

A Brief History
Of the Ahupua'a of

PU'UWA'AWA'A

and Its Neighbors
in North Kona,
Island of Hawai'i

BY MARION KELLY

Contents

| | |
|----|--|
| 3 | Preface |
| 5 | Introduction |
| 7 | Part One: The Old Ways |
| 22 | Part Two: The Ranch |
| 24 | References |
| 29 | Appendix A: Mrs. Emma Metcalf Beckley's explanation of how fishponds were used |
| 31 | Appendix B: Chronology of Kiholo and Puuwa'awa'a |
| 35 | Appendix C: Land leases and purchases by Hind in Pu'uwa'awa'a and Pu'uanalulu placed on maps |
| 36 | Appendix D: Informant Interviews |
| 39 | Appendix E: Helen Desha Beamer's Song: Pihanakalani |
| 40 | Appendix F: <u>Kiholo</u> |
| 42 | Appendix G: <u>Pu'uwa'awa'a</u> |

PREFACE

MY WIFE DORIS AND I both grew up dreaming of living in the tropics. This is surprising since for Doris (who is from North Dakota) and me (a Minnesotan) the possibility of seeing anything like the tropics was remote. Retirement, however—after some 67 winters of fighting the cold, of slipping and sliding and getting stuck in frozen cars that started painfully, if at all—has brought us to the realization of our youthful dreams.

From among the many places we visited we chose the Hawaiian Islands because of their excellent climate and the strong spirit of aloha and sense of community. We spent time on Kaua'i, Moloka'i, Lana'i, O'ahu, and Maui, and enjoyed them all; but our decision to live on the Big Island was inspired by a stay at the Kona Village resort. In fact, we were married at Kona Village. We fell in love with the resort and with the entire west coast of the Big Island and began looking for a home. It was not long before a small advertisement concerning a piece of land on Kiholo Bay came to Doris' attention. We liked the property and bought it.

Kiholo Bay is exceptionally beautiful. Animal life surrounds us: we have feral goats and pigs, donkeys and sheep—the descendants of livestock that escaped many generations ago or were scattered by the tsunamis. We have hundreds of razorback and green sea turtles living in the bay.

We soon found out that Kiholo Bay was sacred to the early Hawaiians. King Kamehameha spent time here, and marvelous ancient royal fishponds exist to the north and south of us. The many caves nearby were used for living quarters and burial grounds. Early settlers built stone houses here, the foundations of which still remain. Our beach is shaded by a hundred palm trees planted in the 1920s by a previous owner of the property.

Over time we heard more and more remarkable stories about the history of Kiholo Bay and set about to record them. Doris took the lead in this project, discovering people such as Hannah Springer and the Hind Family who could contribute their knowledge. Eventually we were directed to an authority on the history of the Big Island: Marion Kelley, Associate Professor of Ethnic Studies at the University of Hawai'i, Manoa. She is the author of several ethnohistorical reports published by the Department of Anthropology, Bishop Museum. We commissioned her to write a history of Kiholo Bay and, with the assistance of free-lance writer and researcher Helen Wong Smith, this book is the result.

In the process of assembling the information, it became apparent that key information was missing; there were conflicts in the accounts of events; and both minor and major errors of historical fact may have found their way into the text. In spite of these shortcomings we decided to publish this document as an item to distribute to friends, acquaintances, and others who have an interest in Hawaiian history in general, and in West Hawai'i and Kiholo Bay in particular.

Recognizing the incompleteness and other shortcomings of this history, we welcome any additional information readers might have that could be included in future editions of this work. If the reader has any such information or wishes to comment on the book in anyway, he or she is encouraged to write or call us: Earl and Doris Bakken, P.O. Box 38-4360, Waikoloa, HI 96738-9998. (808) 325-3127 (808) 325-3427 (808) 325-0828 Fax: (808) 325-0928 e-mail: 73563,1233.com

Earl and Doris Bakken, Kiholo Bay
November 1995

ACKNOWLEDGMENTS

We wish to acknowledge the assistance of Georgine Busch and Dennis Stillings for providing editorial and research assistance in the production of the final text, and of Cathryn Stewart for copyediting and

designing the book and bringing it to completion. We also wish to thank Marmionette M. Ka'aihue for permission to use text and lyrics from Songs of Helen Desha Beamer (Honolulu: Abigail K. Kawananakoa Foundation, 1991 [Marmionett M. Ka'aihue, editor]).

INTRODUCTION: The first people of this land.

SING THEIR KNOWLEDGE of the stars, winds, ocean currents, and flights of migratory birds to guide them, Polynesians from Pacific islands south of the equator sailed in their large, double-hulled canoes and came to occupy the islands that today are most widely known as the Hawaiian Islands—sometimes also referred to as the Hawaiian Archipelago (Ka Pae ‘Āina). The Polynesians brought with them the totality of their culture: food plants, domesticated animals, tools, cooperative work methods, social structure, language and religious sanctions. Although certain elements of the peoples’ culture were developed in their new homeland and became unique to Hawai‘i, the basic pattern of their lives remained essentially Polynesian.

