IDEOLOGY, POLITICAL ECONOMY, AND TECHNOLOGICAL CHANGE IN THE HAWAIIAN ISLANDS AFTER AD 1778

James M. Bayman

Department of Anthropology, 2424 Maile Way, Saunders 346, University of Hawai'i, Honolulu, Hawai'i 96822
Email: jbayman@hawaii.edu
Keywords: Hawaiian Islands, European contact, technological change, architecture, clothing

ABSTRACT

Interpretations of European and American contact with Oceania often highlight the rapid changes that took place in the technologies and practices of its traditional societies. In the Hawaiian Islands, for example, many scholars have assumed that stone adzes were quickly replaced with metal adzes, and that such change was an inevitable consequence of a more efficient western technology. The timing and pace of this particular change is put into a comparative perspective by reviewing published information on the rate at which indigenous Hawaiians selectively modified their clothing and pole-and-thatch hale (buildings) in the context of Euro-American colonialism. The study reveals that although Hawaiian women quickly adopted selected styles of western clothing, indigenous stone adze technology and vernacular architecture persisted about a century after contact in AD 1778. These findings confirm that archaeological studies of colonialism must consider a variety of social and economic factors to document and explain technological change.

Interpreting the consequences of European contact with traditional societies is a perennial theme of historical anthropology (e.g., Gosden and Knowles 2001; Kirch 1992; Linnekin 1990; Mills 2002; Sahlins 1985, 1995) and the Hawaiian Islands offer one of the most remarkable instances of this phenomenon (Figure 1). Following an initial visit in AD 1778 by British naval officer Captain James Cook, indigenous Hawaiians witnessed a rapid series of changes in their health, technology, and society through the 19th century. The arrival of foreign disease pathogens, western materials and technologies, and Christian ideologies irrevocably altered traditional ways of life and an overwhelming majority of Hawaiians perished (Kuykendall 1938; Stannard 1989). Burgeoning interest in the effects of European and American colonialism throughout the world, including Hawai'i, have heightened the relevance of archaeology to historical anthropology (e.g., Cobb 2005; Kirch 1992; Deagan 1988, 1998; Orser 1996). Archaeology is particularly valuable for documenting and interpreting the underlying sources of technological change in the face of western contact and colonialism.

This paper reviews and updates archaeological and documentary evidence that traditional stone adze technology persisted long after European contact and the introduction of metal in AD 1778 (Bayman 2003). I explore the ideological, political, and economic factors that underlay this dynamic process. To put this particular instance of technological change into a broader perspective, I also investigate differential rates of adoption of western clothing by indigenous Hawaiian women and changes in the construction and use of vernacular ("traditional") architecture. Although Hawaiians adopted western clothing styles much more quickly than stone adzes, buildings made with traditional materials persisted much longer than stone adzes. These findings confirm that archaeological models of technological change in both colonial and ancient contexts must consider a variety of ideological, political, and economic factors. Before I consider these sources of technological change in the Hawaiian Islands after European contact, I provide a brief historical review of the archipelago in the 18th and 19th centuries.

ECONOMY AND SOCIETY IN POST-CONTACT HAWAI'I

At European contact in the late 18th century, Hawai'i had the most complex hierarchical organization and largest scale of economic production among traditional Polynesian societies (Hommon 1986; Kirch 1984:2-7; 2000:300). The islands' subsistence economy focused on agricultural production, arboriculture, aquaculture, fishing, and animal husbandry (pig, dog, and chicken). The eight major islands of the Hawaiian archipelago (Figure 2) were divided into four major polities at European contact; these polities have since have been described as "complex chiefdoms" (e.g., Cordy 1981; Earle 1977) and "archaic" states (e.g., Hommon 1986:55; Kirch 2000:300). The organization of early contact-period Hawaiian polities was stratified and pyramidal: they centered on high chiefs (*kaukau ali'i*) and administrators (*konohiki*) who ruled over commoners (*maka'āinana*) in local territorial communities (*ahupua'a*). *Ahupua'a* often (but not always) cross-cut multiple ecological zones ranging from the coastal lowlands to the interior uplands (Earle 1977; Ladefoged and Graves 2006:259-262; Hommon 1986:57).

Throughout the late 1700s and the subsequent 19th century, the pace of technological change accelerated in Hawai'i, beginning with the introduction of metal tools and weapons from Europe in 1778. With the aid of

