The Preservation and Deconstruction of Hawaii Plantation Style Architecture: Aiea, Waipahu, and Ewa

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The Preservation and Deconstruction of Hawai‘i Plantation Style Architecture: Aiea, Waipahu, and Ewa

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Hawaii plantation housing is an ephemeral architectural style that was never meant to stand the test of time. The style arose during the period of exponential growth of the sugar plantations in Hawaii in the latter half of the nineteenth century, and became codified into the buildings recognizable as such today during the healthcare reforms on the plantations in the early twentieth century. The differing degrees of preservation of these structures at Aiea, Waipahu and Ewa show the range of preservation strategies that have been taken. The rate of preservation for these structures is affected by numerous variables which include the distance of the plantation from urban centers, the foresight with which each former plantation town created a master plan during the second half of the twentieth century, and the plantation managements' varying decisions on how or when to sell the housing to the workers. The style of architecture is evocative to Hawaii as a reminder of the plantation period in the territory, and stands as a testament to the way architecture can be used to create a sense of place.
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INTRODUCTION

Should Hawai‘i’s plantation architecture be preserved as a reminder of a former plantation community or erased by people in search of a more modern lifestyle? The tensions between development and preservation are played out on the chessboard of Hawai‘i’s landscape as former sugar plantations become golf courses and high rise condos. The sense of place evoked by the plantation vernacular architectural style still resonates both with the former plantation workers who remain a part of this imagined community and generally in Hawai‘i as part of the historic past.

Very little has been written about the architecture of Hawai‘i, and even less about plantation style architecture in Hawai‘i. In the most complete book on Hawai‘i architecture by Rob Sandler, plantation architecture is relegated to the section on ethnic architecture, which includes the architecture of Chinatown, Buddhist temples, and Asian restaurants. For Sandler the separate ethnicities of the plantation workers who were brought to Hawai‘i to work in the cane fields takes precedence over the actual architectural style developed on those plantations. Most other studies of architecture in Hawai‘i focus on modern architecture (Sakamoto 2007, Fairfax c. 1970), famous mainland architects’ work in Hawai‘i (Penkiunas 1990), or Anglo architecture in Hawai‘i (Forsythe 1997, Jay 1992, Greer 1966).

Hawai‘i plantation architecture has generally been discussed only in terms of its relation to social reform (Riznik 1999). While the architecture has not been studied in detail, plantation life has been analyzed in terms of labor (Boyd 1996, Liu 1985, McGowan 1995, Takaki 1983, Whitehead 1999, Melendy 1999), law (Merry 2000), ethnicity (Geschwender et al. 1988) and religion (Compton 2005). Recently developers have started to create a renaissance of the Plantation architectural style, incorporating elements of the style into large public structures like resorts and shopping centers.
In the introduction to *Sites of Memory: Perspectives on Architecture and Race* from 2001, Craig Barton analyzes the African-American cultural landscape as created by both memory and material culture, looking at the ways that race and racialization have shaped the built environment (xvi). Although circumstances in Hawaii are quite different, in many respects plantations were as important to Hawai‘i as to African American architectural history. The different ethnic groups who made up Hawai‘i’s plantation workforce influenced and were influenced by the plantation they found themselves in. The division of housing into different camps segregated by ethnic group placed the immigrants in an environment built and controlled by the company management, but also into areas where differences, like the variety of vegetables and herbs in a kitchen garden, were allowed to flourish.

Doug Munro’s article “Patterns of Resistance and Accommodation” provides an analysis of labor resistance and accommodation in the plantation environment that points to a landscape structured to create power and control over the workforce (11). Barton and Munro show that landscapes are influenced by differences in both heritage and power. The transition in land use as the sugar plantations have disappeared over the last thirty years introduces the influence of memory as some of these structures are preserved for future generations, and some are dismantled in the face of development and rising land prices.

This study focuses on a comparison of the remains of three former sugar plantations situated around Pearl Harbor on Oahu, showing the range of different strategies taken in Hawai‘i to preserve plantation architecture.

In Aiea, now a suburb of Honolulu, the remnant cottages of the Honolulu Sugar Company worker camps are interspersed with modern houses in an increasingly urbanized environment. The modern
structures tower awkwardly above the plantation homes, rising several stories and expanding to the edges of their lot lines. As the value of land in Hawai‘i continues its exponential growth, these unassuming structures are bought by developers and torn down for the value of the land they are situated on. A few hold outs remain where families refuse to sell; however the character of the neighborhood has been irrevocably altered.

The plantation of the Oahu Sugar Company in Waipahu has almost entirely been transformed into residential neighborhoods, except for the mill building, which has undergone adaptive reuse as the local YMCA. While the plantation in Waipahu has been erased from the landscape, a local museum harnesses the memory of the plantation lifestyle. Hawai‘i’s Plantation Villages is an outdoor museum with a collection of plantation houses that have been moved to the site and restored, as well as replicas of other plantation structures. The museum offers tours to visitors through their complex, focusing on the ethnic identities of the workers who immigrated to Hawai‘i in the nineteenth and twentieth centuries.

Ewa Plantation Villages were bought by the City and County of Honolulu in the 1990s when sugar operations at Ewa stopped running. The plan was for the city to pay to restore the buildings and sell them to the original tenants at fixed rates. This complex of structures is on the National and State Registers as a historic district. While City and County corruption scandals have bogged this project down, several sections have been completed and returned to the residents.
METHODOLOGY

I chose the three plantations for this study based on their location, the relationship between them, and the differences in their current state of preservation. I needed to work with sugar camps on Oahu, as they were more accessible for me to study, but the placement of the three plantations at varying distances down the south shore of Oahu from Honolulu made it interesting to see how the development of the city had affected preservation. The interconnectedness of the three plantations was also interesting: while all three started as separate businesses ventures, by the time they ended their useful lives producing sugar they were all owned by the same company, Oahu Sugar Co. I had also learned during an internship at the Hawai‘i State Historic Preservation Division at Kapolei in 2007 about the lack of plantation housing on the State Register of Historic Places, with the exception of the grouping at Ewa and several managers homes, including those in Aiea, Waianae, and Kahuku.

To identity the different preservation strategies used at these locations, I wanted to compare the camps’ historic composition with what is left today. I looked at historic documents, photos, maps, community development plans and policies of the three plantation areas, held at the State Historic Preservation Division in Kapolei, the University of Hawai‘i Hamilton Library’s Hawai‘i and Pacific Collection, the Hawai‘i State Archives, the Hawai‘i State Library’s Hawai‘i and Pacific Collection, archives at Hawai‘i’s Plantation Villages, and at the Bishop Museum. Site visits to the three communities allowed me to get a feel for the sense of place in each community, and photographs taken during those visits provided a visual reference for the tension between preservation and development.
Zialcita’s 1984 - 1985 Plantation Architecture Study

During the early stages of my research into Hawaii Plantation Architecture, I found an unpublished manuscript in the Hawaii and Pacific Collection at the University of Hawai‘i’s Hamilton Library, of a study of the remaining plantation architecture on Oahu. From 1984 to 1985, Fernando Zialcita completed a survey of plantation architecture on Oahu for the Department of Land and Natural Resources. As part of the State Historic Preservation Division’s compliance with the National Historic Preservation Act to conduct architectural surveys identifying historic resources in the state, Zialcita inventoried existing plantation camps dating before World War II. Since the purpose of the study was to identify properties which might be eligible for the National Register of Historic Places, Zialcita chose not to focus on camps that had developed preservation organizations already, and those that had already lost most of their historic integrity. The final list of plantation camps included Ewa, Waipahu, Waialua, Kawailoa, and Kunia.

For his survey, Zialcita used historic data and maps given to him by the plantation companies, which aided his physical examination of the properties. Oahu Sugar was able to provide the most detailed information: “For every house, a card states the floor dimensions, the year of construction, the house’s provenance, the materials used, the structural features, the number of rooms, the type of electrical wiring used, and related features such as the garage and washroom” (Zialcita 2).

Twenty-three years later in the summer of 2008, I set out to trace Zialcita’s footsteps, but all of this information had vanished. Oahu Sugar Co. went out of business in 1996. AMFAC, the parent company, had divested itself of the majority of its holdings, with the only remaining branch a small company managing a golf course and resort on Maui. Most historic sugar company records were sent to the Hawai‘i Sugar Planters Association Archives as the sugar companies started to shut down and
the value of the records was realized in the early 1990s. The HSPA in turn received a grant to have the records processed in the mid 1990s. After processing, the records were donated to the University of Hawai‘i's Hamilton Library Hawai‘i and Pacific Collection. The University librarians of the collection have never seen any records for housing that match Zialcita’s description. Some OSC and AMFAC records ended up at Hawai‘i’s Plantation Village’s archives; however administrators at that site stated that they have also never seen anything like Zialcita’s housing cards, and would love to get their hands on them if they still exist. The State Historic Preservation Division Library doesn’t currently contain any sugar company files, and the Hawai‘i Sugar Planter’s Association (now the Hawai‘i Agricultural Research Collective) in the last year has stopped answering email and taken down their website. When reached by telephone, they also claimed not to have any OSC records.

While there no longer exist in any archive or collection any historic maps that contain the precise location of all of Oahu Sugar Co.'s worker camps, USGS quads dating back to 1920 show some details, especially in Ewa, and are useful to compare the development of the towns over time. Zialcita’s choice of Ewa and Waipahu points to the amount of preservation at those locations in the mid 1980s. He does not mention Aiea as even a possibility for surveying plantation homes, suggesting that by 1984 there was a complete lack of integrity in the area.

Sanborn Maps
Sanborn Fire Insurance Maps could have been another useful tool to show early camp layouts, but the earliest series in Hawaii focus exclusively on the center of Honolulu. The 1919 series has a section on sugar mills that shows the industrial mill works, but no residential areas connected to it. The 1953 series is the first one that holds any relevant detail; it includes the town of Waipahu, showing the layout of housing and cane fields surrounding the mill center.
Geographic Information Systems (GIS) Solution

Since the early maps of the plantation camps I was looking for appeared to have all become extinct, I decided to attack the problem archaeologically, unearthing a picture of what existed by looking at the remains on the ground today. To this end, I worked with GIS software to create maps of the plantation towns as they exist today, color coded by each house’s date of construction.

The maps were created with GIS data from the City and County, using an existing ArcGIS shapefile of Oahu overlaid with polygons representing land parcels numbered by tax map key (TMK). Additional data was added to this shapefile from a City and County dwelling data table correlating original date of residential house construction by TMK number. This enabled the creation of a series of GIS map layers with TMK polygons, color coded by decade of construction, and an analysis of the settlement pattern of the three towns in terms of when and where construction episodes occurred. These maps also delineate how much of the original plantation camp landscape is still in existence. The maps enabled me to look at the organization of space, the similarities and differences of architecture within these sites, and to extrapolate the ways in which memory, history and the idea of a plantation community are incorporated into the promotion and preservation of the different locations.
Historic Preservation in Hawai'i

Our ideas about the past are shaped through our encounters with cultural artifacts. One of the ways we create the past is through historic preservation, deciding what is worthy to be preserved (Barton xv). The historic preservation model in America that began with the Mount Vernon Ladies Association favored preserving large-scale historic structures linked to important personages, like the founding fathers. Today preservation efforts are working towards a pluralistic multivocality in our history and historically preserved record of material culture.

The National Historic Preservation Act (NHPA) of 1966 dictates a historic preservation directive at state level. The State Historic Preservation Office (SHPO) is required to preserve historic buildings, and identify and nominate historic properties. The state of Hawai'i uses tax incentives to entice people to place their homes on the National and State Register of Historic Places. Property taxes are significantly lower for buildings on either the State or National Register; however the process is complicated and time-consuming. The Hawai'i State Historic Preservation Division (SHPD) is working on outreach programs to inform the public about these opportunities, but as it currently stands the system is relatively biased. It seems that people need to have a certain level of education to know how to work the system and even apply for historic status and the ensuing tax breaks.

