

to thwart destructive status competition within small groups (Boehm 1993, 1999). The more egalitarian, group-oriented, structural relations that shaped the lives of mobile hunter-gatherers endured in modified forms among sedentary groups—effectively capping inequality and village size. In those rare cases of greater aggregation, people adopted a variety of coping mechanisms, including increased basal-unit size, ritual elaboration, and greater compartmentalization. They often effectively resisted, however, the imposition of the crosscutting hierarchical relations fundamental to state formation. Inclusive institutions like those that structured much of village and herder life tend to be self-reinforcing, as they empower a broad swath of society and keep the political playing field level (Acemoglu and Robinson 2012:309). Such inclusive institutions thus may have shaped the organization of early cities as they emerged, initially independent of states.

Cities, of course, ultimately anchored most ancient states. Yet later political, economic, and social structures should not be uncritically projected back into contexts of incipient urbanization when small, egalitarian-oriented, cooperative groups likely prevailed. Aggregation initially worked to reinforce intergroup differences as peoples' identities hardened in the face of outsiders. Those who sought to create an overarching state structure would have needed to break the power of these self-sufficient groups by creating top-down mechanisms of control that included the use of priests, craft specialists, and warriors. State formation processes varied widely, in part because aggrandizers in different regions wrestled with quite disparate relationships linking urban populations together (Blanton and Fargher 2008, 2011, 2012). The focus at Tiahuanaco was on ritual, as an emerging elite used city-wide (if not region-wide) celebrations to assert a privileged position while still honoring the smaller cooperative units that structured life in the settlement. This, however, was a multigenerational process—a Tiwanaku state formed only 300 years after urbanization began.

When the link between urbanization and state formation is sundered, it becomes easier to recognize those cases of non-urban state formation as well as those cases where urbanism did not result in a state (Kenoyer 2008; McIntosh 2005). In our Hawaiian case study, we see the former occurring within an environmental context that restricted aggregation. Those living in Hawai'i, like those in the Titicaca Basin, were resistant to attempts at creating hierarchical relationships beyond the community chiefs that controlled their modal units. Leaders worked for their people, and in both cases cooperative groups were likely hostile to attempts to interfere with local lifeways. Yet Hawaiians, dispersed in isolated farmsteads, were closely tethered to their land. They could not aggregate and thus could not as easily slow efforts at hierarchical control and state formation.

Tremendous variation existed in the percentage of a polity's population that lived in its primate center. The range of chiefdom populations living in central places varied widely, from 3% to 100% (Drennan 1987), and research on low-density urbanism stresses how mature, long-lasting states have

developed without the classic city model (Fletcher 2009). The link between settlement sizes and political centralization is not straightforward (Duffy 2015)—a sparsely settled site like Honaunau could be a royal center with deep and wide-ranging impacts on surrounding communities.

Yet to call Honaunau a "city" both obscures the transformative aspects of population aggregation and chains us to a deeply flawed civilization stage of development that equates urbanization and state formation. State formation is a centralizing process that brings people together under a ruling class. The political center of a state might be constantly on the move, as in the theater state of nineteenth-century Bali (Geertz 1980), or, as in Inca Cusco, have its population intentionally restricted to elites and their retainers (Farrington 2013). Having many people in one place tends to make hierarchical control more difficult to assert and maintain, and leaders must depend on positive attractions, such as ceremonial elaboration, rather than on cruder means of control through the political economy.

Cities are thus not the harbinger of the state that theories of cultural evolution have long assumed. These sites may instead represent one of the hardest settlement types in which to control people, because of their fluid and faceless (to administrators) character. Divisions between neighborhoods can be difficult to overcome, and assertions of crosscutting hierarchies are frequently rebuffed. Seen in this light, early state formation was often more difficult in urban settings. Centralization, when it occurred, was often a fraught, multigenerational process that emphasized resource mobilization to support hyperelaborated ceremonialism and solutions to emerging urban disorder.

Comments

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We applaud Jennings and Earle for helping archaeologists disentangle the processes of urbanization and state formation, but we think they have gone too far in separating the two. As a result, they have missed what may be the most important effect of urbanization on human society: its generative role as a driver of social change. By insisting on a drastic separation of urban and state processes, the authors leave no room for exploring the generative role of social interactions resulting from settlement aggregations (of which urbanization is the most salient example).