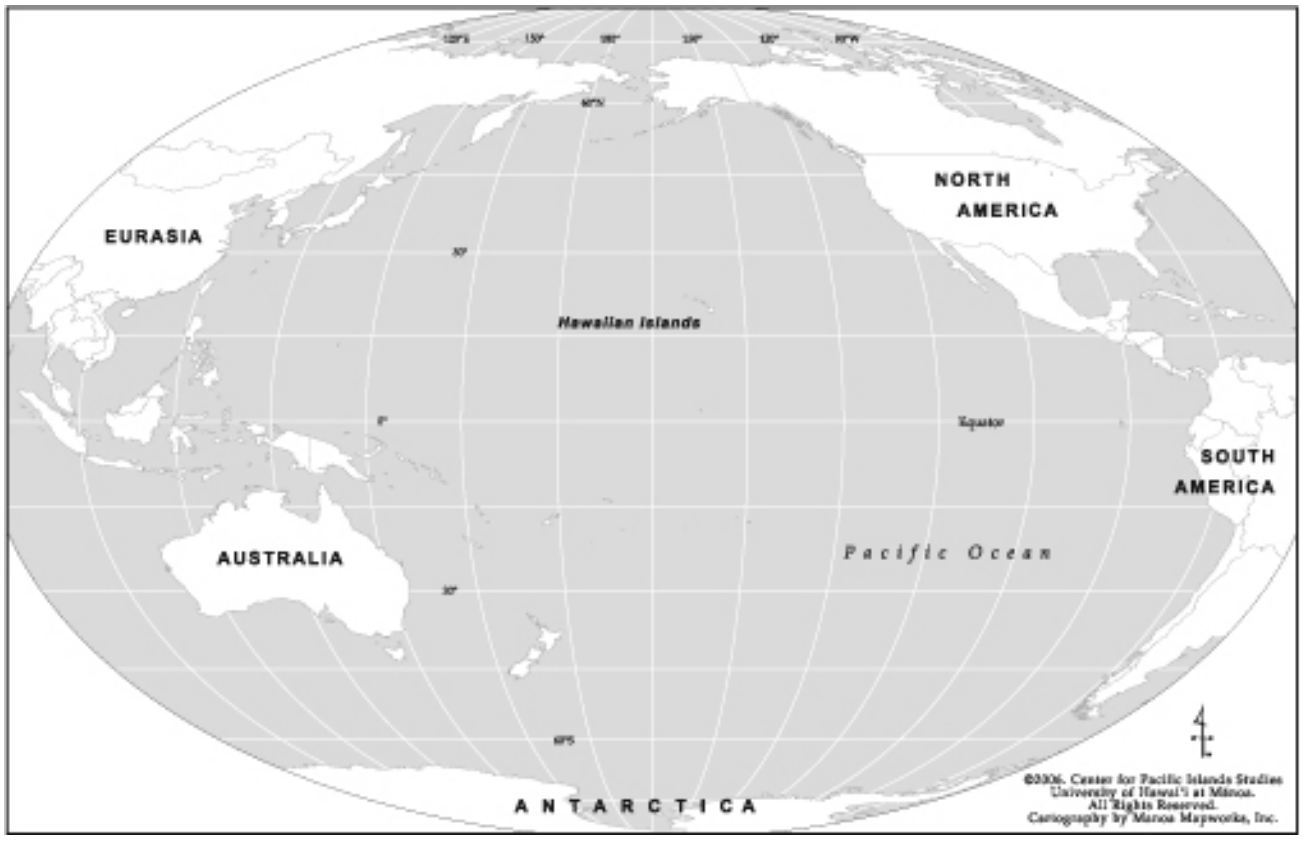

Figure 1. Location of the Hawaiian Islands in the central Pacific (map courtesy of the Center for Pacific Island Studies, University of Hawai'i; cartography by Mānoa Mapworks, Inc.).

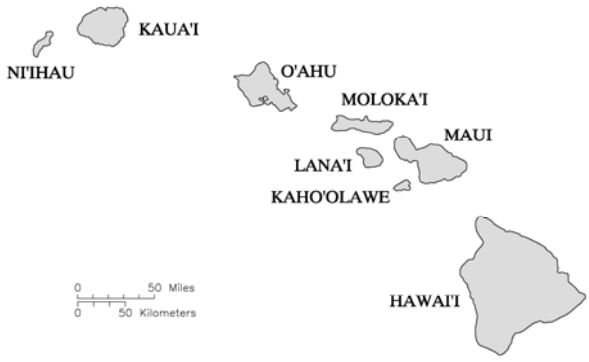

Figure 2. Major islands of the Hawaiian archipelago (drawn by Ronald Beckwith).

western military technology an emergent Hawaiian paramount leader, King Kamehameha I, united the archipelago in 1812 (Kuykendall 1938:44-51). From that moment forward, a succession of indigenous kings and other elites (*ali'i*) and their commoner subjects (*maka'āinana*) were drawn into the rapidly expanding world system of economic interaction that included the export of sandalwood to China.

In 1819, the near-instantaneous dissolution of the traditional Hawaiian religion had far-reaching consequences, including the abolition of sumptuary restrictions (*kapu*) that once constrained Hawaiian women from eating pork, bananas, and other foods (Kuykendall 1938:61). Shortly after the traditional *kapu* system was terminated by Hawaiian royalty, Christian missionaries from the United States brought western clothing styles while the island economy continued to change. After 1830, the sandalwood trade was superseded by an economy that centered on the production of food provisions (e.g., pork and yams) for the American whaling industry until 1860. Although ruling Hawaiians initially benefited from this international economy, their power diminished after the *Māhele* (land reform) of 1848-50, which legally sanctioned the alienation of land through fee simple sale (Kuykendall 1938:269-298). In 1893, the constitutional monarchy of the Hawaiian Kingdom was overthrown by non-Hawaiians, and in 1900, the archipelago was annexed as a Territory of the United States (Daws 1968:207-292). These historical events and their technological consequences are documented to varying degrees of resolution in the archaeological and documentary records of the post-contact period.

