

Case Study - Hawai'i

The lack of urban settlements and a settlement hierarchy in the archaic state of Hawai'i (part of a larger manuscript on urbanism with Justin Jennings)

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The Hawaiian Islands are located in the central Pacific just within the tropics. They are unusual for their relative large landmass and their isolation from other inhabited islands. About one thousand years ago, a small group of Polynesians colonized the Islands and developed there, almost independently, a complex state-like society prior to 'discovery' by Captain Cook in 1778. Important for our discussion, Hawaiian state formation was not dependent on urbanization. The chronology of social development is detailed elsewhere (Earle and Spriggs 2015; Kirch 2010) but can be briefly summarized here. Early on, hamlet-size settlements scattered along the coast, relying on fishing and small-scale agriculture. As population grew, settlers increasingly depended on agriculture and spread to island interiors, where they cleared forests for shifting cultivation. Forest clearing accelerated erosion, and a rich alluvium formed on valley bottomlands (Spriggs 1997). Wherever alluvial soils existed, farmers began to focus on intensive, irrigated taro fields. Engineered landscapes came to include irrigated pondfields for taro, fishponds, tree groves of bananas, breadfruit and coconut, and newly constructed religious monuments, roads, and division walls (Earle and Doyel 2008). Where no streams existed, farmers intensified dryland farming using terraces to inhibit erosion and water loss (Ladefoged et al 2009).

For much of the sequence, little evidence existed for strong hierarchical relations. Communities probably became organized as simple chiefdoms with chiefs managing religious systems with modest monumental construction. At first lineage ties between chiefs and commoners probably followed a typical Polynesian model with elite lineages grounded in local communities. Bottom-up initiatives of farming families and their communities likely created the wetland landscapes, and, as they invested their labor to build highly productive facilities, farmers became increasingly bound to their land. Sometime after AD 1400, chiefs initiated conquest warfare to seize these facilities and the labor that made them productive. Conquest would have transformed the property system from community-based lineage structures, as typified Polynesian societies, to one dominated by overarching elite ownership (Hommon 2013; Kirch 2010). It severed the community's rights to land, as the new ruling elite came to view community land as "a tax district with a known workforce and level of productivity" (Hommon 2013: 13; see Sahlins 1992: 26) and created a class-based society.

A class-based society was created over time, as chiefs controlled daily affairs and intensify surplus mobilization (Earle 1980). The intensified irrigation facilities were developed wherever possible, and they became highly productive zones neatly divided by field terraces, ditches and pathways into family plots. Concentrated in the lower valleys, the largest systems were easily controlled (McCoy and Graves 2010), but commoners appear to have retained some ability to opt out of these ownership structures. Small irrigation systems are found archaeologically in back-woods areas, where, undocumented

in the historical record, some commoners apparently farmed these lands in zones free of chiefly oversight (Earle 1978).

Although the potential for irrigation was limited on the less eroded eastern islands, commoners farmed areas suitable for dryland practices (Ladefoged et al 2009). Here they built terraces to slow water runoff and erosion and subdivided their fields with walls and trails that presumably defined property rights and obligations much as defined in irrigation complexes. The dryland fields especially produced sweet potato, an ideal pig food, such that these fields supported large pig herds, a moveable wealth critical for ceremonial offerings and gift payments (Dye 2014, with commentary). All dryland farmlands were not equal; some areas were more productive, lower risk, and more engineered than others (Ladefoged and Graves 2008), and, like the irrigated areas, these core dryland areas served as easily controlled zones producing staples and staple-fed pigs for the political economy. Late in prehistory, chiefs apparently supported the expansion of these dryland field systems as a means to increase surplus production perhaps especially in pigs.

The size of Hawaiian communities (*ahupua'a*) was small. A rather typical 'village' probably existed in the community of Waioli, Kaua'i (Earle 1978: Fig. 8.1). Here, based on 1850 land division documents, 13 commoner house lots were scattered along the 1 km beachfront, and another 6 lots dispersed inland along the stream and among the valley's irrigation systems. Single families occupied most (90%) house-lots, with only a few being co-residential with 2 or occasionally more families. The community population would have been perhaps 100. Knowing that population had declined following the introduction of Old World diseases and probable migration to emerging port cities like Honolulu, prehistoric communities may have been larger, but no archaeological evidence suggests community populations more than the low hundreds.

On the eroded western islands, families lived in river valleys, like Waioli, which constituted natural catchment zones running 10 km or so from the mountains to the sea. A condensed ladder of ecozones provided general access to farmland, fishing, and back-land wild foods; household specialization was unnecessary (Earle 1977). With access to all resources and low risks in irrigated agriculture, the basal unit of Hawaiian commoners in wet-land zones was the family, associated with a male responsible for work assigned by the chief's manager and in return receiving a *kuleana* (agricultural allotment) (Earle 1978). In the geologically younger regions on eastern islands of Maui and Hawai'i, community territories ran in arbitrary strips from the mountains to the sea. Unlike the western islands, areas suitable for farming and fishing could be quite separate, and in historic times communities were organized as '*ohana*', extended families with specialized segments (farmers vs. fishers) and integrated by reciprocity and visiting to handle problems of agricultural risk (Handy and Pukui (1972 [1958])). The traditional Hawaiian family structure apparently adjusted to local environmental circumstances, being more nuclear or extended based on condition (Earle 1977).