Those cultural elements that Polynesians residing in Ka Pae ‘Āina reshaped became the basis for their own unique Hawaiian (Kānaka Maoli) culture. The residents of these islands created their own system of irrigated, terraced pondfields where they grew wet-land taro, and they created their own unique seashore ponds where they cultivated herbivorous fish. In places where the land was dry, they planted a forest of breadfruit trees that attracted sufficient moisture to grow a large variety of dry-land crops, including taro.

In the process of creating a new life for themselves, the Kānaka Maoli of Hawai‘i developed a society that was strongly divided along class lines. The most privileged were the chiefs (ali‘i), a distinction based on their claim of being descended from the gods and thus representing the gods in this world. A second relatively small class of privileged persons consisted of the professionals or experts, including the priesthood (kāhuna). The least privileged class was composed of the rest of the people, the “people of the land” (maka‘āinana). Some concentrated their energies on cultivating the soil, while others studied the ways of the sea and provided fish for themselves, their families and neighbors, as well as for the ali‘i and kāhuna.

Archibald Campbell, a sailor who lived in the islands from January 1809 to March 1810 (and apparently had no contact with the kāhuna) wrote in his journal, “They are divided into two great classes: the erees [ali‘i], or chiefs, and the Cannakarnowree [Kānaka Maoli] [Campbell 1967:122]. Kānaka Maoli, or “true people,” is the term used more frequently by Hawaiians today when they are referring to themselves as the indigenous people (first occupants) of these islands. Kānaka Maoli (Tagata Maori, etc.) was the way most Polynesian peoples identified themselves to foreigners in the early years following western contact. Hawaiians were no exception [Campbell 1967:122].

For perhaps nearly 1500 years the Kānaka Maoli resided on these islands before Captain James Cook happened upon them while he sailed his ships from Tahiti to the Northwest Coast of North America. Cook was looking for a passage between the Pacific and the Atlantic that would give the British traders a shorter route to China than the ones around the Horn (South America), or the Cape of Good Hope (Africa). Cook named the islands of the Kānaka Maoli the Sandwich Islands in honor of his sponsor, Lord Sandwich. The people have been called Hawaiians after the name of their largest island, Hawai‘i, which the early visitors wrote as Owhyhee [Campbell 1967:85].

By the time Captain James Cook arrived in the islands in 1778, the Hawaiian people had achieved a population that was estimated by Captain James King, who was here with Cook, to have been around 400,000. Other estimates range from 100,000 to 800,000 and even 1,000,000 [Schmitt 1968; Stannard 1989:45–52]. The existence of massive agricultural and aquacultural sites are compelling arguments to urge an estimate considerably greater than King’s. A large population would explain the necessity of having instituted land divisions on each of the islands.

The islands of Ka Pae ‘Āina, districts and subdistricts

There are eight main islands of Ka Pae ‘Āina: Hawai‘i, Maui, Kaho‘olawe, Lana‘i, Moloka‘i, O‘ahu, Kaua‘i, and Ni‘ihau. The largest is Hawai‘i Island, on which the land of Pu‘uwa‘awa‘a is located. Each island (mokupuni) was divided into districts, providing stability and ready access to all the necessary resources within each district. The districts of the Island of Hawai‘i were known as moku‘āina, or

moku-o-loko, most of which radiated outward from a central point at the top of Mauna Loa on the edge of the crater of Moku'āweoweo.

In Hawaiian times the district of Kona comprised most of the leeward (southwestern) land area of Hawai'i Island. The northern boundary of Kona was north of Pu'uwa'awa'a, between Pu'uanahulu and 'Anaeho'omalu. The southern boundary extended south to the land of Manukā on the border between Kona and Ka'u. Today, the ancient district of Kona is divided for political convenience into North and South Kona with the dividing line between Hōkukano and Kealakekua.

Each district was further divided into subdistricts called ahupua'a. The lands of Pu'uwa'awa'a and Pu'uanahulu are examples of large subdistrict land divisions. The boundaries of these subdivisions, or ahupua'a, extend generally from the mountain to the sea. As one surveyor described the overall system of land divisions and use, "Hawaiian life vibrated from uka, mountain, whence came wood, kapa for clothing, olona for fishline, ti-leaf for wrapping paper, i'e for ratan lashing, wild birds for food, to the kai, sea, whence came i'a, fish, and all connected therewith" [Lyons 1875:111].

The ahupua'a was the basic land unit, most common and most closely related to the religious and economic life of the people. This is a land that is often said to be characterized by its pie-wedge shape. The name, ahupua'a, is derived from ahu, an altar which was erected at the intersection of the land boundary with the main trail around the island, and pua'a, a pig which was represented as an image of a hog's head carved from kukui wood, stained with red ochre, and placed on the altar. At this sacred shrine gifts were deposited by the residents of the ahupua'a on the occasion of the annual progression of Lono, the god of agriculture and annual harvest (akua makahiki). The Makahiki (year, or annual) ceremony was the Hawaiian equivalent of the "first fruits" ceremony so widely distributed throughout the Pacific. The ahupua'a also served as the taxable unit when this ceremony was converted into a modern tax collecting program under Kamehameha I.