While the Register is a tool in the creation of history, it is not an impartial record of the architectural landscape in Hawai'i. The basis of historic preservation may be to preserve historic representations of America’s cultural landscape, but it is a landscape that emphasizes civic buildings and homes of the wealthy that are well cared for. The Hawai'i Historic Places Review Board chooses buildings that they feel are illustrative of the idea of Hawai'i they want to promote. Houses owned by people without a large income often don’t make it onto the register. Their owners rarely have the money to keep them in a necessary state of preservation, if they even know to apply for the status.
The sites chosen to be preserved are also fraught with political implications. For example, in California in August 2001, the Fresno Municipal Landfill was named a National Historic Landmark for its role as the first true sanitary landfill, pioneering the method of trenching and layering garbage and soil ("Fresno Landfill"). Secretary of the Interior Gale Norton took a great deal of heat for the nomination, with opponents criticizing the memorializing of a dump at the same level as Monticello and Mount Vernon (Rogers). Supporters argued against a revisionist history only of things that are "sweet smelling" (Jacobsohn).

Dell Upton emphasizes the tension and interweaving between memory and experience, which becomes even more complex when we add a second dichotomy, between imposed and adopted conditions and identities. In a pluralistic society, cultural identities arise from a discourse - sometimes an argument - that pits identities assigned by outsiders against those defined by insiders. Where simple models of memory and experience can both seem relatively passive, the tension between imposition and adoption emphasizes the active agency of outsiders and insiders, acknowledging the insiders' powerful, but not all-powerful, self-defining voice (viii).

While former plantation workers are not necessarily the target audience of preservation efforts like the State or National Register, if the plantation landscape is obliterated entirely, part of the plantation identity will go with it.

**Plantation Architecture and the History of Historic Preservation**

Plantation housing is the subject of historic preservation efforts to hold on to antithetical memories of a long-ago time and place that still resonate within the American consciousness. Preservation and plantation housing are linked in many ways, and preserved plantation housing is used for a variety of purposes which can be seen through a survey of web pages that advertise these structures as vacation or long-term housing, entertainment sites, or places that educate the public about their historic relevance.
Historic Preservation’s roots are in plantation housing, beginning with Ann Pamela Cunningham’s organization of the Ladies of Mount Vernon in 1853 to save Washington’s homeplace for, as she called them, future “Pilgrims to the shrine of pure patriotism” (Lindgren 108). This effort started the coupling of preservation with gracious houses and southern women in the popular imagination that was prevalent until the mid twentieth century. The narrative espoused is that of the white plantation south, replete with images of the southern gentility that deny the influence of enslaved labor in creating that lifestyle.

Dell Upton’s “New Views of the Virginia Landscape” describes how ideas about the past, in this case the colonial past, are always colored by the present. Virginia’s view of its architectural history is tainted by the early twentieth century view that colonial architecture, as the logical heir to renaissance models, was the most important, to the point that non-period buildings were torn down as inauthentic, as in the making of Colonial Williamsburg.

Camile Wells adds to Upton’s interpretation with “The Multi-Storied House: Twentieth-Century Encounters with the Domestic Architecture of Colonial Virginia,” in which the veneration of colonial architecture in Virginia is seen as a symptom of twentieth-century ideas about preservation and historic importance. Her review and critique of the literature published in the twentieth century on colonial architecture, and the ways that ideas about colonial architecture have changed and persisted into the twenty-first century, highlight the continuing problems with the dominance of high architectural styles that neglect other time periods and architectural forms.

In his book, *Back of the Big House*, John Michael Vlach used photos from the Historic American Building Survey/Historic American Engineering Record (HABS/HAER) archives and
documentation from Federal Writers Project ethnographic records of the lives of enslaved people on plantations from the 1930s and 40s to understand the landscape of plantation architecture. While both projects occurred as part of the New Deal administration’s depression era federal programs to provide jobs for unemployed writers, architects, and photographers, the main mission was to preserve information about the past, about a time and place fading from living memory. This early federally funded preservation effort, with its emphasis on preservation of information, as opposed to the actual built environment, foreshadowed what seems to have become the current spirit of section 106 processing for mitigation of modern development by recording information before the destruction of historic properties. Vlach’s book was later made into a controversial exhibit that traveled throughout the southern United States both before and after being unceremoniously dismantled within hours of its setup at the Library of Congress in Washington.

Similar to HABS/HAER were the surveys undertaken by the SHPOs after the NHPA mandated that each state become cognizant of its historic resources. By 1966, it was clear to many that America needed to hold onto some of the historic built environment, as the pace of “progress” was outstripping a community’s ability to recognize and hold onto a sense of place. The NHPA was designed to hold onto a part of the built environment for future generations.

The properties that the NHPA placed under the SHPOs responsibility encompassed any structures over fifty years old, which at the time the act was written included properties from the 1910s. The SHPO surveys continued throughout the late 1960s and 70s, forcing the surveyors to come to terms with new ways of looking at architecture. Architectural studies at the time, like the field of art history, privileged the western canon of architectural values and aesthetics, leaving surveyors without the language to describe simple folk housing, regional styles, or unprepossessing structures like slave quarters. The field of vernacular architecture became popular partly as a solution to this problem.
Surveyors turned to the ideas of people like Henry Glassie, who looked at buildings in terms of linguistics, breaking down house structure into its intrinsic parts and viewing the transformation of the structure over time, as opposed to fitting buildings into a known high architectural style. Fitted with this new vocabulary, preservationists were able to include vernacular structures in preservation efforts. As a result, the National Register of Historic Places now includes many slave sites and other vernacular structures. SHPOs are also including this property type on their registers: in 2008, the Virginia Department of Historic Resources announced that the Arcola stone slave quarters were granted state landmark status (Hosh).

The preservation of the architecture of slavery is encouraged by tourism, much as the preservation of white plantation architecture. Heritage tourism is promoted as a more culturally sensitive way of traveling. It is becoming popular to feel a sense of place for a site you are visiting. The National Trust for Historic Preservation, a non-profit organization dedicated to preserving historic places, has a page for Heritage Tourism on their website, linking the goals of Historic Preservation with Heritage Tourism as a way to promote preservation to a greater audience. They even have their own travel agency: Heritage Travel, slated to open in 2009 with the slogan “Connecting through places that matter.”

Historic preservation is an integral part of heritage tourism. In 2005, heritage tourism was the fastest growth category of tourism, after nature tours (Walker). Most states have created heritage tours and web pages that identify their heritage attractions. This kind of tourism is billed as a way to see a place that is more culturally sensitive, but at root, heritage tourism is still oriented towards an economic gain.
Hawaii's Response to Plantation Preservation

The field of historic preservation is becoming vital in Hawai‘i to the construction of memory and history. Local organizations such as Malama O Manoa and the Daughters of Hawai‘i are involved in preserving structures from Hawai‘i’s past. Malama O Manoa focuses their preservation efforts on the upscale cottages in the Manoa Valley, while the Daughters of Hawai‘i are responsible for monuments associated with the monarchy: Queen Emma’s Summer Palace in Nu‘uanu and Hulihe‘e Palace on the Big Island. While these organizations are relatively successful at involving the community in the preservation processes, it is still a history of the wealthy and large-scale architecture that is being preserved. Vernacular architecture and houses built for the poor or minority groups are being lost from the material record. The cottages of plantation workers are left out.

The small plantation style cottages in Hawai‘i represent an important part of the islands’ narrative as one of the few remnants of the sugar plantations that drove Hawai‘i’s economy for over a hundred years. The houses given to these workers by the company town are tied up in the memory of that narrative. The successive waves of worker immigration created the multi-ethnic community that exists in the islands today, dissolving the boundaries between architecture and experience.

The preservation of plantation style architecture at sites such as Hawai‘i’s Plantation Villages, with the re-creation of the original plantation landscape, is part of that process of imposition and adoption. The buildings are interpreted through the memory of their original inhabitants, through the narrative of the Hawai‘i’s Plantation Villages museum, and their place in the landscape of Hawai‘i and the United States today.
Hawai'i Plantation Style Architecture

Native Hawaiian, Japanese and Chinese, Colonial New England, and other architectural styles have all had an impact on building design in Hawai'i over the last two hundred years. Hawai'i's architecture could be described as part of the creolization process at work all over the world: the combination of different traditions adapted for the particular climate of Hawai'i has created a distinctive style.

Architecture as Social Reform

While there have been a number of arguments put forth to answer the question of the origin of the Hawai'i plantation architectural style, there has been no definitive conclusion. Barnes Riznik's 1999 article, "From Barrack to Family Homes: A Social History of Labor Housing Reforms on Hawai'i's Sugar Plantations" delineates how Americans try to use architecture to solve social and economic problems. For Riznik, the creation of this style is the response plantation management formulated to deal with their labor problems in the late nineteenth century. The construction of single-family cottages was meant to entice workers to stay on at the plantation. If the workers had a nicer place to live, they might like it better and stay longer in jobs that likely paid less than ones they could find in town.

Penny Pagliaro's study of Ewa Plantation suggests that management believed hiring married workers would make them stay longer, as they would be less inclined to leave if they were tied into the community with a wife and children. She attributes this idea to George Renton, Sr., manager of Ewa Plantation from 1890 to 1920, whose large-scale construction projects at Ewa were aimed at improving the quality of life and providing single-family cottages for each worker. In his letters, Renton argues that to solve the problem of transient labor, the plantation should hire more married laborers, as married men will be more apt to create a home, and less likely to leave when their contract is up (Pagliaro 17).
David Rothman makes a similar argument for architecture's use in that regard in the introduction to *Discovery of the Asylum*. Quoting Robin Evans, Rothman says:

> Indeed, in the course of the effort to fabricate a space that would help men become virtuous and healthy, architecture would, “for the first time, take full advantage of its latent powers. A new role had been found for it as a vessel of conscience and as a pattern giver to society, extending its boundaries way beyond the limits customarily ascribed to it either as an art or as a prosaic utility.” (xxxiii)

Architecture’s power lies in its ability to transform the landscape following a human ideology. In late nineteenth-century Hawai‘i, that ideology was constructed from particular societal circumstances, such as the shift in power from the Hawaiian monarchy to a small group of American and foreign businessmen engaged in sugar propagation, and the tension that the new group ran into trying to balance economic imperatives against humanistic impulses.

**Japanese Construction Style**

Architect Gordon Tyau took a different tack in his “An Investigation: Form and Origin of the Plantation House,” published in *Historic Hawaii News* in 1982. Tyau believes the current single-wall plantation house originated with a construction style brought from Japan by contract laborers, combined with the desire of plantation management for a fast and cheap construction style. He quotes a newspaper article from 1897 which describes this technique of building the roof first, then raising the roof onto a light frame, and finally replacing the frame with the walls, which function as the only roof support (Tyau 6).

**Architecture and Missionaries: The New England Connection**

Although Hawai‘i sugar plantations created their own style of architecture for worker housing, management housing often followed accepted mainland traditions, utilizing stone foundations and clapboard siding that would not have seemed out of place in New England. The plantation manager's
house was also typically of two-story construction, as opposed to the majority of single-story worker housing. New England building techniques used on these residences were brought to Hawai'i in 1820 by the first Congregationalist missionaries (Forsythe 161). Later generations of missionary families branched out into mercantilism and agriculture, eventually becoming involved at the top levels of all of the Big Five sugar factors in Hawai'i.

There is slippage between the style of missionary architecture and the climate in Hawai'i. The architecture brought by the missionaries from New England was designed for cold winters: with chimneys, small windows, and a roof with a shallow overhang to allow the sun to heat the building. In contrast, the tropical climate of Hawai'i calls for large windows for ventilation, and roofs with wide overhanging eaves. It is also preferable not to seal the structure completely to allow for breeze to travel through.