Stone adzes are a particularly intriguing instance of technological persistence after contact with Europeans, given their great importance in Oceanic societies (Figure 3). At first contact, stone adzes were used in Hawai'i for a variety of purposes, including the felling of trees, building canoes and houses, carving religious idols (Kamakau 1976) , and perhaps also to display *mana* or rank, as they were in other areas of Polynesia (see Leach 1993:39). Although archaeologists have long acknowledged the

value of stone adzes to pre-contact Polynesian societies (e.g., Bayman and Moniz-Nakamura; Bayman *et al.* 2004; Buck *et al.* 1930; Duff 1959; Emory 1968; Lass 1994), they rarely study the use of stone tools in post-contact Hawai'i (see Kirch 1992 for an exception). This lack of attention to post-contact stone adze economies in the Hawaiian Islands clearly contributes to the "rapid replacement" view of some archaeologists (e.g., McCoy 1990:92-93) and historians (e.g., Daws 1968; Kuykendall 1938) that metal adzes were more efficient tools than stone adzes. This "rapid replacement" view is due, in part, to the unmistakable efficiency of metal adzes for cutting trees and woodworking (e.g., Coutts 1977:80-82; Mathieu and Meyer 1997; Townsend 1969).

TECHNOLOGICAL CHANGE IN POST-CONTACT HAWAI'I

Stone Adzes

Figure 3. Hafted adzes from Hawai'i: left, a stone swivel adze, used for working the interior of canoes; right, a regular stone adze. Both adzes were acquired by J. S. Emerson in the 1880s (photo courtesy of the Bernice P. Bishop Museum).

However, a significant number of post-contact archaeological sites (n=18) with stone adzes have been reported in the Hawaiian Islands (Table 1) (Bayman 2003:103-104). Documentary accounts corroborate this archaeological pattern and attest to the continued use of stone adzes by commoners until the mid-nineteenth century (Cheever 1851). Even more intriguing is a statement by William Brigham (1902: 409-410) at the turn of the 20th century:

> …In watching the shaping of a canoe I have seen the old canoe-maker use for the rough shaping and excavating an ordinary foreign steel adze, but for the finishing touches he dropped the foreign tool and returned to the adze of his ancestors, and the blunt looking stone cut off a delicate shaving from the very hard koa wood and never seemed to take too much as the foreign adze was apt to do.

Brigham (1902:408, 415) claimed also that while the production of stone adzes terminated shortly after the introduction of metal, their use continued at least as late as 1864, and probably a century after contact (Figure 3).

Although metal adzes were eventually adopted by virtually all Hawaiians, some islands (and certain areas of islands) acquired them more quickly than others in the first half of the nineteenth century. The observation that stone adzes were "becoming rare" in Honolulu by 1825 (Bryon 1826:137) is not surprising, since Honolulu was already a major port in the archipelago. In rural districts, however, which remained isolated from the market economy until the middle of the nineteenth century, stone adzes were still used (Linnekin 1990:173). In the settlement of Waimea, located in the interior of the island of Hawai'i, stone adze use was witnessed as late as 1847 (Doyle 1953:145).

Iron was differentially distributed between chiefly elites (*ali'i*) and commoners (*maka'āinana*) since elites monopolized trade with Europeans. Chiefs confiscated commoners' possessions and enforced sumptuary taboos (*kapu*) on the use of foreign goods by non-elites (Linnekin 1990:161). In the late 1700s, Nathaniel Portlock witnessed a chief as he demanded bits of iron from a commoner who had bartered for them from foreigners (Linneken 1990:162; Portlock 1789). Not surprisingly, although chiefs had "more iron than they knew what to do with" by 1793 (Bell 1929:30:I:63), commoners still sought to acquire iron objects.

In short, a variety of economic and social factors contributed to the persistence of stone adze technology after contact with Europeans and Americans. The persistence of stone adze technology was undoubtedly tied to a political economy that centered on elite prestige and power. Unlike metal, western clothing styles were easily available to commoners who were eventually compelled to wear them by Christian missionaries in the early 19th century.

*Bark Cloth (*Kapa*) Garments*

The use of clothing for asserting ethnicity, gender, class, and other dimensions of identity and social control is widely acknowledged by scholars (e.g., Arthur 1999; Barber 1994). Prior to the arrival of American Congregationalist missionaries in 1820, most indigenous Hawaiians wore *kapa* ("barkcloth") garments, except for some Hawaiian royalty (*ali'i*) who had acquired western fabrics and Chinese silk as early as 1810. Chiefly elites also

Table 1. Archaeological sites in the Hawaiian archipelago with reported post-contact occupations and stone adzes.