Although commoner households probably continued to solve all basic subsistence needs throughout the sequence, chiefly 'redistribution' increasingly mobilized staples and labor to finance chiefly institutions (Earle 1977; contra Service 1962). One use of mobilized labor was to build temples that marked the landscape and determined responsibilities of individual communities to support annual ceremonies (Kolb 1994).

Resources were also poured into warriors, who helped chiefs conquer land initially improved by commoner initiatives (Earle 1978; Kirch 2010).

Through conquest chiefdoms expand in scale up to European contact, with an enduring tension between top-down schemes and family-organized production. During much of the sequence, chiefly positions were probably based at least nominally on high ranked lineages tied to communities, and, as polity size increased, some efforts to increase basal unit size and embellish group ritual were similar to what we observe in the Tiahuanaco case study. Yet the history of the Hawaiian Islands differed markedly in its increasingly direct chiefly control over surplus production and its complete lack of cities.

By the seventeenth century, state formation had abrogated the basic Polynesian lineage structure, regional rituals and monumental construction. The local community became the fief of a ‘foreign’ chief, a member of an island ruling line, who replaced the authority of traditional community’s chiefs. The Hawaiian state created what were serfdoms with farmers bound to land by law and not lineage; commoners could not maintain genealogies of more than two generations (i.e. to the grandfather), and the bottom-up process of self-organizing was co-opted by a top-down system aimed at surplus mobilization.

Using a wealth of historical, ethnohistorical, and archaeological documentation, the pre-contact Big Island and Maui polities can easily be considered states (Hommon 2013; Kirch 2010, 2012). “[B]y the time of their initial engagement with the West, [Hawaiian polities] had crossed a threshold marked by the emergence of divine kinship, and by the sundering of ancient principles of lineage and land rights based on kinship, and their replacement with a strictly territorial system” (Kirch 2010: 72). Transformative changes included the establishment of an island-wide structure of power and authority, land-based taxation in labor, food and special materials, divine kings supported by elaborate ceremonies and personal dress, and conquest warfare. By right of conquest, all land became the property of the conquering ruler, the *ali’i nui*. At contact, the Hawaiians had formed a class-based, state society.

State formation did not bring with it cities. We suggest rather that hierarchical control was enabled by the absence of settlement aggregation, as populations were tethered to their subsistence plots. As Hommon summarizes: “Ancient Hawai’i exhibits no urban development, no towns, and indeed few nucleated settlements that warrant the label ‘village.’ (2013: 129). Rulers built neither monumental palaces nor impressive burial monuments. Some ‘royal centers’ with elite residence had walled compounds and quite impressive shrines (Kirch 2010: 166-171), but the spatial scale and monumental construction of these settlements were very modest in comparison to central places elsewhere such as Tiahuanaco.

At the royal center at Honaunau on Kealakekua Bay, for example, religious shrines, defining walls and residences covered only 25 ha. At first contact by Captain Cook, a Weber drawing of the Bay (Beaglehole 1967: Plate 54) shows a shrine and scattering of houses under coconut trees along the beach and on inland upslope. As an insert to the 1779 Cook voyage chart (Figure 3), a sketch of the Bay shows perhaps 50 houses spread along the coast and inland (Skelton 1955: Chart LV). Despite the impressiveness of the Hawaiian royalty as described by the early account, the royal settlements like Honaunau were simple affairs, nothing approaching a city.

The lack of urbanism in the Hawaiian State is remarkable only because of our adherence to a civilization concept that merges urbanization and state formation. Cities did not form in Hawai'i because of an enduring dispersed settlement pattern, lack of storable staples, poorly developed transport (Kirch 2010: 75) and an absence of market-based specialization that created key dynamics for settlement aggregation elsewhere. The only regional hierarchy observed was the late prehistoric structure of religious temples (Kolb 1994), but cross-culturally even these monuments were modest in scale. Quite simply, the economic basis of the Hawaiian states did not encourage urbanism, and the lack of large settlements did not limit pristine state formation.

The low-density colonizing populations of Hawai'i likely formed a fairly open society, although ideas of status were surely retained from a general Polynesian structure of rank. The subsequent population expansion filled the landscape and intensified its use, creating circumscribed zones of highly productive agriculture eventually claimed through conquest by a ruling elite (Earle and Spriggs 2015). Substantial surpluses supported managers, warriors and priests in the process of institutional reformulation. A bargain between chiefs and commoners created surplus extraction that, at the same time, required chiefs to maintain a moral economy with well-managed farming systems, access to wild resources of uplands and sea, and ceremonial legitimacy. In all situations, this bargain was critical to the formation of hierarchies, but in some situation like the Hawaiian Islands, a largely rural population had little room to maneuver. The need for the labor power of commoners never made them simple pawns in the process, but the fact that they became tethered to particular land allocations made them easily enumerated and supervised in a rural-based political economy of staple production.