Sanitation, Ventilation, and the Plantation Healthcare System

The lack of an agreed-upon origin for this style could mean that all of these factors had some part to play. Instead of looking for a singular genesis, it's possible to see the emergence of the style as a reaction to a set of historical circumstances, whereby the beginning of this architectural style hinges on the period in which it came about.
The Hawai'i plantation house made its appearance during a time of change on Hawaiian sugar plantations. This transitory period at the turn of the nineteenth century was in the midst of the overthrow of the monarchy, the annexation of Hawai'i by the United States, the end of the contract labor system and the beginning of unionization and labor strikes, changing sugar tariffs, new ideas about sanitation, the rise of a plantation healthcare system, changing building codes, outbreaks of plague, and attempts to control disease.

The architectural style is typified by a low, hipped roof, usually clad in corrugated metal, post and pier foundation, and wood-frame, single-wall construction. The houses are small, single-family cottages, square in plan, with a front lanai, and the wide overhanging eaves necessary to shade the double-hung windows from the tropical sun. They were historically painted red, yellow or green, and in many camps the lunas, or overseers, had slightly larger homes in the same style that were painted white (Kurisu 3).

The houses were laid out in camps around the sugar fields on land that was undesirable for farming. The camps were segregated by ethnic group, with the Portuguese luna and haole (caucasian) managers' housing area situated in the better locations, such as on a hill to catch the breeze (Kurisu 3, Norbeck 46).
The single-family houses were originally allocated to employees by the plantation management. As part of the perquisite system, the laborers received lower wages in exchange for the house and some rudimentary health care. This system was one of the first reforms of unionization; by 1946 most laborers rented their homes from the plantation.

There was a constant struggle to increase wages and improve the treatment of workers on the plantations. The end result of unionization, which finally occurred in the 1950s, was that labor priced itself out of business. Today there are only two working plantations in the Hawaiian Islands, one on Maui and one on Kauai.

In the early decades of the sugar industry in Hawai‘i, plantation owners tried to draw workers from the surrounding Native Hawaiian population. Workers could return to their homes at night, or were housed in buildings resembling their traditional thatched-roof housing. As the industry grew, this quickly became an inadequate solution. There weren’t enough Native Hawaiians who wanted to labor in the fields for the plantations, and by the 1850s planters turned to drawing contract laborers from Asia. Over 115,000 workers immigrated to Hawai‘i as contract laborers from 1850 to 1897 (Coman 11).

To begin with, the laborers were almost entirely single men, and something had to be quickly constructed to house them. The living situations provided by the plantations were initially primitive in terms of space and sanitation. Long open bunkhouses were built to house anywhere from fifty to
one hundred workers “who slept in cramped, multitiered bunks with four or five men stacked on top of each other,” often with only a single communal toilet for the whole camp (Riznik 1999: 126). As families began to be recruited by the plantations and women began to immigrate as picture brides from Japan at the turn of the century, they were initially housed in the same barracks, to great complaint by the workers (Riznik 1999: 131). Women worked the same hours as the men in the fields, and had the added responsibility of caring for their families.

By 1880, the Kingdom of Hawai‘i had started to realize the need to regulate housing conditions for contract laborers. Chapter III of the Kingdom of Hawai‘i Session Laws from 1880 is “To Provide for the Sanitary Conditions of Dwelling Houses” (13). Section 1 of the act specifies that housing should be in “good repair, with the roof water-tight,” with “not less than three hundred cubic feet for each adult, or nine hundred cubic feet for one man and woman and two children” (13). Section two requires yards to be free of trash and well drained, with one privy for every six people (13).

These sanitary regulations were upheld by the Board of Health. The Hawai‘i Board of Health was decreed in 1839 by King Kamehameha III (Wilbar 1) to inspect ships entering into Hawaii for infectious disease (Ackland 2). The Board was never fully established and had no funding until fear of cholera, which had reached San Francisco in 1850, prodded the establishment of an actual board of
seven physicians (all of them Americans), to decide how to deal with this possible threat (Ackland 3). Cholera didn't materialize at the time, but the smallpox epidemic of 1853 endowed the Board with a budget, and further power to create and publish regulations, and care for the sick (Ackland 4). Actual Cholera epidemics in 1892 and 1895 propelled the design of a functioning sewage and water treatment system (Hoffman 1915: 13, 15).

With the annexation of Hawai'i by the United States in 1893, mainland law stipulated the end of the contract labor system. Plantation owners were no longer able to import indentured workers who were forced to remain on the plantations until their term of service was up. They turned first to mass recruitment of Chinese workers, followed by successive waves of Japanese, Puerto Rican, Portuguese, Korean, Vietnamese, and Filipino workers.

The increasing intolerance on the mainland towards Chinese and Japanese immigrants resulted in the Chinese Exclusion Act of 1882, which banned Chinese immigration, and the Gentlemen's Agreement of 1907 between the United States and Japan, which restricted the number of Japanese citizens allowed to immigrate to America. The increased restrictions of the Immigration Act of 1924 further strengthened the plantation owners' need to keep workers relatively satisfied with their work environment, as it was becoming impossible to replace a disenchanted workforce. Riznik credits this need with the creation of the plantation cottage, as management and owners began offering single-family homes to workers as an incentive to staying on the plantation, instead of moving to less backbreaking and possibly more lucrative jobs in the cities (1999: 120).

The subject of proper ventilation in homes was linked in the late nineteenth century to ideas about proper sanitation and health. In her 1869 American Woman's Home, Catherine Beecher wrote four chapters on the necessity of proper ventilation in the home. While the situation she was decrying had
to do with closed stove heating depriving rooms of oxygen during the winter, the Victorian habit of sleeping behind closed bed-curtains, and hanging several layers of heavy drapes and curtains over window openings - none of which were particularly applicable for plantation workers - the principle of allowing fresh air to move freely indoors was sound regardless.

By 1902, the Territorial Government of Hawai'i updated the 1880 housing sanitation law to include different regulations for the city of Honolulu from the rest of the territory (Board of Health 1902), with specific requirements to ensure proper housing ventilation. Outside of Honolulu, dwelling houses were now required to have eight square feet of window for every one hundred square feet of floor space, with at least half the window moveable for ventilation (Board of Health 1902: 55). Houses needed to be built at least twenty inches off of the ground to allow for the "circulation of air between the floor timbers and the ground" (Board of Health 1902: 55) and with at least ten feet of air space between buildings (Board of Health 1902: 54). The regulation raising of houses onto post and pier foundations was part of the effort towards extermination of the rat population in the wake of the first plague attacks in Honolulu in 1899 and 1900.

Katherine Coman's "History of Contract Labor in the Hawaiian Islands" from 1903 mentions a court case where Swedish contract laborers protested to their own government and the HSPA over substandard housing. They regarded the housing given to them on the plantations as "uninhabitable because between the roof and the siding was an interval of several inches" (34). Coman describes this as part of the ventilation necessary to health in a Hawai'i plantation camp house, and a commissioner sent from Sweden to investigate, as well as the HSPA called the protests "frivolous" (Coman 34).
The HSPA was a nonprofit group organized in 1882 (originally the Planters’ Labor and Supply Company) to promote the interests of all sugar planters in Hawai‘i (HARC). The HSPA group was involved in sugarcane research; running an experimental station to discover the most profitable strains of sugarcane, as well as finding and importing laborers to work on the plantations. They published a newsletter called *The Planter’s Monthly*, which kept members abreast of the latest developments in the industry. The HSPA also published a health newsletter starting in the 1920s, that disseminated new health information to the member planters. Experiments were also run by the HSPA in social welfare: healthcare, housing, and sanitary reforms were tried first on a few plantations and the results published before moving those practices elsewhere.

In addition to the official HSPA publications, Hawai‘i sugar planters were reading and sending articles to the New York based *Facts About Sugar* weekly newspaper, which contained information about the industry for American sugar planters. Sugar planters in Hawai‘i were part of an international conversation about the best methods to create a healthful environment.

By 1905, the HSPA had organized a campaign to provide new sanitary measures to the plantation camps (Board of Health 1907). Ostensibly they were improving the quality of life for the plantation workers, but they were also motivated at least partially by self-interest. Keeping the camps clean meant keeping the workers healthy, which in turn meant more job satisfaction and job retention, thus reducing the cost of importing new workers (McCoy 594).

The Board of Health described the housing situation before the start of the sanitation campaign:

> Camps were built with a number of small buildings or a series of barrack buildings within a small space. Privies, shacks, lean-tos and the like were allowed to accumulate. Pigs, ducks, chickens and horses were to be found in the midst of dwellings. Little or no adequate provision was made for the disposal of waste water and sewage. Rubbish, filth and refuse were generally to be seen on every hand (Board of Health 1907: 5).
This depiction was given by the Board to highlight the contributions of both the HSPA and the Board toward creating a modern sanitary environment. Reports such as the 1916 Report from the Secretary of the United States Bureau of Labor juxtapose before-and-after pictures of the camps, where  

![A Representative Good Camp](image1)

"A Representative Good Camp"
1916 Report from the Secretary of the United States Bureau of Labor

![A Plantation Laborer's Shack](image2)

"A Plantation Laborer's Shack"
1916 Report from the Secretary of the United States Bureau of Labor

the new camps show clean regimented rows of houses laid out on individual lot parcels, compared to crowded, dirty shacks leaning in upon each other.

Plantation management made a concerted effort to improve worker housing in the first quarter of the nineteenth century. In 1907, the Territorial Board of Health reported at years end that:

Plantation managers have torn down old camps, thinned out crowded ones, built new camps, some of them much better than the ordinary dwellings of the poor, installed drainage and sewerage lines and done many of the thousand and one things which make for better health. How remarkable this interest and alertness is, may be further gathered from the maintenance on practically every plantation in the islands of a physician whose services are free to the laborer, and this is aside from the sanitation system above described. It may safely be said that plantation managers are doing their share in the betterment of health conditions in the territory (6).
The HSPA hired sanitary inspectors for the plantations, and started a program of sanitary reform on the Hamakua Coast of the Big Island, (BoH 1907: 5) where there were the most incessant outbreaks of bubonic plague. By 1907, the new system was being propagated on all the islands.

Many of the sanitary reforms on the plantations were structured to deal with quarantines of diseases like plague and smallpox, in addition to creating a healthful environment, through the addition of isolation wards and emergency disinfectant stations (BoH 1907: 6). Each plantation camp was mapped, and the houses numbered, to assist the Board of Health in quickly finding and treating outbreaks of infectious disease (BoH 1907: 22). A campaign of rat extermination was developed on every island, with the rats tested for plague, and the results published in a national health publication.

Dealing with outbreaks of diseases like bubonic plague meant that plantations had to rethink their ideas about sanitation, and had to stop crowding workers together into barracks, eliminate rats, and provide more than two latrines for a camp of two hundred workers. The change in architecture from barracks style housing to evenly spaced cottages with post and pier foundations can be seen as a response to dealing with the need for health. The new houses were more sanitary than the overcrowded barracks, and the raised foundations were supposed to keep them free from disease (Riznik 1999: 132).

Plague was endemic in several areas of Hawai‘i during the late nineteenth and early twentieth centuries. Bubonic plague first appeared in Honolulu in 1899 and 1900, and spread to surrounding areas. In 1902, plague had been found at Aiea, in the camps of the Honolulu Plantation Co. In 1907, another outbreak occurred at Aiea, with thirty-five cases, of which twenty-five were fatalities, and ten recoveries (BoH 1907: 27). An outbreak on the Hamakua Coast of the Big Island in 1910 had 19 cases, with 100 percent fatality rate (McCoy and Bowman 1631).
Frederick Hoffman described rat-proofing of plantation housing as the most effective means of guarding against further plague outbreaks (Hoffman 31-32). Double wall construction was also seen as detrimental to proper rat control as it created areas for rats to hide inside the walls (Bowman 203), making single-wall construction the healthier model. On Kauai the HSPA tried a house type with a sealed concrete first floor and foundation, with a framed second story (Commissioner of Labor 36). The concrete was supposed to foil the rats from entering into the home, in addition to keeping the underneath free from garbage. This housing style did not catch on, and most plantation housing remained single story on post and pier foundations.