Island	Site no.	Site type	Adze Artifacts	Foreign Artifacts	Occupation span	References
O‘ahu	C4-265	House	Adze flakes (numerous), grinding stone fragment	China, metal, glass	Pre-1850 to late 19th century	Riconda 1972:14-20
	D6-36	Rockshelter	1 adze frag., 15 adze flakes	Glass, metal, gun flints	AD 1650 to after contact	Kirch 1992:36, 39-40; page 47, Fig. 2.11
	D6-52	Rockshelter	1 adze and 29 adze flakes	Glass, metal, gun flints	AD 1500 to after contact	Kirch 1992:33-35, 36; page 47, Fig. 2.11
	D6-58	Rockshelter	1 adze and 39 adze flakes	Glass, metal, ceramics	AD 1325 to after contact	Kirch 1992:37-39, 36; page 47, Fig. 2.11
	D6-60	Rockshelter	1 adze preform, 1 adze frag., 29 adze flakes	Glass, metal, ceramics, gun flints	AD 1450 to after contact	Kirch 1992:35-37, 36; page 47, Fig. 2.11
	D6-27	House	6 polished flakes (adze flakes)	Iron, glass, flint flake	AD 1804-1815 and AD 1845-1880	Kirch 1992:86; page 166, Fig. 5.1
	D6-33	House	Adze frag., 2 adze flakes	Glass, metal, ceramic, flint, slate	AD 1804-1825	Kirch 1992:76; page 166, Fig. 5.1
	D6-34	House	Adze, adze flakes, hammerstone	Glass and flint	AD 1804-1885	Kirch 1992:71-72; page 166, Fig. 5.1
	D6-40	House	Adze, 3 adze flakes	None	AD 1804-1815	Kirch 1992:64; page 166, Fig. 5.1
Moloka‘i	M-17	House	Adze, basalt flakes	Glass and ceramics	Late 19th century to early 20th century	McElroy 2006:116
Hawai‘i	7702	Not reported	Adze	Not reported	Post-AD 1800 (portions)	Lass 1994:72; Hay *et al.* 1986
	T1	Not reported	Adze	Not reported	Post-AD 1800	Bath and Rosendahl 1984; Lass 1994:72
	H2	Not reported	Adze	Not reported	Post-AD 1800	Emory and Sinoto 1969; Lass 1994:72
	2732	House	2 adzes, 8 adze flakes, 4 hammerstones, 24 basalt flakes	Metal, chert flake, plaster	Post-AD 1800	Clark and Kirch 1983; Lass 1994:72
	2776	House	165 adze flakes, 317 basalt flakes	None	Post-AD 1800	Clark and Kirch 1983; Lass 1994:72
	8824	House	1 adze, 5 adze flakes, 2 hammerstones, 24 basalt flakes	None	Post-AD 1800	Clark and Kirch 1983; Lass 1994:72
	303	Not reported	Adze	Not reported	Post-AD 1800	Barrera 1972; Lass 1994:72
	73	Not reported	Adze	Not reported	Post-AD 1800	Spear 1987

adorned themselves with brightly-colored feather clothing and implements including cloaks, helmets, and standards (*kāhili*); such items functioned as symbolically and politically-charged insignia of their rank and status (Earle 1987:69-72; Malo 1951(1898):76-77).

Although *kapa* was a more mundane form of clothing, it too was highly valued in early contact-period Hawaiian society. *Kapa* was traditionally manufactured with the inner bark of the paper mulberry tree (*wauke*) or other plant fibers, such as *ma‘aloa* (*Neraudia species*) (Abbott 1992:50-51). The ideological meaning of *kapa* in traditional Hawaiian society is evidenced by the fact that there was a deity of *kapa* makers (i.e., Maikoha) (Krauss 1993:60); *kapa* was also used for the payment of chiefly tribute (Malo 1951(1898):29-30, 78).

The most commonly worn *kapa* garments in traditional Hawaiian society included the *malo* loincloth for males, the *pa‘u* skirt for females, and the *kihei* shawl for members of both genders (Krauss 1993:70-71). The *pa‘u* was crafted with *kapa* that was a few meters in length and a meter or more in width; it was wrapped around a woman’s torso (between her bust and knees) if she was royalty. Among commoner women, *kapa pa‘u* only covered the area between her waist and her knees (Figure 4). The indigenous Hawaiian historian, David Malo (1951(1898):78), noted that the *malo* was used by men “…as a covering for the immodest parts...” and that the *pa‘u* that was “….wrapped about the loins…shielded the modesty of the women.” Thus, it is likely that Hawaiians valued some degree of sexual “modesty” even before Christian missionaries arrived in 1820.

In keeping with their religious ideology, American missionaries encouraged Hawaiian women to adopt western clothing styles, such as the *holokū* (Figure 5), since such garments shielded women's bodies and sexuality from public view (Arthur 1998:274-275). Sometimes called the "Mother Hubbard" the *holokū* was most eagerly adopted by female royalty (*ali'i*) to advertise their social connections with Americans and members of European royalty (Arthur 1998:272-274; 1997). Indeed, Hawaiian queens commissioned missionary wives as seamstresses, to satisfy their strong desire for western clothing (McClellan 1950; Thurston 1882). In return for *holokū*, Hawaiian queens granted missionaries the permission they needed to extend their stay in the islands (Thurston 1882).

In the 1830s, missionary women taught sewing to Hawaiian women, and commoners began to make *holokū* with traditional *kapa*, rather than expensive fabric that was imported from Europe and the United States (Bishop 1887). This adoption of a western clothing style that was crafted with traditional Hawaiian textiles offers an intriguing instance of technological syncretism. Soon thereafter, women of all classes (both commoner and elite) wore the newly-introduced fashion. By 1837, the western *holokū* had largely replaced the traditional *pa'u* and became standard dress for Hawaiian women who wore it for most occasions, including work and leisure (Arthur 1998:276).

Although *pa'u* were apparently still worn by a few Hawaiian women in 1851, they were exceedingly rare (Anderson 1854:1), except when they were worn by performers of commercialized (rather than traditional) hula dance (Figure 4). This documentary observation was corroborated through a content analysis of photographic archives in the Bishop Museum (Arthur 1998). In photographic images that post-dated 1859, women are only depicted wearing the missionary-introduced *holokū* (Arthur 1998:276), unless they were commercial performers of hula. Although it is possible that some women still wore traditional Hawaiian *kapa* after 1859, their absence in photographs suggests that *holokū* and other styles of western clothing were overwhelmingly favored by this time.

In short, traditional *kapa* garments (i.e., *pa'u*) that were worn by indigenous Hawaiian women were replaced with western garments (i.e., *holokū)* in no more than 40 years, and perhaps less than 20 years. The quick adoption of certain styles of western clothing by Hawaiian women offers a sharp contrast with the persistence of some characteristics of traditional architecture.