We draw on a recent review article that summarizes social science research on the generative role of social interactions in urban life (Latham 2009). Latham emphasizes the value of see-

ing “urban life as generative of ways of living with others—rather than seeing it as a distinctive way of being, in and of itself” (p. 892). He discusses “the generative capacity of the urban environment” (p. 893). He first asks (p. 893), “Why is it that populations agglomerate together in the first place?” This question motivates considerable archaeological research on ancient settlements (Birch 2013; Schachner 2012). These and other studies identify defense, political administration, and economies of scale as major drivers of settlement aggregation in the past (Smith 2014).

Once people are living together in settlements, their patterns of social interaction work to generate social change. Latham (2009:893) describes this process as follows: “Through specialization, the unexpected mixtures, the concentration of resources, and the challenges of living in a dense, heterogeneous environment, urban life creates a productive dynamic that transcends the sum of its parts.” Whereas the social science research reviewed by Latham approaches the generative properties of cities from a qualitative, descriptive perspective, recent work on urban scaling now provides a causal and quantitative account of the ways that population concentration creates social and economic change. The analytical standpoint is that cities and, more generally, settlements are networks of socioeconomic and cultural interactions embedded in physical space.

If indeed there are underlying social processes common to population nucleations across time and geography, then there ought to be similar empirical relationships between population size—widely recognized as an important social driver (Carneiro 2000)—and various important characteristics of cities and settlements. Such relationships have been studied and modeled for contemporary urban systems, for which population size predicts density, quantity of infrastructure, and the level of many socioeconomic outputs, all with impressive regularity (Bettencourt 2013; Bettencourt et al. 2007). This work is now being extended to premodern settlements, guided as well by the hypothesis that the relationship between population and settled area in particular bears the imprint of the manner in which inhabitants interacted with each other in a settlement (Cesaretti et al. 2015; Ortman and Coffey 2015; Ortman et al. 2014). The overlap and differences between the social interactions responsible for—and facilitated by—the processes of urbanization and state formation call for additional research attention, requiring creative use of data as well as theorizing informed by comparative perspectives.

We would also like to comment on the dubious statement by Jennings and Earle that early states may have found it harder to control their subjects if they lived in cities. This claim flies in the face of considerable evidence from around the world that expanding states and empires have often moved rural peoples into cities in order to control them more efficiently (Chisholm 1968:124; Silberfein 1989:262; Stone 1998: 84). The Spanish colonial policy of *congregación* (“congregation”) in Latin America is a well-documented example in which natives were forcibly moved into towns in order to se-

cure their labor and religious conversion, resulting in a major urbanization in many areas (Gibson 1966). Perhaps urban corporate groups in the earliest cities did oppose state formation, as Jennings and Earle suggest, but this proposal will require far more data and analysis to evaluate. The nature of state control in relation to urban versus rural contexts is highly variable and far more complicated than they indicate.

To recapitulate, we worry that by setting too rigid a distinction between the processes of urbanization and state formation, Jennings and Earle are unable to analyze the socially generative effects of urbanization and city life. The alternative perspective we promote, based on scaling theory (Bettencourt 2013; Bettencourt et al. 2007), suggests that Jennings and Earle’s hypothesis that cities preceded states could be extended to argue that urbanization processes may actually have contributed to state formation. We thank Jennings and Earle for opening an anthropological dialogue in this emerging arena of interdisciplinary research.

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I am delighted to see a particularly strong wedge being driven between arbitrarily fused settlement types (“the city”) and political formations (“the state”). This bond is a legacy of one of the most influential articles ever written, V. Gordon Childe’s “The Urban Revolution” (Childe 1950; Smith 2009), which, despite its title, was more about sociopolitical organization than it was about population nucleation. Archaeologists have been conflating them ever since, although challenges have been mounting in recent times (e.g., McIntosh 2005; Smith 2003). Jennings and Earle also show a healthy skepticism for “revolutions” generally, the idea that past societies would acquiesce to rapid and radical social change; archaeological revolution is another legacy of Childe’s whose time has passed.

One should not entirely throw the baby out with the bathwater, however. The “urban state” is a recurring combination of settlement type and political form. It gets a lot of attention from archaeologists because it is highly visible (much easier to locate and excavate than, for example, the mobile court of a nomadic confederacy). Furthermore, early urban states appear to Western archaeologists as the first steps in the development of our own societies, hence as the archaeology of our own origins. It is important to recognize that the urban state is only one possible combination, as Earle’s Hawaiian case study illustrates. Nonetheless, it is remarkable how frequently this settlement type and this political formation coincided in the past. An important question to ask is why this combination recurred so frequently. This frequency is at odds with the au-