The HSPA made a concerted effort to eliminate the rat population that was carrying the disease, but as the cane fields provided an unlimited food supply, as well as places to hide, they were not entirely successful. Plague episodes continued at Hamakua on the Big Island until the late 1940s; the last case of human plague occurred in 1946, and the last plague infected rats were caught in 1949 (Ackland 6). It is thought probable that it could still exist in the rat population on the Big Island today.

Plantation management had to expend capital to build a healthful environment for their workers, and many were slow to follow through with the changes in government policy that required this. A trip to the island of Hawai'i in 1909 revealed insanitary conditions on all of the plantations on the island, with:

- Water supplies not properly protected from contamination, improper disposal of waste water from kitchens and wash places. No systematic collection of garbage and refuse which is allowed to accumulate in the camps until in self defense it has to be removed.
- Insanitary and foul privy vaults teeming with flies.
- Allowing the keeping of pigs, chickens, horses and cows in the camps.
- Absence of hospitals on some of the plantations, so that it was impossible to isolate cases of contagious or infectious character.
While the new houses being erected on some of the plantations were good, yet the same disregard was being shown in the matter of the disposal of waste water as existed in the older camps (Pratt 1909: 23-24).

It was especially difficult for the smaller plantations that were struggling economically to resolve these problems. Territorial agents for the Board of Health tried find equitable ways to deal with this, remarking:

It is simple enough to require proper houses, excreta disposal arrangements, drains and hospitals, for prosperous ones, but when the plea is made that the plantation is without funds to make the necessary improvements, or that to make them would bankrupt the property, the problem may require further consideration. It is believed that if a plantation cannot afford decent surroundings for its laborers it would be better for the community if it went out of business (McCoy 116).

Some plantations only applied the regulated sanitation techniques when forced to by outbreaks of disease, which necessitated the supervision of extra sanitation officials. During a 1907 outbreak of bubonic plague at the Honolulu Plantation Co. in Aiea, the plantation's camps received some much needed sanitation work. The Chief Sanitary Officer of Honolulu reported:

Under the supervision of this department, during this outbreak, several thousand feet of open stone drains and sewer lines were constructed, which greatly improved the various camps, from a sanitary standpoint. All buildings in the infected camps were thoroughly disinfected, scrubbed with a strong solution of lye and finally whitewashed; leantos were torn away and streams and revines [sic] regularly cleaned (Venhuizen 78).

In 1909, J. S. B. Pratt, the General Health and Sanitary Officer to the Territorial Board of Health strongly suggested that, “The sanitary conditions of small towns scattered all over the islands and in the neighborhoods of large plantations should receive more attention in the future than they have in the past” (Pratt 1909 16). However by 1912, the President for the Territorial Board of Health was able to cautiously state, “Plantation agents and managers are realizing that there is no better health insurance than that of having good houses, well ventilated[,] and sanitary means for the disposal of sewage” (Pratt 5).
A 1912 inspection of plantations on the island of Hawai‘i found these new regulations were being adhered to in the new housing being constructed:

Provisions for light and ventilation, which were so miserably inadequate in the old type of plantation habitations, are ample in the new cottages; more ample indeed than many of the occupants appear to appreciate as it was found frequently that all doors and windows were tightly closed and light was excluded by muslin or other cloth stretched over the windows (Bowman 116-117).

Although the Board of Health could make regulations and conduct inspections to enforce them, they could not necessarily make the inhabitants believe in these new codes. In his annual report, the Chief Sanitary Inspector for Oahu described bringing a tenement building in Honolulu up to code, only to return several days later and find all of his revisions undone. As he noted at the end of his report, “It is not enough that a place be put in a sanitary condition-it must be kept so. To do this, we need more inspectors” (Charlock 55). Plantation workers were also stymied by conflicting sanitary requirements: to keep a well-ventilated home, they needed to keep windows and doors open, but to keep a sanitary kitchen, they needed to keep insects out of the home - and often could not afford the window screening which could have followed both precepts (Cariaga 26).

In 1912, the US Department of the Interior reported, “Many have destroyed old labor camps, thinned out crowded ones, and built new camps on the cottage plan, with proper sewerage and other sanitary arrangements” (675). The 1915 US Bureau of Labor Statistics Report notes the efforts of Hawai‘i sugar plantations to create a more healthful environment. Old unsanitary shacks were linked to plague as a haven for rats, and were being razed to make way for better housing (US Bureau of Foreign and Domestic Commerce 188). *All About Hawaii* remarked in 1920:

Advantage is taken of this year’s exceptional sugar returns for the construction of new buildings, general repairs and improvement toward plantation efficiency, as also in worker’s welfare movement, and better housing quarters (140).
Dr. George McCoy, Sanitary Advisor to the Governor of Hawai‘i discussed the transition from barracks to single-family homes in his report from 1912:

It is obvious that in recent years very material improvement has been made in the sanitary conditions under which the laborers on the great sugar plantations live. This is particularly true of Hawaii and Oahu. On many plantations new cottages were to be seen. These were designed to replace the old barracks type of shelter. . . . It is believed that the single family cottage with a detached kitchen furnishes an entirely satisfactory abode for plantation laborers (116).

McCoy’s new appointment as Sanitary Advisor that year required him to undertake a tour to catalog sanitary conditions on all the islands. His testimony is born out by statistics reported by the chief sanitary inspectors of each island, and some before-and-after photos.

For the fiscal year ending June 30, 1911, on all of the plantations on the island of Hawai‘i, for example, Donald S. Bowman enumerates 888 “buildings condemned as unfit for human habitation and removed,” 1260 “buildings altered to conform with sanitary laws,” and 363 “buildings constructed with the approval of this office” (Bowman 1911: 115). In 1912, he lists 688 buildings torn down, 882 altered, and 1079 new buildings constructed (Bowman 1912: 102). For 1913 plantations were not separated out of the total counts for the island of Hawai‘i, on which there were 391 buildings torn down, 648 buildings altered, and 794 new buildings constructed (Bowman 1913: 58). In 1914, plantations are again given a separate line in Hawai‘i’s statistics, with 346 razed, 544 altered and 509 buildings built (Bowman 1914: 73). For fiscal year 1915, all categories are lumped together, with 3814 buildings “torn down, altered or constructed” on plantations on Hawai‘i (Pratt 1915: 22). While 1913 and 1914 are slower years for construction, it is easy to visualize how quickly the plantation landscape was being changed during this process. Buildings might only last twenty years before being torn down and new ones erected in their place. Progress in sanitation and social reform was transforming the plantations to something no longer recognizable within a generation.
This same transition was being played out on plantations throughout the world. A 1922 article from Facts About Sugar, describes the housing of workers on plantations in Santo Domingo:

For housing the labor single or small two-family houses are used, while cuarteles or barracones (long buildings with several rooms, accommodating 40 or 50 men) are used for single men. One company is now building a standard two-room house to be used by either one family or eight single men (Morse 241).

While Santo Domingo may not have been trying to make the plantation a more inviting environment for the workers, the distinction of a new standard of two-room houses as opposed to the barracones is evident.

The year 1922 was a good year for the Hawai'i sugar crop. The newly elected HSPA president Dowsett is quoted as saying, “Expenditures of the plantations during the year for new housing, sanitary improvement, remodeling and repairs in their labor camps and villages, are estimated at $1,150,000” (“Dowsett President” 470). C. Brewer, one of the Big Five sugar factors in Hawai'i, was preparing to spend over half a million dollars, beginning in 1922, on “rehabilitation of their labor camps on various plantations, [and] in installing new sanitary equipment and building new houses for laborers” (“Hawaiian Crop” 272).

The plantation healthcare system in Hawaii was another response by management to the high cost of importing new labor. Disease and infant mortality were being combated in the plantation landscape. However, even if there was medical care provided, early plantation healthcare might provide only one doctor for every 8,000 to 10,000 workers (Walker 85). Plantations began to provide hospitals after 1886, although one hospital often served several nearby plantations (Walker 88), and doctors made weekly medical rounds of the countryside on horseback.

In the 1920s, a new interest in promoting infant care was forwarded to the plantations. A Territorial Bureau of Maternal and Infant Hygiene was launched in 1926 (Wilbar 3). A study at Ewa plantation...
from 1929 to 1933 provided infant nutrition and information to mothers in an effort to lower infant
mortality rates. The study was held in response to high infant mortality rate in Ewa, particularly
among Filipinos. In 1929, there was an infant mortality rate of 174.4 out of 1000 on Ewa Plantation,
compared to 85.3 out of 1000 for the city of Honolulu (HSPA 9). In that year twenty-five out of the
thirty infants who died were born to Filipino mothers (HSPA 10). Plantation management at Ewa
resolved to fix this, and opened an experimental Health Center in cooperation with Queen’s Hospital
in Honolulu and the Palama Settlement in Kalihi (Pagliaro 29).

While two years of the program saw a 57% improvement (Pagliaro 29), the study placed its emphasis
on the education of the mothers to learn how care for their children properly (Jones 751-752). Seeing
the mother’s ignorance as the problem that is causing infant mortality neglects other socioeconomic
factors. For example, workers weren’t earning a living wage and probably couldn’t afford better food,
the responsibility of the management to improve the sanitary conditions of the camps left much to
be desired, field labor was incredibly stressful on pregnant women’s bodies, and their work schedules
often left little time to take care of their families. New mothers may have also immigrated to Hawaii
as picture brides, and left behind their support network of friends and relations who would have
helped a new mother learn to care for an infant and eased her through the difficult time after
childbirth. An anecdote of plantation obstetrics in 1909 has the mother back in the fields the day
following a particularly difficult labor (Tabrah 48). In addition to education on nutrition and proper
care, mothers were provided with better diet and regular sleep (Pagliaro 29), both of which practical
factors were probably crucial to the success of the program in decreasing the infant mortality rate.

Martha Jones, one of the researchers involved in putting together the study, declared the definitive
lesson of this study was to deal with malnutrition by putting everyone back onto the Native Hawaiian
diet, eating taro and sweet potatoes. She believed this would cure children of everything that ailed
them, from malnutrition to tooth decay (Jones 752). This is problematic as the results are presented as a return of the workers to their proper diet, when the workers who participated in this study all immigrated to Hawaii from Asia to work on the plantations, and taro and sweet potatoes were not their traditional diet.

Disease in the plantation landscape was seen to attack along racial boundaries. Tuberculosis and leprosy were the primary diseases seen to be afflicting the Native Hawaiian population, while the Ewa study targeted Filipino mothers. Dr. Stow, a plantation doctor on Maui, is quoted in a statistical report saying, “Beriberi is a disease that appears to be exclusively confined to the Japanese” (Hoffman 23).

In Pau Hana, Ronald Takaki points out the tension between plantation doctors’ roles in treating the human body for illness and ensuring the plantation met its work schedule. The doctor’s permission was required for workers to convalesce, and ultimately the doctor reported and belonged to the class of plantation management. Within the doctor’s power was the ability to fine workers for malingering, as well as use hospital or dispensary facilities as a jail (Takaki 100).

The agreement between Japan and Hawaii regarding the hiring of contract labor to work Hawaii’s sugar plantations stipulated medical care for the Japanese workers (Walker 84). Beginning with the first wave of Japanese immigrants to Hawaii in 1885, Japanese doctors were hired by the Board of Health to provide medical care to workers without a language barrier, but while these doctors may have been better able to communicate, workers still felt the doctors were siding with the management (Okihiro 106). Changes in Board of Health regulations that required licensing examinations for doctors to be passed in English or Hawaiian made it difficult for Japanese doctors to work in Hawaii after 1895 (Okihiro 107).
Second and third-generation Japanese immigrants to Hawaii who received medical training opened Japanese hospitals that combined western and eastern ideas about medicine. Hawaii plantation physician Frank Tabrah recalls them as “small, homey hospitals” (Tabrah 79), that provided decent care, even if he disagreed medically with some of their diagnoses (Tabrah 83).