Vernacular Architecture: Pole-and-Thatch Hale

Generally speaking, vernacular architecture reflects an attachment to traditional places and sources of inspiration, it is used on a daily basis by ordinary people, it is constructed with local building materials, and it has both utilitarian and affective functions (Brunskill 1981:24; Rapaport 1969:4-5; Rensel 1997:10). Architecture is nonportable, it often entails a high degree of capital investment, and it reflects relatively long-term social and economic arrangements. For these and other reasons, architecture it is often resistant to rapid change. This study relies on Russell Apple's (1971) exhaustive archival analysis of Hawaiian vernacular architecture after European contact in 1778, with an eye toward revealing the ideological and sociopolitical dimensions that underlay its persistence and transformation.

Figure 4. Commercial hula performer in a pa'u *(skirt) circa 1885, several decades after Hawaiian women adopted* holokū *for everyday domestic purposes (photo courtesy of the Bernice P. Bishop Museum).*

In 1778 and for several decades afterward, pole-and-thatch *hale* were generally rectangular and comprised of a single room structure atop a terraced platform, paved stone platform, and/or a set of enclosing stone walls (Figure 6). Pole-and-thatch *hale* were constructed with materials (e.g., *pili* grass, pandanus leaves, loulu palm leaves, sugarcane leaves) that were readily available in the islands. Wooden posts, rafters, and purlins were lashed together with braided plant fiber cordage to form a hipped or gabled-roof. Before contact, doorways were apparently often nothing more than a relatively small opening that could be easily covered with a mat. Once it was lashed together, the pole frame was covered with thatching that was made with fibers from *pili* grass, palm fronds, or other varieties of plants.

Traditionally, pole-and-thatch *hale* were used in Hawai‘i for storage, shelter, and security (Apple 1971:3). The kinds of property that were stored in a *hale* depended on its particular use, but it could be used for warehousing crafted materials, canoes and fishing gear, and ritual paraphernalia. Pole-and-thatch *hale* offered effective shelter from climate*;* one visitor to Hawai‘i in 1837 noted that pole-and-thatch *hale* were cool during warm days and warm on cool evenings (Hinds 1968:116, 117).

Figure 5. Hawaiian women wearing holokū *in 1864, almost three decades after traditional* pa‘u *(skirts) were abandoned for daily wear (photo courtesy of the Bernice P. Bishop Museum).*

In noting the imperative for “security,” Apple (1971) notes that pole-and-thatch *hale* offered protection for commoners (*maka‘āinana*) and lesser chiefs (e.g., *konohiki*) during times of taboo (*kapu*). This *kapu* system was practiced in traditional Hawaiian society to ensure that the purity of chiefly *mana* (divinity) was not polluted by contact with profane objects and/or non-elite (hence non-divine) commoners (Valeri 1985:90-105). During *kapu* periods, commoners and low-ranking individuals sought to avoid being seen or heard by chiefly elites (Apple 1971:8-10), since acts as simple as casting ones shadow on the back of a king was punishable by death (Malo 1951(1898):56; Valeri 1985:91). Periods of *kapu* included burial processions, sacred temple ceremonies, and other religious events.

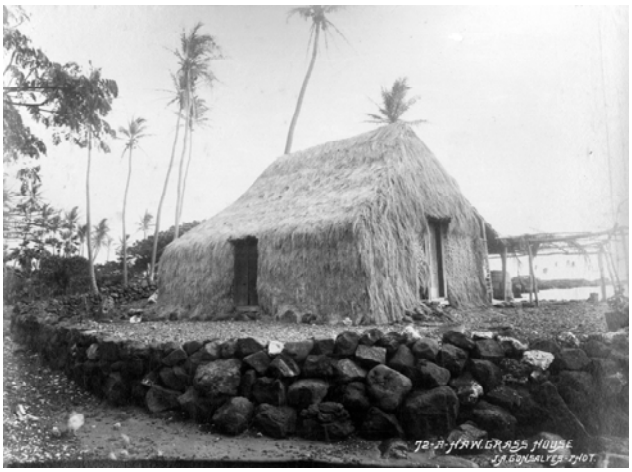

Figure 6. Hawaiian hale *and encompassing stone wall before 1900. Note the enlarged rectangular doorways (photo courtesy of the Bernice P. Bishop Museum)*

To accommodate other ideological imperatives *hale* were often grouped together into *kauhale* (household compound). Typically, a *kauhale* might include a *hale mua* or men’s house, a *hale noa* or sleeping house (both males and females), and a *hale pe‘a* or menstruation house. In some *kauhale*, there were *hale ‘aina* or eating houses for women, as well as other *hale* for storage, cooking, and other activities (Handy and Pukui 1958; Malo 1951(1898); Van Gilder 2001). Unlike European houses, the interiors of traditional Hawaiian houses were not normally partitioned into multiple rooms (Ledyard 1963:128; Ellis 1979:225; Campbell 1967:130).

After the traditional Hawaiian religion was terminated by indigenous elites in 1819 (Kuykendall 1938:102), the construction and spatial configuration of *hale* underwent marked changes. To note only a couple of examples, doorways into pole-and-thatch *hale* were enlarged so that crawling was no longer necessary to enter them, and window openings were cut into walls to admit air and light (Apple 1971:200-201) (Figure 6). This was a striking departure from the early 19th century enactment of “birth-of-house” ceremonies when the cutting of small doorways symbolically represented the severing of *hale* umbilical cords (Malo 1951[1898]:121-125).

