conceptions of being (dividual) that cause things and their basic properties to circulate, operate as persons, and affect social affairs. Moreover, our theory is distinct from semiotic approaches of *bundling* (*sensu* Keane, 2003), for instance, which seek to break down ontological boundaries between sign and material by focusing on how attributes of things (e.g. red) are inseparably linked to substances (e.g. metal or fruit), and these links serve to distinguish the things of a semiotic framework. Bundling has been productively used by archaeologists to examine how specific concentrations of people, places, and things allow *some* things to insinuate others and consequently affect perceptions and historical

change (e.g. Pauketat, 2013: 34–35). However, we differ from this approach by considering how things have political effects because of their social values *and* their dynamic material properties, *both of which* are capable of taking on new meanings and/or potentials for action because of the flows in which they are entrained.

It is this point that also distinguishes our concept of entrainment from Ian Hodder's (2012) theory of entanglement. Hodder (2012) focuses on the processes by which people become entrapped in relationships of dependency with the things that they use, and vice versa, within discrete places and distinct historical circumstances. In attending to these human–thing dependencies, such as the domestication of sheep or the constant necessity to use plaster and clay to support walls at Çatalhöyük, Hodder focuses needed attention on how social history can be described in terms of the mutually-sustaining interaction of people and things. For Hodder (2012: 69, 72), people develop new technologies and spaces, but they do not act alone; things draw these people into relationships of “care, regulation, and discipline,” trapping them in relationships of dependency. In examining these relationships, Hodder describes how things or people can come to act within this structure of dependency, as these people and things become interred in an ever-deepening pit of dependency with their materials and environments (Hodder, 2012: 68). In this approach, people and things constantly react to the processes and the sets of dependencies that preceded them.

We add a political dimension to this argument, insisting that our object of study should not solely be these innumerable relationships between people and things, but also an inquiry into how *only some* of these relationships come to significantly matter to people. The materials bound up in these social processes only become *political* when they are perceived and explained as problems. Our approach highlights a fundamental asymmetry into these histories of human–thing relationships by attending to the political decisions and power relationships in which humans perceive problems and social effects within these cycles of dependency. It shifts focus from a model that describes a lattice of social and functional relationships between people and things—dependencies joined together in practices of care and management—to an analysis that concentrates on the situated processes and practices whereby people labored to resolve problems of social concern. On one hand, we thus seek to understand human social history in terms of how people became embroiled in everyday routines and actions, such as animal grazing, soil movement, and water capture. On the other hand, we seek to understand how and when some of these routines and actions come to be perceived and represented as problems, and ultimately, come to foment the creation of publics.

Beyond these theoretical concerns, our archaeological approach has clear implications for the contemporary world. For instance, we might think of the oft-stated trope about “America’s crumbling infrastructure,” which casts the rusting iron of bridges and cracked asphalt of roads as kinds of actors that are important to the well-being of a nation (e.g. Kroft, 2014; Moss Kanter, 2015; Preston, 2015). If we concentrate only on the discourse about infrastructure, and the categorization

of “failed” or “inadequate” infrastructure, then we miss a key point. The discourse typically seeks to understand and problematize how and why the infrastructure of a prior time period is now failing, but neglects to recognize that the material properties of this infrastructure rely on flows of social labor and practices—entrained actions of people, things, matter, and environments—that are no longer in place. Moreover, if we concentrate only on the assemblages of things and people that constitute infrastructure, we will overly generalize a broad system of dependencies and neglect to understand how particular convergences of capital, concrete, and concerned citizens might come to form problems and publics in one situation, and not in another. If politics by necessity involves people and materials in entrained actions, then by implication, to understand politics we must inquire into local and situational flows of people, things, and their characteristics. To render the example concrete, we must shift from a general framework of “crumbling infrastructure” to a situated understanding of how, for instance, rusting iron and termite-ridden wood are (or are not) generating publics and problems in particular political and environmental contexts, such as the rural southern United States.