The gradual sanitation of the plantation landscape was impeded by the paternalistic attitude of the Territorial Board of Health as well as the plantation management, whose racialization of disease in the plantation environment created schisms between the desire for control of disease and control of profits. Plantation management divided the labor camps along lines of nationalities, separating them by grades of pay, types of work done, the areas they lived, and the quality of housing they received, and also to avoid the propensity of workers to join forces across these enforced boundaries to strike.

The paternalistic attitude of the plantations towards the workers can be seen in the comments of the Board of Health on current sanitary practices in 1907:

> If there is any disease in Hawaii it can generally be found in either or both of the following centers: the poorer quarters of the city or of the town, or in plantation camps. Plantation camps usually contain a class of labor who know nothing and care less about proper sanitation and cleanliness. (Board of Health 1907 5)

Descriptions of camps from publications varied for their audience, from those endorsed by the HSPA, to those written by and for outside bureaus. The material published by the HSPA spoke of the sanitation work in glowing and defensive terms, blaming the workers for any deficiency. In 1917 sugar representative Sydney Ballou responded to a New York Times editorial on the living conditions on Hawaii sugar plantations, “It has been my privilege to examine personally perhaps half of the labor camps on the principal islands, and, broadly speaking, their conditions conform as nearly as
possible to a reasonable ideal as could be expected in the case of a population largely of Oriental - or otherwise Asiatic - origin” (Ballou 1917: 10).

Hawaii plantation camp descriptions are also set in opposition to experiences of workers on the mainland or elsewhere in the tropics:

Even a person cautious in generalizing would conclude, did his actual observations cover a large field, that the condition of plantation workers in Hawaii is probably better than in any other tropical country in the world where colored races are employed; and from a purely economic standpoint better than in any other insular tropical country inhabited by white people. On the other hand, the condition of these workers will not stand comparison with that of large classes of workers in the white labor countries of the Temperate Zones (Bureau of Labor 696).

The quality of the plantation landscape is seen as fitting the racial characteristics of the workers, a justification for lack of sanitary practices that places the onus on the worker rather than the management.

The building reforms on the various plantations in Hawaii followed the rise and fall of world sugar sales: in good years more construction occurred; during the depression, the two world wars, and after a particularly bad leafhopper infestation in 1924, plantations cut back on nonessential expenditures.

In a 1922 article entitled, “Does Hawaii Need Chinese?” published in the American Federationist, the official AFL-CIO newsletter, Paul Scharrenberg describes the condition of the plantation camps:

The Sugar Planters' Association, through its welfare department, has in recent years furnished the various plantations with blue prints of model laborers' cottages, bath houses, and sanitary toilets. But the number of plantation managers who have taken the hint from the welfare department is comparatively small. The old whitewashed barrack type house in which the contract laborers were once herded is still in evidence and fully 75 per cent of the toilets on all the camps visited were in disgraceful condition. A still greater percentage of the plantation managers would be subject to arrest for failing to observe minimum sanitary standards - that is, if the California law should apply to Hawaii (640).
Scharrenberg's visit to Hawaii to inspect the camps occurred fifteen years after sanitary improvements had theoretically been put in place at plantations throughout Hawai'i, however it seems the HSPA's earlier declaration of a dedication to sanitary improvement was a misnomer. He also notes that while plantation management "expressed the opinion that the class of labor employed by them had [n]ever seen better toilets, etc., and would not know how to use clean and flyproof privies" (641).

John Wesley Coulter's 1933 article on the Oahu Sugar Co.'s plantation at Waipahu describes the differences in camp housing by nationality, essentializing each camp by distinctions in decoration and cleanliness. On page 61, he says, "Their general appearance, objects in the their immediate vicinity, or both, generally betoken the racial origin of their occupants." He labels Japanese houses by the potted plants on the lanai, Hawaiian homes by fishnets draped on their fences, while Filipino camps have the most housing for single men.

In contrast, a 1936 study on the Filipino workers at Ewa Plantation provides a quote from a Filipino woman offering sound reasoning not to keep a house well maintained, "Plantation house. Too much trouble fix him up. Fix good, paint, byemby pilikia (trouble). You pau [finished], Plantation keep house!" (Cariaga 27). The study's author, Roman Cariaga, also notes that reports of unsanitary kitchens belonging to plantation workers don't take into account the prohibitive cost of window screens and insecticide. The use of drying as a food preservative instead of ice also requires a free airflow around the food to be properly done, leaving the food in what could be considered unsanitary conditions, exposed to insects (Cariaga 26).

The reshaping of the plantation landscape at the turn of the last century was complicated by pressures from plantation management pushing sanitation and workers providing resistance through
their deliberate refusal to maintain company-owned homes. Healthcare provided by the plantation was couched in a paternalistic mission statement, with mothers blamed for their children’s mortality. The transformation of worker housing followed from these goals of sanitation while maintaining a racialized landscape, with barracks giving way to single-family homes separated into camps by workers’ nationality. The new style of architecture was dictated by a desire to eradicate disease and improve labor relations between management and workers.

The change in architectural style from crowded barracks to single-family homes also flows from the nineteenth-century conviction that ventilation was one of the most important aspects of a healthy environment. A lack of ventilation became closely tied to ideas about the propagation of disease, and was frequently cited as a cause of ill health among tenement dwellers and factory workers in a newly industrialized society.

The camps at Aiea, Waipahu, and Ewa were all included in this architectural shift to manage the plantation workers’ health. The degree of preservation at each site has been intricately impacted by these practices.
DISCOVERING WHAT REMAINS: GIS ANALYSIS

Aiea

As the closest plantation to the city of Honolulu, and site of one of the worst bubonic plague outbreaks on the island of Oahu in the early twentieth century, The Honolulu Plantation Co. in Aiea may have been the most influenced by the architectural war waged against disease.

Honolulu Plantation Co. Fields and Mill, Aiea, with Pearl Locks, and Waianae Mountain Range ca. 1900

Honolulu Plantation Co. Railroad and Locomotive, Aiea ca. 1900

The plantation began its operation in 1898, and originally had the only mill creating refined sugar in Hawai‘i. It relied on artesian wells for a water supply, eventually supplemented by an aqueduct from the Koʻolau Mountains.
The town of Aiea is centered around the former mill site, on the lower slope of a ridge overlooking Aiea Bay and the East Loch of Pearl Harbor. The suburb of Aiea Heights rises up the ridge behind the mill. The neighborhood of Waimalu lies Ewa (meaning to the west) of Aiea. The next ridge Diamond Head (to the east) of Aiea is the neighborhood of Halawa Heights, with Marine Corps base Camp H. M. Smith at the top. The H3 interstate highway runs through Halawa Valley to Kaneohe on the windward side. Three interstate highways merge by the stadium at the base of Halawa Valley: H1, which runs from Honolulu out to the leeward side, H201 the airport bypass, and H3. Aiea is bisected by H1 just south of the mill site. As in many neighborhoods in Honolulu, the addition of the highway in the 1960s divided the streets, and divided the neighborhood into distinct areas.
Photographs of Aiea from the turn of the twentieth century show a mix of single-family homes and long barracks type residences. The buildings are raised several feet off the ground, and have a row of outhouses behind each structure. The roofs are entirely side-gabled, as opposed to the quintessential Hawai‘i hipped roof. While most of the workers’ housing was single story, there were barracks houses for single men with a second story and lanai.
The oldest property in Aiea is located within the Aiea Homestead subdivision and dates to 1919. The Aiea Homestead Road, now known as Aiea Heights Drive, was completed in 1917 (Annual Report 1918) with the Homestead lot sites sold several years earlier (Thrum 1916: 163). The house sits at the corner of Aiea Heights Dr. and Heen Way on a 10,000 square foot lot that was probably subdivided in the late 1940s, judging by the construction dates of two neighboring properties. The house is a single story, and measures approximately 44 by 48 square feet. Although it is the oldest house in this area, it is not on the State or National Register. The house has undergone extensive renovations, and from the front looks entirely modern. The large addition on the south side of the property is the focal point of the front facade. A side view, however, shows the historic fabric of the original home.
There are four residential buildings in Aiea that date to the 1920s. The Honolulu Plantation manager’s house is listed on the State Register of Historic Places, and dates to 1924. It is situated below the mill site, and the orientation of the house relative to the street suggests that the current subdivision roads do not follow the same path as they did in the 1920s. The building has the Hawai'i hipped roof like other plantation structures, but the second story and wrap around lanai elevate the building above a simple worker’s cottage, as do the eight bedrooms, three full baths, and 4824 square feet of space. The front of the house appears to face downhill towards the harbor, and there are mature trees that screen the building from houses to the rear and Diamond Head side of the property. The lot area is also greater than the others in the same subdivision. The rest of the subdivision was built between 1960 and 1962.
Of the other three properties built in the 20s, one is at the farthest point up on Aiea Heights Drive in the Aiea Homestead area, backing up to the state park and is probably not related to the plantation. It dates to 1924 and has an L shaped plan of 1640 square feet, with a hipped roof and rear gabled addition. This building has been renovated, and does not retain a historic look.

The other two homes built in the 1920s are clearly associated with the sugar mill, as part of the neighborhoods with the oldest street patterns and groupings of houses. They are much smaller, a two-bedroom with 748 square feet and three-bedroom at 982 square feet, and more consistent with plantation worker housing. The smaller building backs up to the highway, and like the plantation manager’s house, seems to be situated just off true with the street and neighboring structures. It has been assessed at only $41,000, while the land the house sits on is valued at $491,400. City and County tax data list the 982 square foot house as part of the Sugar Mill area, and it sits only half a block away from the mill site. It has similarly low building and high land values.

The 122 properties that date to the 1930s are in the same areas as the 1920s houses: between the mill and the
manager's house; in a subdivision on the Ewa side and slightly above the mill; and towards the top of Aiea Heights Drive in the Aiea Homestead area, near the 1919 house. Like the earlier properties, the houses in the Aiea Homestead subdivision near the 1919 home are clearly not consistent with worker housing. While several of the properties have had additions or significant alterations since the initial date of construction, their area overall is larger, and most have more bedrooms and bathrooms than plantation worker housing. Out of the eleven parcels in that area that date between 1934 and 1939, only one seems a particularly good candidate for worker housing, based on its size and features.

The three oldest structures in Halawa Heights date between 1937 and 1939. Of these three, only one house would probably fall into the category of worker housing.
The 1930s structures closer to the mill conform more closely to expected patterns. The majority are three bedroom one bath, hipped-roof homes, ranging from 656 to 982 square feet. The assessed value of these homes is between $44,000 and $107,000, with around $60,000 seeming to be the average.

The subdivision also contains some larger houses, with five to seven bedrooms and up to 3163 square feet. However, all of these larger homes show evidence of alteration, either building permits for additions in the last 20 years, effective dates of construction, or obvious modern additions such as basement ohana (in-law) apartments.
The development pattern surrounding the mill in Aiea shown in the changes between USGS maps from 1927-1928 and 1943 is not extensive. During this period Halawa Heights appears to have been added to, along with businesses on the Halawa side of the town. More houses also appear to have been built in the area near the Honolulu Plantation Manager’s House.