Moreover, multi-building *kauhale* were increasingly nucleated into contiguous arrangements after the traditional religion and *kapu* system were overthrown (Ladefoged 1991:57). *Hale* that would have once been separate buildings were integrated as rooms of larger structures. The strictures of the traditional Hawaiian religion were no longer a hindrance to those who wished to organize their households in this European style, and the original arrangement of pole-and-thatch buildings into *kauhale* waned.

Architectural innovations that followed the demise of the traditional religion in 1819 were intensified following the arrival of missionaries who introduced New England-style architecture in 1821 (Sandler 1993:11) (Figure 7). Initially, frames for missionary houses were fabricated by carpenters in Boston before they were brought to Hawai'i. Shortly thereafter, local building materials including coral blocks and whitewashed adobe bricks were often used (Sandler 1993:11-12) for palaces, churches, and other civic buildings. As a consequence of these and other changes, most vestiges of "traditional" *hale* were abandoned in urban settings by the mid-to-late 19th century. Photographs and artistic renditions of Honolulu indicate that pole-and-thatch *hale* were absent in downtown Honolulu after 1890, and that they were increasingly rare in rural O'ahu (Apple 1971:216).

Figure 7. Hawaiian hale *and a non-traditional house circa 1889 (photo courtesy of the Bernice P. Bishop Museum).*

Although pole-and-thatch *hale* had largely disappeared on O'ahu by the early 20th century, some were still present as late as 1920 in isolated settlements on the outer islands (e.g., Moloka'i). Still, such houses typically reflected a blend of Hawaiian and Western architectural styles and materials, such as thatched walls and sheet metal roofs (Apple 1971:201). In short, the use of pole-and-thatch *hale* persisted in isolated areas (albeit in a modified form) until the early 20th century.

SUMMARY AND CONCLUSIONS

The foregoing review illustrates that the rate of technological change in post-contact Hawai'i varied among adzes, clothing styles, and house construction. Unlike stone adzes, which are well-documented in the archaeological record of post-contact Hawai'i, residential houses are only marginally preserved and garments are almost never preserved. Thus, historic documents and photographs must be consulted to examine and compare house and garment technologies. Together, these lines of evidence reveal the following:

1. Western *holokū* dresses were adopted by Hawaiian women and replaced traditional *kapa pa'u* skirts less than 40 years after their introduction by Christian missionaries;
2. Metal adzes did not completely replace stone adzes for almost 100 years after their introduction by Europeans;
3. Pole-and-thatch *hale* persisted in some locations for 140 years after European contact, although their configuration and layout changed.

To conclude, this study documents that a variety of ideological, political, and economic factors influenced the rate with which various non-traditional technologies were adopted by Hawaiians in the post-contact period. Hawaiian royalty and chiefly elites were an important influence in all three instances of technological change, in tandem with the introduction of Christian ideologies and a capitalist economy that emphasized international trade relations with China, Europe, and North America. This finding should not, however, be taken to imply that a "top-down" imposition of elite power – and "bottom-up" resistance to it – characterized technological change in all instances of contact and colonialism (Gosden and Knowles 2001:24), as it did in Hawai'i. Indeed, archaeological studies of colonialism underscore the fact that technological change is a complex multi-dimensional process that varies across world regions.

REFERENCES

Abbott, I.I. 1992. *La'au Hawai'i: Traditional Hawaiian Uses of Plants*. Honolulu: Bishop Museum Press.

Anderson, N. 1854. *A Voyage Around the World with the Swedish Frigate Eugenie*. Gronigen: J.B. Wolters.

Apple, R.A. 1971. *The Hawaiian Thatched House*. Washington, D.C.: National Park Service, United States Department of the Interior.

Arthur, L.B. 1997. Cultural authentication refined: The case of the Hawaiian holokū. *Clothing and Textiles Research Journal* 15:129-139.

Arthur, L.B. 1998. Hawaiian women and dress: The *holokū* as an expression of ethnicity. *Fashion Theory* 2: 269-286.

Arthur, L.B. 1999. Introduction: Dress and the social control of the body. In L. B. Arthur (ed), *Religion, Dress, and the Body,* pp. 1-.7. Oxford: Berg.

Barber, E.W. 1994. *Women's Work: The First 20,000 years: Women, Cloth, and Society in Early Times*. New York: Norton.

Barrera, W. 1972. Excavation of a Beach Midden Deposit at 'Anaeho'omalu Bay. Manuscript on file at Department of Anthropology, Bernice P. Bishop Museum. onolulu, Hawai'i.

Bath, J.E., and M.L.K. Rosendahl 1984. Intensive Archaeological Survey and Testing, HelCo Sub-Station Project Area, Keahou-Kona Resort, Land of Kahalu'u, North Kona, Island of Hawai'i. Manuscript on file at Hawai'i State Historic PreservationDivision Office, Kapolei, Hawai'i, USA.

Bayman, J.M. 2003. Stone adze economies in post-contact Hawai'i. In Charles R. Cobb (ed), *Stone Tool Traditions in the Contact Era*, pp. 94-108. Tuscaloosa: The University of Alabama Press.

Bayman, J.M. and J.J. Moniz-Nakamura. 2001. Craft specialization and adze production on Hawai'i Island. *Journal of Field Archaeology* 28:239-252.