This perspective also contributes to anthropological and philosophical approaches to action, and the action of things in long-term historical processes. In developing the concept “entrainment” we recognize the structuring effects of human intention, but do not reduce action to intention. Similar to the new materialists, we position action within an array of people and things, but we add a critical political dimension by maintaining that situational cultural values will in part create the potentialities and dependencies through which people and things can act. Only in particular circumstances do these actions become *political* problems. That is, they become problems through perception and debate about the political efficacy or significance of a thing’s actions in a broader public, as Dewey (1927) reminds us. With these concepts we do not intend to neglect the question of responsibility for social problems posed by some critics of new materialism (e.g. Van Dyke, 2015: 20). Rather, we seek to put the actions of people and things in their correct places. That is to say things and people act together. But only through the recognition, negotiation, and perception of a problem do these conjoint actions of things and people become political and require the allocation of responsibility.

Our discussion also has implications for understanding the cultural practices and semiotic frameworks through which people in the past and present have experienced and engaged with their environments. A great deal of anthropological scholarship has shown that many cultural groups treat nonhuman things and materials as social actors in relation to how they are caught up in human activities. Descola (1994), for instance, demonstrates that, for the Achuar of the Upper Amazon, “motherhood” is a social relationship that equally applies to human and plant progeny partly because of nurturing that occurs in the home and garden (see discussion in Ingold (2000: 82)). A similar argument can also be made for some hunter-gathering communities in India who frame their forests

and hills as active kin (e.g. Bird-David, 1999). Interpretative archaeological frameworks that do not leave open the possibilities for such cultural diversity in understanding the actions of the material world run the risk of failing to appreciate the range of human experience and simply reproducing modernist ideologies that separate agentive and thinking humans from passive and inert things. It is clear in the archaeological case presented above that people in the past perceived the movements and actions of soils, stones, and animals as important to the constitution of their society. Identifying such cultural diversity in the archaeological record is of course an epistemological challenge. Yet *only* archaeologists have the tools to reveal how contextually specific entrained humans, materials, and things drove history and structured politics over long spans of time. These tools reveal the political things—the smoldering trash dumps, the in-filled sediments, the eroded soils—that people cared about and labored to resolve, and hence the problems that shaped their world.

## Conclusion

If we are to consider the social roles of things and matter in understanding cultural contexts or broader historical processes, we cannot do so by simply attending to either the symbolic positions of things or the material dependencies between people and things. Though such approaches offer valuable insights into alternative cultural frameworks they do not by themselves account for the political problems that were generated through the dynamics of people and things that constituted and affected social action. Above we offered an approach that concentrates specifically on a process of *entrainment*, which refers to the orientation and movement of people and things in unique cultural and historical contexts. This approach builds on approaches that describe how social agency is distributed across a network or assemblage of people and things (e.g. Bennett, 2010; Hodder, 2012), but sharpens focus on the fundamental differences and asymmetries in how people and things can potentially affect social life. In attending to the politics of soil erosion in South India, for instance, we documented how people organized materials in specific ways, and how these materials became entrained in a process of long-term collective action that consequently had significant impacts on how people formulated social inequalities and community identities. Such an approach to long-term action requires an archaeological perspective on how people, and their perceptions of problems, redirected their activities to engage with the actions of things over time. This approach also affords a perspective on *how* things can act to manifest social differences and become objects of political concern when they are entrained in particular, situated flows of action. To explain *that things act* is solely to make a theoretical statement about the mechanics of nature; to analyze *how things act* is to inquire into how material actions are situated within contexts in which they were recognized as a problem. This distinction is essential to both reframe and resolve some of the pressing environmental and social concerns with which we opened this paper.

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## Notes

1. Bennett (2010: 104) concedes this asymmetry: “For while every public may very well be an ecosystem, not every ecosystem is democratic.”
2. See Bauer (2014, 2015), Caratini et al. (1991, 1994), Fuller and Korisettar (2004), and Morrison et al. (2014), for a corresponding discussion of the vegetation history of the region.

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