The 1940s were a difficult time in Aiea. Its close proximity to Pearl Harbor meant this area was more heavily affected by the war. The December 7th bombing of Pearl Harbor could be seen from the mill, and a Japanese plane that was shot down is still visible along the path of the Aiea Loop Trail, which
starts at the top of Aiea Heights Drive. The US military seized a great many sugar plantation fields for the war effort, including one at the top of Halawa Heights which became first a Navy hospital, and later Marine Corps Camp H. M. Smith. By 1946, Honolulu Plantation Co. had gone out of business, in part because of military condemnation, and on January 1, 1947, the land and equipment were purchased by Oahu Sugar for $3,750,000 (300 F:2d 773).

Plantation labor and materials to construct new buildings were in short supply during the war. Consequently, most buildings that went up in the 1940s were part of the post-war effort to eliminate the housing shortage. Some of the land that Oahu Sugar had bought from Honolulu Plantation Co. was viewed with an eye toward development as being on slopes too steep to profitably grow sugarcane (300 F:2d 773). Two hundred and twenty acres of agricultural land between Aiea Homestead and the Honolulu Plantation Co. mill was divided into three subdivisions from 1947 to
1949. The USGS Map of Aiea from 1959 shows a great deal of development in Aiea Heights, Aiea Homestead, and Halawa Heights. In the heart of town around the mill, the streets appear to have been regularized and extended.

In 1962, Oahu Sugar Co. sued the US government for $341,968.75 paid in income tax between 1951 and 1952, relating to the sale of the lots in these subdivisions. They claimed that since they had purchased Honolulu Plantation Co.'s land with the intention to work it for sugar, and that they only sold the land to recoup their loss in rental earnings after the end of the perquisite system, they shouldn't have had to pay income tax on the sale, which should have been taxed as capital gains instead (300 F:2d 773). At the same time, OSC began to sell off their plantation housing to company employees and retirees. The workers who were living in the units had the right of first refusal, followed by other workers in the company, before sales were opened to the general public.
As a suburb of Honolulu, Aiea developed more quickly than the other Oahu Sugar Co. lands in Waipahu and Ewa. Expansion in Aiea after the early 1950s continued as more former agricultural lands were sold off and companies diversified their holdings. The USGS map of Aiea in 1968 again shows the pace of this expansion: the areas of pink urban areas are much more extensive than in the map from 1959.

When C&HSC ceased operations at the Aiea Sugar Mill in 1993, the firm of Alexander and Baldwin took over the property, and sold it to Honolulu based Crazy Shirts, who bought the property in 1994 as it was about to be torn down (Witty). Crazy Shirts bought the property for $19 million with the idea of moving their headquarters and manufacturing into the building, and restoring the structures along with a historic railroad train for visitors to ride (Ferraro Choi; Ruel). When the cost grew prohibitive to clean up the site from the century of industrial waste, Crazy Shirts demolished the mill and subdivided the land into parcels for resale to small businesses; however, during the selling process, the City and County decided to condemn the land to create a public park (Zimmerman).

When Crazy Shirts filed for bankruptcy, having sunk 30 million into the purchase, planning, and cleanup of the property, the site was turned over to the Bank of Hawai'i, one of Crazy Shirts’ major creditors (Zimmerman; Ruel). In 2003, Bank of Hawai'i sold the land to the State to build a new library, community center, and senior center with assisted living facilities.
The mill was a central focus of the Aiea community, which had hoped to see the site preserved. While Crazy Shirts was the owner of the property, the mill was placed on the National Register of Historic Places. A Bank of Hawai‘i press release from December 19, 2003 describes the sale in the language of preservation: Bank of Hawai‘i Vice President Bill Nelson is quoted as saying, “The combined sales of these parcels will ensure that the vast majority of this historic site will be preserved for public use.”

However, the historic nature of the parcel has been lost. Crazy Shirts’ adaptive reuse proposal for the site would have maintained the historic fabric of the building, while the State proposal is merely development on the ruins of what was once a historic property. Nevertheless, the Bank of Hawai‘i’s language in discussing the development draws connections between community use and historic preservation, putting a spin on the new construction.

Another piece of the former Honolulu Plantation that is endangered is the Aiea cemetery, which was the main cemetery for the plantation workers until burials ceased at the site in 1947. The cemetery is now an island in the middle of several highway interchanges, but Aiea residents feel that it is one of the places of memory like the former sugar mill that deserves preservation (Pang “Aiea”).

Leeward Community College Sociology Professor Mary Jane Dobson was working on a project in 2002 to record the stories associated with people buried in the cemetery. She believes it is important for people to preserve places like the cemetery "not just for healing, but a sense of remembrance and connecting the threads of their lives" (Pang “Aiea”).
Waipahu

Oahu Sugar Co. was started by B. F. Dillingham, in 1897, on the portion of James Campbell's land above 200 feet in elevation in Waipahu, which meant they needed artesian wells to supply water. The first harvest was in 1899 (Campbell 2). The majority of the plantation laborers came from China, Japan, the Philippines, Portugal and Norway. Skilled labor was organized from Germany, and the company's factor, H. Hackfield and Co. had ties to Germany. Heinrich Hackfield had immigrated to Hawai'i from Germany in 1849 (Kelley). Hackfield and Co. became American Factors Inc. during the First World War when German owned business were seized and Americanized. American Factors (who later changed the name to AMFAC) bought Oahu Sugar outright in 1961. Oahu Sugar Co.
closed its operations in 1995, and AMFAC transferred its interest from working the land for agriculture to developing the former plantation real estate.

A map from 1909 shows the extent of the company's fields in the early twentieth century, but doesn't show camp locations.

A land ownership map from a development prospectus from 1959 shows the land owned by Oahu Sugar Co. centered on the town of Waipahu and running up the ridge behind it, and also a patchwork of fields up Aiea Heights.
Lani Nedbalek’s *Waipahu: A Brief History* shows a map of Oahu Sugar Co.’s housing camps. Her caption ascribes the data to Oahu Sugar Co., but unfortunately her map is not specific enough to ascertain the camps’ exact locations. The mill site is just to the right of her camp number 15, on the far side of the bend in the Waikele Stream.

The town of Waipahu was built around the Oahu Sugar Co. mill, which sits on a rise at the top of Depot Street. Waipahu Street was the other main thoroughfare, running Ewa-Diamond Head across the center of town. Depot Street was the hub of commercial activity for the first sixty years of the plantation’s existence. Today the commercial district consists of
strip malls on either side of Farrington Highway. The town is north of the West Loch of Pearl Harbor and the Waipio Peninsula, and is for the most part bounded by Interstate H1 on the mauka side (in the direction of the mountains) and Farrington Highway on the makai (in the direction of the sea) side, and H2 on the Diamond Head side and Fort Weaver Road on the Ewa side.

Village Park, a housing development from the 1970s and 80s rises up the mauka slope above Waipahu.

Early pictures of the plantation show the sugar mill rising up out of bare fields, with neatly ordered rows of housing behind the mill site. There is sparse vegetation surrounding the houses, and rows of privies are evident behind them. The housing is evidently new upon the landscape, and the rows of houses haven't formed into streets yet.
A photograph of worker housing from the 1930s shows a dramatic change in the camp, it has been transformed into a town. Yards are fenced, and there is a wide variety of trees and shrubs planted around the buildings, including palm trees, and fruit trees like papaya, mango and bananas.

When Zialcita began researching plantation housing in 1984, Waipahu Camps 1 and 2 were still intact enough to be considered in his study; however he chose to focus on Waipahu 2, the homes of the company supervisors, stating that the workers camp, Waipahu 1, was so similar to other Camps at Ewa that it was not useful to survey (20). Zialcita had records supplied to him by Oahu Sugar Co. for Waipahu 2, but they no longer had complete records for Waipahu 1 (2). Zialcita seems to have been more interested in the larger buildings at Waipahu 2 that displayed a great deal of variation and individuality (20).
My original assumption that Waipahu would have more remaining sugar housing than Aiea due to the greater distance between Waipahu and the city of Honolulu, and due to Zialcita's study, proved false. Driving though Waipahu and studying the GIS maps of the area show that this town has even less original fabric than Aiea. Nothing remains today of the area that Zialcita called Waipahu Camp 2, except for the office building and the store. Kupehe Street and the end of Makaaloha Street have become part of Hans L’Orange Park, while the Waipahu Filipino Community Center and its parking lot have been built in the place of the housing next to the office and store.
In 1976, Wayne Matsuda, a third generation Japanese resident of Waipahu Camp I wrote a paper on the experience of Japanese people living in the Camp. He references his own experiences growing up in the camp in addition to interviews with Oahu Sugar Co. employee Cranky Watanabe. Matsuda's describes Camp I in 1976 as "a drab brown monotony" "with green-papered roofs," giving the atmosphere as "depressing" (7). The dilapidated buildings were interspersed with empty lots full of weeds (7). There were only 294 houses still standing at that time on the 2 acre parcel .25 miles north of the sugar mill, as compared to 900 homes in 1960 (4). He attributes the rapid decay of the camp to the residents' out-migration to new housing subdivisions, driven by Oahu Sugar Co.'s lack of interest in refurbishing the camp structures (5). Cranky Watanabe is quoted saying, "I mean you put a thousand dollars into a house that is almost worthless and what does that amount to? It amounts to a waste of a thousand dollars" (5).

From Matsuda's perspective, the character of Waipahu as a plantation town changed in 1958 with the introduction of the first subdivision housing, built by contractors backed by Oahu Sugar Co. to lure workers out of the company owned and maintained plantation camps (5). The introduction of housing outside of the plantation camps also had the effect of introducing to the town residents who were not employed by Oahu Sugar Co., decreasing the prominence of the company's position in the town (4). Post 1976, Oahu Sugar Co. was able to do away with the camp altogether, selling the land to be redeveloped into further housing subdivisions. The company's policy toward camp housing from the 1960s on effectively erased the plantation camp community from the landscape.

The changes this evoked can be seen from a variety of maps of the town from 1953 onward. Housing developments took over the sugar cane fields surrounding the town, fabricating the community outwards from the industrial center.
The Sanborn Fire Insurance Map from 1953 shows the limits of the town, the workers Camp 1 above the mill, Camp 2 on the Diamond Head side of the mill. The town is surrounded by rice and sugar cane fields.
A shopping center development prospectus from 1960 provides maps of proposed development in Waipahu. The overlay gives the housing tract names with the number of housing units, while the aerial photo underneath shows the degree of development extent at Waipahu in 1960. Camp I to the north of the mill site is still obviously populated, with careful blocks laid out and mature trees interspersed with the housing sites. While several of the housing developments are evident, many more appear on the aerial photo still as fields. The 300 homes of Waipahu Highlands stand out as one of the earliest remaining developments. The bow-tie shape of the development is still evident on the GIS maps from 2009.

Another map of Waipahu, this one from “A Preliminary Development Plan for the Waipahu Lands of the Pacific Land Hui” from 1960 shows a current land use pattern, with areas that were plantation housing marked separate from other housing, as well as the Pacific Land Hui’s idea of “A Desirable Land Use Pattern for Waipahu” (14-15). This vision of Waipahu’s future would have left apartment buildings next to the sugar mill industrial complex, with single family plantation housing retaining its location above the mill at the Camp I site.