Bayman, J.M., Moniz-Nakamura, J.J., Rieth, T.M. and C.K. Paraso. 2004. Stone adze production and resource extraction at Pōhakuloa, Hawai'i Island. *Hawaiian Archaeology* 9:83-104.

Bell, E. 1929. Log of the Chatham. *Honolulu Mercury*.

Bishop, S. 1887. Jubilee Celebration 1837-1887. *The Forbes Notes*. Unpublished manuscripts. Honolulu: Mission Houses Museum.

Brigham, W.T. 1902. *Stone Implements and Stone Work of the Ancient Hawaiians*. Museum Memoirs Vol. 1, No. 4. Bernice P. Bishop Museum, Honolulu.

Brunskill, R.W. 1981. *Traditional Buildings of Britain: An Introduction to Vernacular Architecture*. London: Victor Gollancz, Ltd.

Buck, P.H., Emory, K.P., Skinner, H.D. and J.F.G. Stokes. 1930. Terminology for ground stone cutting implements in Polynesia. *The Journal of the Polynesian Society* 39:174-180.

Byron, G.A.L. 1826. *Voyage of the H.M.S. Blonde to the Sandwich Islands, in the Years 1824-1825*. London: Murray.

Campbell, A. 1967. *A Voyage Round the World, From 1806 to 1812*. Facsimile reproduction of the third American edition, 1822. Honolulu: University of Hawai'i Press.

Cheever, H.T. 1851. *The Island World of the Pacific*. New York: Harper & Brothers.

Clark, J.T., and P.V. Kirch (eds.). 1983. *Archaeological Investigations of the Mudlane Waimea-Kawaihae Road Corridor, Island of Hawai'i: An Interdisciplinary Study of an Environmental Transect*. Department of Anthropology Report Series No. 83-1. Bernice P. Bishop Museum, Honolulu.

Coutts, P.J.F. 1977. Green timber and Polynesian adzes and axes: An experimental approach. In *Stone Tools as Cultural Markers: Change, Evolution, and Complexity*, 67-82. New Jersey: Humanities Press, Inc.

Cobb, C.R. 2005. Archaeology and the "savage slot": Displacement and emplacement in the premodern world. *American Anthropologist* 107:563-574.

Cordy, R. 1981. *A Study of Prehistoric Social Change*. New York: Academic Press.

Daws, G. 1968. *Shoal of Time: A History of the Hawaiian Islands*. New York: Macmillan.

Deagan, K.A. 1988. Neither history nor prehistory: The questions that count in historical archaeology. *Historical Archaeology* 22: 7-12.

Deagan, K.A. 1998. Transculturation and Spanish ethnogenisis: The archaeological legacy of the Quincentenary. In Cusick, J. G. (ed.), *Studies in Culture Contact: Interaction, Culture Change, and Archaeology*, pp. 23-43. Occasional Paper No. 25. Center for Archaeological Investigations, Carbondale: Southern Illinois University.

Doyle, E.M. 1953. *Makua Laiana*. Advertiser, Honolulu.

Duff, R. 1959. Neolithic adzes of Eastern Polynesia. In J.D. Freeman and W.R. Geddes (eds.), *Anthropology of the South Seas: Essays Presented to H.D. Skinner*

Earle, T.K. 1977. A reappraisal of redistribution: Complex Hawaiian chiefdoms. In T. Earle, and J. Ericson (eds.), *Exchange Systems in Prehistory*, pp. 213-229. New York: Academic Press.

Earle, T.K. 1987. Specialization and the production of wealth: Hawaiians chiefdoms and the Inka Empire. In E.M. Brumfiel, and T.K. Earle (eds.), *Specialization, Exchange, and Complex Societies*, pp. 64-75. Cambridge: Cambridge University Press.

Ellis, W. 1979. *Journal of William Ellis: Narrative of a Tour of Hawai'i*. 1825. Tokyo: Charles E. Tuttle Co.

Emory, K.P. 1968. East Polynesian relationships as revealed through adzes. In I. Yawata and Y. H. Sinoto (eds.), *Prehistoric Culture in Oceania: A Symposium*, Honolulu: Bernice P. Bishop Museum Press.

Emory, K.P. and Y.H. Sinoto. 1969. *Age of the Sites in the South Point Area, Ka'ū, Hawai'i. Pacific Anthropological Records No. 8*. Honolulu: Bernice P. Bishop Museum Press.

Gosden, C. and C. Knowles. 2001. *Collecting Colonialism: Material Culture and Colonial Change*. Oxford: Berg.

Handy, E.S.C. and M.K. Pukui. 1958. *The Polynesian Family System in Ka'u, Hawai'i*. Rutland, Vermont: Charles E. Tuttle Company.

Hinds, R.B. 1968. Journal of the voyage of the 'Sulpher' (1836-1842) -- The Sandwich Islands. *Hawaiian Journal of History*, Vol. II.

Hommon, R.J. 1986. Social evolution in ancient Hawai'i. In P.V. Kirch (ed.), *Island Societies: Archaeological Approaches to Evolution and Transformation*, pp. 55-68. Cambridge: Cambridge University Press.

Kamakau, S. 1976. *The Works of the People of Old*. Bernice P. Bishop Museum Special Publication 61. Honolulu: Bernice P. Bishop Museum.

Kirch, P.V. 1984. *Feathered Gods and Fishhooks: An Introduction to Hawaiian Archaeology and Prehistory*. Honolulu: University of Hawai'i Press.