In 1976, AMFAC hired Community Planning, Inc. to prepare an Environmental Impact Statement for proposed low and medium density apartments on the site of Camp I and II. At the time of the EIS, Oahu Sugar Co. had 960 active employees between the two plantations they were managing at Waipahu and Ewa. Of those active employees, 650 lived in plantation housing, and there were an additional 325 retired employees collecting a pension from OSC that were also living in plantation housing (AMFAC 43). Their proposed low and medium density apartment plan was supposed to provide for new units as the company phased out the older plantation camps. It was marketed to “improve housing and sanitation conditions, since it will replace the old plantation homes” (AMFAC 49). Further neighborhoods of Waipahu Estates and Waipahu Terrace were proposed on the land of Camp I and into the fields above the camp.
Waipahu AMFAC Proposed Development 1976
Waipahu Schematized and Desirable Land Use Patterns 1960

63 of 116
GIS Map of Waipahu Town and Mill Site.
Colors shade from Orangey-Red (1920s) to Blue (2000s)
According to the City and County Tax Data, the three oldest residential structures still standing in Waipahu were built in 1924 on one large parcel of land currently owned by the City and County of Honolulu and known as Hans L’Orange Park. The park was named after the plantation manager Hans L’Orange who had the park created in 1924 for the use of OSC employees (Ohira). The parcel is located to the North and Diamond Head of the mill. City and County tax data lists 2 four bedroom one bath houses with 1276 and 1116 square feet, and 1 three bedroom one bath house with 768 square feet. They are listed as being in the neighborhood of Waipahu Estates. These houses may have originally been part of Waipahu Camp 2, although satellite maps do not indicate any housing in the area of the park that used to belong to the camp.
A walk-through of the park in August of 2009 found no housing of any kind within its bounds, suggesting that these houses have been demolished. A widely spaced double row of trees within the corner of the park probably demarcates where Makaaloha Street used to run through it. The housing of Waipahu Camp 2 would have been situated on the outside of this row.

There are two other parcels the City and County GIS data listed as dating to 1928, both Diamond Head of Hans L’Orange Park, down Waipahu Street. The house closer to the mill site was a small 624 square foot three-bedroom house that the City and County Property Tax Website shows was demolished in 2008. This house was a good candidate as a former plantation house based on its size and location. The other building is in the same neighborhood, Waipahu Mauka, suggesting that this neighborhood began as a plantation camp in the late 1920s. The standing 1928 house sustained significant modifications in 1937 and 2005, and no longer retains its historic look.

Fifteen houses in Waipahu date to the 1930s. As far as it is possible to judge from the sample of remaining houses built in that period, it appears that the second half of the
thirties were better for plantation construction projects than the first half: 80% of the buildings were built in the second half of the 1930s with the remainder built between 1930 and 1934. Based on evidence of obvious alterations, the majority of these houses were two or three-bedroom, one-bath homes of 520 to 976 square feet. They all show association with the sugar mill from their orientation in two developments, Waipahu Mauka running parallel to Waipahu Street, and Pearl Harbor Gardens, below the mill and Farrington Highway. While at least one of these buildings shows signs of serious neglect, and may not be standing much longer, several others have been carefully restored and are still quite charming.

On one parcel, four plantation homes remain that date between 1938 and 1939. The parcel owner is a woman who has lived in the mint green house for over forty years. She argues that they don't make houses like this anymore, from the craftsmanship to the materials. She also relates that she likes living in the house because of her long history with the structure. It was where she lived with her husband, who has passed away, and her son grew up there. The gardens outside this home show the pride she takes in her residence.
Although construction continued during the 1940s in the same two developments, again a small sample of only 16 houses remain from this decade. Two were built before World War II, one in 1942 during the war, and the rest after the end of the war from 1946 to 1949. Large housing tracts built from the 1950s onward have conspicuously eroded any historic fabric remaining in Waipahu. The few neighborhoods with pre-war sugar housing have been mostly transformed by newer structures. The historic feel of the town has been lost in this development, with the exception of the sugar mill.

Unlike Aiea, Waipahu managed to retain the mill and successfully adapt it for reuse. The Leeward YMCA bought the part of the former mill building around the smoke stack. A fitness room fills the room that once housed mill generators, while the six-lane swimming pool could mimic the reflecting pool at the Washington Monument with the mill Smokestack behind it (Shikina “Sweet Spot”). This reuse of the mill seeks to fill a place in Waipahu that has been lost in Aiea, that of a community focal point. Leeward YMCA chairman Robert Tong calls the mill a gathering place for the community and says, “The mill used to be the centerpiece of the community way back when the plantation was in its
heyday. We're fortunate to keep the smokestack as our symbol. We call it the Eiffel Tower of Waipahu” (Shikina “Sweet Spot”). The view of the mill stack rising above the town is a strong marker toward a sense of place. Because the large-scale community redevelopment process that has gone on since the 1950s has irrevocably altered the feel of the town, there are no longer any plantation camps left to remind residents of what first made Waipahu important. The ability of the community and local businesses to preserve the mill and its smoke stack allows Waipahu to move into the next phase of its future without erasing the past.

Another attempt to preserve Waipahu’s past that is only partially successful is Hawaii’s Plantation Villages. This outdoor museum has a collection of plantation houses that have been moved to the site and restored, as well as replicas of other plantation structures. The museum offers tours to visitors through their complex, focusing on the ethnic identities of the workers who immigrated to Hawaii in the nineteenth and twentieth centuries.

Hawaii’s Plantation Villages shows an eclectic view of past. Their small collection of buildings represents housing from each ethnic group, essentializing ethnic identity into house type. There is the Chinese social club, the Korean house, and the Japanese furo, but not an actual assemblage that would
portray a wide variety of ethnic identities. The experience is similar to walking through the different countries at Epcot Center; they fly past before you’ve had a chance to adequately explore them. A large amount of information is imparted to the visitor in a relatively short time. Without the narrative of a guide who grew up in a plantation camp, it would be extremely unsatisfying.

The website of the Plantation Villages places the story of the workers into the American melting pot mythos, with the diversity of the workers subsumed into the community of Hawai‘i today. The museum’s stated goal is to “showcase the lifestyles and experiences of Hawai‘i’s plantation villages,” yet, it is hard to draw this narrative out from the variety and placement of the structures there. The diversity of the buildings is more comparable to a modern town with a mixture of architectural styles, than to an intact plantation camp where rows of identical houses emphasize the similarity of the structures. The buildings are presented as symbols of the different ethnic groups, which presents the narrative as static history, instead of markers pointing to a more fluid memory of the past.
Ewa

Ewa Plantation stands 20 miles from the City of Honolulu on the flat and arid Ewa Plain. The lack of natural water sources in Ewa meant that it was only possible to use the land for agriculture after a good system for creating artesian wells was in place. The first artesian well was dug in Ewa in 1879 on land owned by James Campbell. Ten years later in 1889, Benjamin F. Dillingham, a businessman from the mainland, commissioned a feasibility study from two hydrographic engineers to see if artesian wells could sustain sugar cultivation in Ewa (Kuykendall 68). That same year, Dillingham
chartered the Oahu Railway and Land Co., and leased Campbell's land for 50 years at a rate of $50,000 a year (Kuykendall 68, "History of Campbell Estate"). He then turned around and subleased the land at Ewa to W. R. Castle, the son of an American missionary, who with the firm of Castle and Cooke began Ewa Plantation Co. in 1890 (Kuykendall 68). Castle and Cook bought a controlling interest in Ewa Plantation stock in 1962, and the company was merged with Oahu Sugar Co. in 1970 (Campbell 3).

Foiling preservation efforts, plantation housing was never meant to be permanent. The buildings were quickly built, and in Ewa, seem to have been used for only 30 or so years before being torn down and newer and more modern buildings constructed. George Renton, Sr., manager of Ewa Plantation from 1899 until 1920, began a policy of building and remodeling: creating single-family homes for married workers, and upgrading the quality of living for the workers on the plantation. In her history of Ewa Plantation, Penny Pagliaro credits Renton as a visionary who changed the tenor of plantation life from "a working farm staffed by transient labor" to "a community of employees" (19).

While Renton may have had the right ideas, there was still a huge difference in the standard of living between the managers and the field laborers. A photograph of the managers housing area from 1918 shows a lush park-like setting with ornamental flowering trees, such as the plumeria which can be seen in the lower right corner.
The workers, however, were still living in squalor, and having problems with basic sanitation issues. A photo of a camp at Ewa from the 1920s shows one spindly tree surrounded by piles of refuse.
An early photo of a house from Pipe Line Village at Ewa in 1907 shows a small single-family home, with an attached kitchen and small outhouse. It is very similar in style to early houses from Aiea and Waipahu; raised off the ground on post and pier foundations, with a side-gabled roof and lanai.

This style of house, evident in photos of C Village from 1924, was torn down and often replaced with the more representative plantation style house with a hipped roof. The photos taken of C Village in 1924 and the Mill Village in 1921 show the buildings in a poor state of repair. The buildings in the Mill Village also appear to have been barracks or multiple-family housing.
A few of this style of side-gabled plantation cottage still exist today at Ewa. A photo from 2008 shows a similar house, although missing the characteristic front lanai.

In contrast, photos of the new housing the plantation was constructing, such as the Bowman cottages at the Mill Village in 1925, are obviously single-family homes. The buildings are evenly spaced, with hipped roofs and larger windows.
As time passed, the proportions of the buildings also got larger. The size of an unskilled laborer's house from 1937 is much greater than the Bowman Cottages from 1925. The window size also increased, and the roof now has the addition of a bell cast curve.
The plan of the villages stayed relatively constant in the midst of this continuous building and eradication of housing. A USGS map of Ewa from 1927-28 shows the camps in a similar location to those a USGS map from 1953. Varona, Renton and Fernandez Villages are expanded by only a few rows of houses each, while Tenney Village appears to have received the majority of the construction work. Middle Village (marked as Korean Village on the 1927-28 map) and Lower Village seem unchanged.

The City and County Department of Housing and Community Development commissioned the firm of Phillips Brandt Reddick to undertake a study of Ewa Villages in 1979. The firm looked at the eight remaining housing camps and gave recommendations for treatment based on a variety of
factors, such as condition, lot size, existing infrastructure, and how residents felt about their homes.

The four smallest camps, C Village, Mill Village, Lower Village and Middle Village were in the worst condition, with the majority of the structures being in substandard poor or dilapidated condition.

Phillips Brandt Reddick's recommendation was to eliminate these villages, and to focus money and energy on the four larger camps that were in better condition: Fernandez Village, Renton Village, Tenney Village and Varona Village.

The plantation camps at Ewa have the highest degree of preservation of any of the three OSC subsidiaries, mostly due to the City and County's preservation project in the 1990s; however there have been notable changes since Zialcita studied them in 1984. Early in his discussion of Ewa he mentions that the mill was in the process of being torn down (6). A map from Zialcita's report shows the periods of construction for Varona, C, Tenney and Renton Villages based on the dates of construction for standing structures as of 1984. The oldest buildings at the time of Zialcita's survey dated to 1907 and were part of Pepper Row in Renton Village; however, those no longer exist today. Zialcita identified areas in Renton and Tenney Village which date to the period from 1916 to 1918, the Renton Houses were part of the City and County rehabilitation, but the oldest Tenney section that dated to this period was demolished.
Zialcita's map of the preservation of Ewa Villages by date of construction
There are currently four houses that were built in 1916 in Renton Village, and two that date to 1918. Nine buildings in Renton date from 1922 to 1924, eight from 1937-1938, and one from 1941. The rest of the buildings in Renton Village are modern houses that fill in the gaps between historic structures in a similar style, dating between 1996 and 2003.

The oldest buildings in Tenney Village are a cluster of four houses that sit along the northern edge and date to 1920. Fifteen houses in Tenney date to 1922, two to 1930, ninety-nine date between 1936 and 1938, twenty-three houses were built between 1940 and 1943, one house in 1953, and three houses were constructed in 1956. Like Renton Village, the remainder of the housing in Tenney Village is modern construction from 1996 to 2006 that follows the Master Plan guidelines for fill-in housing.

The two major periods of construction in Fernandez Village were between 1956 and 1958, when 187 houses went up and 1986 to 1989 when the houses around the edges of the village were built. The oldest house in Fernandez Village is from 1939, and four houses were built in this village between 1943 and 1950. There are also a few houses that date to the early 1990s and 2000s. Most of the housing in Fernandez Village has undergone heavy alterations, without regard to preservation. As a result, most of these structures have lost their character as plantation houses, and are almost unrecognizable as such.
Zialcita's report shows that, with the exception of C Village, by 1984 the four camps slated for demolition no longer existed, although maps in the 1988 Ewa Long Range Master Plan still show the four smaller camps in evidence. By 1991 C Village was gone as well.

It is unfortunate architecture wasn't a factor in the Phillips Brandt Reddick recommendations for the villages. The oldest camp, Middle Village dating to 1924, which was slated for demolition due to the poor condition of the housing, might have had some of the most interesting architecture.
The 1991 Final Environmental Impact Statement for the Ewa Villages Master Plan prepared by R. M. Towill Corp. describes the project as "a revitalization project with the goal of providing homeownership opportunities to the tenants that reside in the plantation villages of Renton, Tenney and Varona" in addition to developing 957 new affordable housing units and opportunities for economic growth (2-1). Fernandez Village is no longer on the table for revitalization, as it was extensively reconstructed in the late 1970s, perhaps after the Phillips Brandt Reddick Study. The 1991 plan called for the restoration of 273 existing structures in each of the three villages, beginning with Renton and Tenney Villages, only starting work on Varona...
after the other two were complete (2-7). The 957 new units were partially to fill in empty lots in the existing villages, and partially the creation of new villages surrounding the historic ones. A golf course was designed and implemented around the mauka edge of the property. The plan was supposed to be implemented in five phases, beginning with the golf course construction and new housing along Renton Road as Phase 1, followed by more new construction, Renton Village rehab, Tenney Village rehab, and finishing with Varona Village as Phase 5. Work proceeded through the first four phases, but the project became mired in lawsuits before Phase 5 began.

Corrupt housing officials, toxic waste, defective construction, and not repaying money from a HUD grant were some of the scandals related to Ewa Villages from 1996 until 2002. Two city housing officials were arrested in 1997 for awarding $5.8 million in contracts for the Ewa Villages Revitalization project to family and friends for work that was never done, or done but overpaid for (Daysog). One of the men died before the court case was tried. The other was found guilty in 2000 on 43 charges that included theft, forgery, money-laundering and illegal ownership of a business (Pang “Kahapea Guilty”). The City and County sued AMFAC and the Campbell Estates over toxic waste found at the site in 1999. Ewa residents sued developer Lokahi Greens for construction defects in 2001. The end result was that the project became unfavorable. Varona Village was never restored, and residents were not given the same option to buy their homes as other Ewa Villages residents (Shikina).
The Ewa Plantation Manager's House, while a contributing property on the National Register nomination for Ewa Villages, has not been one of the preservation success stories. Built in 1925, the house was turned over to the City and County with the rest of Ewa at the end of the plantation's lease.

In 1998, Friends for Ewa tried to raise funds for the property's restoration by selling T-shirts with raffle numbers printed on them for a grand prize drawing of a restored house in Ewa Villages. The raffle ended in a scandal when the Texas-based insurance company underwriting the event won the prize after only 3661 shirts were sold and 3000 stolen (Tighe). Instead of raising money, the group ended up spending more on lawyers to settle the controversy.

At a 2005 meeting of the Ewa Neighborhood Board, Mayor's representative Joyce Oliveira mentioned that although the Ewa Villages Master Plan had designated the plantation manager's
house as community meeting rooms and as an exhibit space for “plantation memorabilia,” there was no money in the City budget for renovations, and the house did not qualify for any grants (Manahan).

In 2006, the Historic Hawai‘i Foundation placed the house on their list of the nine most endangered historic sites in Hawai‘i. An article in Honolulu Magazine notes that the property has been closed to the public since 2004. State Representative Rida Cabanilla is quoted as saying the threat to the property is “demolition by neglect,” and laying the blame at the doorstep of the City and County’s lack of a concrete plan for the structure (Keany). The article goes on to remark that both the Ewa Historical Society and the Ewa Villages Home Owner’s Association have made efforts to procure the house, but have been stymied by the City and County government.

Two years later in 2008, the house was still undergoing its slow process of collapse via neglect. The paint on the exterior is dirty and peeling, window screens hang crookedly from upstairs windows, and the landscaping is barren and desolate. It is particularly marked in contrast to the well-tended buildings surrounding it. A row of three restored skilled laborers’ houses dating from 1922 to 1925 sit to the building’s right.
Today, the camps at Ewa, Renton, Tenney, Varona and Fernandez still exist in the middle of new development. The 1991 Master Plan for the area was successful in retaining the feel of the plantation community, trading the green of the surrounding cane fields for the greens of the local golf course.
CONCLUSIONS

Several factors contribute to the different routes preservation of plantation housing has taken in Aiea, Waipahu and Ewa. Location has been a key factor. The towns closer to Honolulu saw an earlier and greater urban encroachment, where Ewa remained more isolated and so less disturbed into the late twentieth century. Aiea and Waipahu were also more greatly affected by World War II than Ewa, as they abutted Pearl Harbor.

The plantation towns of Ewa and Waipahu were once distinct, but urban sprawl is quickly eating up the gap between the two, as has already happened between Waipahu and Aiea. The City and County's decision in the 1960s to deal with overcrowding, lack of housing and transportation issues in Honolulu was to create a second city center called Kapolei on Oahu in the middle of Ewa's former cane fields (Smith and Pratt 157). The first stage of this development was to create suburban housing developments that would accommodate 15% of the population of Oahu by the 1990s, and then to create the urban center. One of the first planned neighborhoods was Makakilo, rising up the hillside above Ewa, with construction that started in 1967. Development continued in this area during the 1970s and 80s, but the majority of the city buildings were erected in the last 20 years. Many state agencies, including the State Historic Preservation Division now have their main offices in Kapolei. The 1988 Ewa Long Range Master Plan calls for the complete development of this area.
Proposed Development in Ewa as of 1988 Ewa Long Range Master Plan
Although Kapolei was created to solve housing and traffic problems in downtown Honolulu, the early development of housing and late addition of jobs to the area, meant that people who bought inexpensive homes in Kapolei had to commute into Honolulu to work, creating even worse traffic snarls. The addition of a zipper lane to the highway for commuters in the 1980s no longer serves as a palliative to traffic congestion. A bill to build a light rail system from Kapolei into Honolulu has been bogged down in the State Senate for years. It was put on the election ballot in 2008 and passed with 52% of Oahu voters in favor. A map published in the Honolulu Advertiser noted that the communities most likely to be affected by the rail were in favor,
while those communities on the other side of the island or who already lived in downtown Honolulu voted against it.

Preservation has also been influenced by the sugar company's management strategies with regard to housing. Aiea's success at preserving individual plantation houses over Waipahu, stems from the period in 1947 when OSC decided to divest themselves of their camp holdings in Aiea, deciding it was cheaper to sell the houses to the employees than maintain ownership as a rental company and be responsible for maintenance. The houses bought by sugar company workers have been held onto by these families, making it harder for developers to buy up this land and create new neighborhoods to replace the plantation community. Preservation in this instance has become a matter of individual preference rather than public policy.

Although this was an early instance of the sale of housing to company workers, the intervention of the ILWU in the 1970s made this a standard policy as more sugar plantations began to close. In Sugar Water: Hawai'i's Plantation Ditches, Carol Wilcox points to the consequences of this action: to "Endow an entire workforce with housing that would probably not have been otherwise affordable. Rarely has a failing industry provided such broad assistance to its employees" (22).

There is a pride in home ownership in Hawai'i linked to belonging and permanence, seen in opposition to the new transient workforce from the mainland. In their 1992 book, Politics and Public Policy in Hawai'i, Zachary Alden Smith and Richard Pratt discuss the use of home ownership as a symbol: "Everyday discourse is replete with distinctions and identifiers that differentiate between insider and outsider, local and transient, oldtimer and newcomer, real Hawaiian and poseur. In spite of being based solely on the ability to pay, home ownership is important to many as a sign of belonging, of being less a transient" (148).
The expense of owning a home in Hawai‘i changes the bounds of family dynamics, and preserves a stronger extended family network. Young adults often cannot afford to move out of their parent’s homes, creating intergenerational living situations without social stigma. The story of a thirty-five year old man living with his mother and grandmother in Hawai‘i carries a very different set of cultural markers than the same situation would on the mainland.

However the most important element in preserving plantation housing was the degree to which cities developed a master plan, and how that master plan was structured. The advent of the City and County’s rehabilitation scheme at Ewa provided more possibilities for preservation than existed in Waipahu and Aiea. Waipahu’s master plan was developed much later than Ewa’s, and has been focused on the revitalization and development of an already urban environment. The loss of the plantation lifestyle had already occurred by the time a concrete plan for Waipahu was in place. The rural location of Ewa, which allowed for a slow rate of change, enabled the master plan to develop in concert with the transition away from an agriculturally based community.

When the link between health and architecture is explored, the picture that emerges of the plantation landscape is one that was in constant flux. Old buildings were constantly being torn down to make way for better and more sanitary structures. The old substandard housing placed workers too close together, without proper ventilation, first in crowded barracks, then in houses too closely spaced, with inadequate windows, and built on the ground where rats could invade them. The new plantation cottages built between 1900 and 1920 were models of ventilation, but by the 1930s and 1940s, were coming under criticism for their lack of integrated kitchen, and later, bathroom facilities. A new building renewal program razed the old structures and designed new homes with these added features. Labor strikes in the 1940s abolished the perquisite system that included housing paid for by
the plantations, and a new system of renting or selling the plantation housing to workers changed the landscape again, as workers gained the choice of where they wanted to reside, or were able to paint or remodel structures to match their own vision of the perfect home. Ultimately the preservation of any of these structures is exceptional, as the architectural form was designed to be ephemeral.

All of these changes have created overlapping portraits of a plantation vista. The topography of the past is still visible in the isolated islands of historic plantation homes scattered through the regimented neighborhoods of newer structures, and in the influence these homes have had upon Hawai‘i modern residential and commercial architecture. These boxy buildings with their hipped roofs, lanais, and exterior girts are a quintessential part of Hawai‘i’s architectural record. The idea of a plantation community, a group of people who share the same points of reference, is strengthened by the preservation of these structures.
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page 17 “Typical new worker housing, Ewa Plantation, 1923” from Agricultural Sugar Workers’ Housing, Folder #1; CP 49099. Bishop Museum, Honolulu, Hawai‘i.

page 19 “Honolulu Plantation Single Men’s Barracks ca. 1900” from Agricultural Sugar Worker’s Homes Folder; SP 204077. Bishop Museum, Honolulu, Hawai‘i.

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page 36 “Honolulu Plantation Co. Fields and Mill, Aiea, with Pearl Locks, and Waianae Mountain Range ca. 1900” Hawai‘i State Archives, Honolulu, Hawai‘i.

page 36 “Honolulu Plantation Co. Railroad and Locomotive, Aiea ca. 1900” Hawai‘i State Archives, Honolulu, Hawai‘i.

page 37 “Honolulu Plantation worker housing and East Loch as seen from roof of mill ca. 1900” from Geography, Oahu, Aiea; CP 127259. Bishop Museum, Honolulu, Hawai‘i.

page 37 “Honolulu Plantation Mill and worker housing, barracks in foreground ca. 1900” from Geography, Oahu, Aiea. Bishop Museum, Honolulu, Hawai‘i.


page 43 “1924 house 982 square feet on lower Aiea Heights Drive by the Sugar Mill site 2009” photo by Jessica Way 2009.

page 43 “1923 house 748 square feet by the highway 2009” photo by Jessica Way 2009.


page 51 “Oahu Sugar Co. Mill ca. 1900” Hawai‘i State Archives, Honolulu, Hawai‘i.


page 54 “Nedbalek’s map of Oahu Sugar Camps” from Nedbalek, Lani. Waipahu: A Brief History. Mililani: Wonder View Press, 1984: Figure 7.

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page 64 “GIS Map of Waipahu Town and Mill Site” map by Jessica Way 2009.


page 72 “Aerial view of Ewa Plantation 1950s” from Agricultural Sugar Mills, Oahu, Ewa; CP73889. Bishop Museum, Honolulu, Hawai‘i.

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