Kirch, P.V. 1992. *Anahulu: The Anthropology of History in the Kingdom of Hawai'i. Vol. 2, The Archaeology of History*. Chicago: University of Chicago Press.

Kirch, P.V. 2000. *On the Road of the Winds: An Archaeological History of the Pacific Islands Before European Contact*. Berkeley: University of California Press.

Kuykendall, R.S. 1938. *The Hawaiian Kingdom: 1778-1854*. Honolulu: The University of Hawai'i Press.

Krauss, B.H. 1993. *Plants in Hawaiian Culture*. Honolulu: University of Hawai'i Press.

Ladefoged, T.N. 1991. Hawaiian architectural transformations during the early historic era. *Asian Perspectives* 30:57-69.

Ladefoged, T.N. and M.W. Graves. 2006. The formation of Hawaiian territories. In I. Lilley (ed.), *Archaeology of Oceania: Australia and the Pacific Islands*, pp. 259-283. Malden, Massachusetts: Blackwell Publishing Ltd.

Lass, B. 1994. *Hawaiian Adze Production and Distribution: Implications for the Development of Chiefdoms*. Monograph No. 37. Institute of Archaeology. Los Angeles: University of California.

Leach, H.M. 1993. The role of major quarries in Polynesian prehistory. In M. W. Graves and R. C. Green (eds.), *The Evolution and Organization of Prehistoric Society in Polynesia*, Monograph No. 19. New Zealand Archaeological Association, Auckland.

Ledyard, J. 1963. *A Journal of Captain Cook's Last Voyage to the Pacific Ocean Performed in the Years 1776, 1777, 1778, 1779*. Reprint. Edited by J.K. Munford. Corvallis: Oregon State University Press.

Linnekin, J. 1990. *Sacred Queens and Women of Consequence: Rank, Gender, and Colonialism in the Hawaiian Islands*.

Ann Arbor: The University of Michigan Press.

Malo, D. 1951. 1898. *Hawaiian Antiquities*. B.P. Bishop Museum Special Publication 2. Honolulu.

Mathieu, J.R., and D.A. Meyer. 1997. Comparing axe heads of stone, bronze, and steel: Studies in experimental archaeology. *Journal of Field Archaeology* 24:333-351.

McClellan, E. 1950. *Holokū and Mu'umu'u*. *Forecast Magazine*, p. 12. Honolulu: Outrigger Canoe Club.

McCoy, P.C. 1990. Subsistence in a non-subsistence environment: Factors of production in a Hawaiian alpine desertadze quarry. In D.E. Yen and J.M.M. Mummery (eds.), *Pacific Production Systems: Approaches to Economic Prehistory*, Occasional Papers in Prehistory No. 18. Canberra: The Australian National University.

McElroy, W.K. 2006. *Wailau Archaeological Research Project 2005: Preliminary Results*. Report on file at the State of Hawai'i Department of Land and Natural Resources, Historic Preservation Division, Kapolei.

Mills, P.R. 2002. *Hawai'i's Russian Adventure: A New Look at Old History*. Honolulu: University of Hawai'i Press.

Orser, C.E., Jr. 1996. *A Historical Archaeology of the Modern World*. New York: Plenum Press.

Portlock, N. 1789. *A Voyage Around the World; But More Particularly to the North-West Coast of America: Performed in 1785, 1786, and 1788*. London: Stockdale and Goulding.

Rapaport A. 1969. *House Form and Culture*. Englewood Cliffs, New Jersey: Prentice-Hall.

Rensel, J. 1997. Introduction. In J. Rensel, and M. Rodman (eds.), *Home in the Islands: Housing and Social Change in the Pacific*, pp. 1-26. Honolulu: University of Hawai'i Press.

Riconda, D. 1972. Historical Archaeology of Makaha Valley: A Preliminary Report. In E.J. Ladd, and D.E. Yen (eds.), *Makaha Valley Historical Project Interim Report No. 3*, pp. 3-21. Pacific Anthropological Records No. 18. Honolulu: Bernice P. Bishop Museum.

Sahlins, M. 1985. *Islands of History*. Chicago: The University of Chicago Press.

Sahlins, M. 1995. *How "Natives" Think: About Captain Cook, for Example*. Chicago: The University of Chicago Press.

Sandler, R. 1993. *Architecture in Hawai'i: A Chronological Survey*. Honolulu: Mutual Publishing.

Spear, R.L. 1987. *Archaeological Data Recovery, Pu'ueo Agricultural Lots, Land of Pu'ueo, Ka'ū, Island of Hawai'i.* Report on file at the Hawai'i State Historic Preservation Division Office, Kapolei, Hawai'i.

Stannard, D.E. 1989. *Before the Horror: The Population of Hawai'i on the Eve of Western Contact*. Honolulu: Social Science Research Institute.

Thurston, L. 1882. *Life and Times of Mrs. Lucy G. Thurston, Wife of Rev. Asa Thurston, Pioneer Missionary to the Sandwich Islands*. Ann Arbor: S.C. Andrews.

Townsend, W.H. 1969. Stone and steel tool use in a New Guinea society. *Ethnology* 8:199-205.

Valeri, V. 1985. *Kingship and Sacrifice: Ritual and Society in Ancient Hawai'i*. Chicago: The University of Chicago Press.

Van Gilder, C. 2001. Gender and household Archaeology. In C. Stevenson *et al*. (eds.), *Proceedings of the Fifth International Conference on Easter Island and the Pacific*. Los Osos, California: Bearsville Press.