PART ONE: THE OLD WAYS

THE BROAD EXPANSE of lava-covered lands north of Kailua, Kona was known generally by the place-name Kekaha, which was often followed by 'āina malo'o, words that describe a dry, sun-baked land. At 2,000 feet elevation, the average annual rainfall of these lands is reported to be approximately 25 to 30 inches, with even less rain falling below 2,000 feet. Lava flows from both Hualālai and Mauna Loa have covered thousands of acres of Kekaha, including many thousands of acres in the ahupua'a (subdistrict land division) of Pu'uwa'awa'a and its neighbors: to the south, Ka'upulehu, and to the north, Pu'uana'hulu.

On the north slope of Hualālai, about ten kilometers from its base, is the fluted cone called Pu'uwa'awa'a. It is over a mile in diameter, with numerous shallow ravines, the result of erosion, radiating from its summit. The word pu'u is used for most hills, mounds, or volcanic cones along the flanks of major volcanoes. The term wa'awa'a is used to describe something such as a pu'u that is furrowed. The ahupua'a takes its name from this volcanic cone.

Typically, an ahupua'a provided its inhabitants with access to the full range of environments offered on an island: ocean, coastal, and inland resources that often extended through the uplands to the top of the mountain. Thus, the ahupua'a provided its inhabitants with land at various elevations that, depending on the availability of surface water or rainfall, could produce kalo (taro), 'uala (sweet potato), 'uhi (yam), ulu (breadfruit) and mai'a (banana). The other main dietary component was seafood: There were always the reef fish i'a (fin fish), and in special places along the shore there are 'opae (shrimp), pupu (shells), 'opihi (limpets) and limu (algae). Some fish, such as 'ōpelu (mackerel scad) or akule (big-eyed scad) were available only seasonally. Schools of these seasonal fish were caught by groups of fishermen in canoes working together with special nets. The larger fish, such as ulua (crevalle, or jack), aku (bonito, or skipjack) and 'ahi (tuna), were usually caught farther out in the deep ocean.

When distances between the seashore and the upland gardens were relatively short, residents of the fishing villages also cultivated crops in the uplands, dividing their time between the two areas and occupations. When distances were great, people tended to concentrate on being either farmers or fishermen. In any case, most families had members in both communities, and a system of gift-giving assured that the residents of each were well provided for. In Pu'uwa'awa'a, the inhabitants of the distant uplands probably traded sweet potatoes to the inhabitants of the fishing villages in exchange for seafood.

Whether the early inhabitants of Pu'uwa'awa'a confined themselves to the coastal or inland areas or occupied both, is unknown today. Few habitation sites would have escaped the lava flows of the 1800s, so it is difficult to say whether this district contained substantial inland communities during the pre-contact period of Hawaiian history. The introduction of sheep, goats, and cattle in the late eighteenth century, as well as the introduction of foreign plants such as lantana and fountain grass, also changed the landscape and destroyed much of the original forest.

Kiholo, a chief's residence

KIHOLO, THE PRIMARY FISHING VILLAGE on the coast of Pu'uawa'awa'a, was once the abode of an important chief, Kamanawa, who was the twin brother of Kame'eiamoku. Both were very powerful chiefs. They were said to be the "uncles" of Kamehameha and were among his strongest supporters. It is the images of these two chiefs that appear on the official shield of the Hawaiian Kingdom.

One source identifies the twin chiefs as the "children of Kekaulike," one of the ruling chiefs of Maui [Kamakau 1961:68]. It is likely that the term "children" refers here to a generational difference between Kekaulike and the twin chiefs, rather than meaning that they were his direct offspring.

In another genealogical report (the better accepted of the two), the father of these twin chiefs is identified as Keawe-poepoe, another very prominent chief, who was also the father of Ke'eaumoku. The mother of the twins was Ka-noena, and the mother of Ke'eaumoku was Ku-ma'ai-ku. Accordingly, the twin chiefs were half brothers of Ke'eaumoku [Kamakau 1961: 309, 310]. Ke'eaumoku was the father of Ka'ahumanu, who became a wife of Kamehameha and was a very powerful woman in her own right. Her mother was Namahana, who was the daughter of Kekaulike, high chief of Maui mentioned above.

It was the custom in Hawai'i during the eighteenth and nineteenth centuries to have young chiefs be adopted (hanai) by and grow up under the protection of an important relative, sometimes even one who lived on another island. Thus the twin chiefs, Kamanawa and Kame'eiamoku, were sent to live with their uncle during their childhood years. This uncle was Kalani'ōpu'u, the high chief of the Island of Hawai'i in 1779, when Captain Cook arrived at Kealahou Bay in Kona, Hawai'i. While living in the court of Kalani'ōpu'u, the young twin chiefs learned their genealogy, cultural traditions (including chants, songs, dances, and ceremonies to honor the gods), cultivation of crops, fishing techniques, and martial arts. Kamehameha was also raised in the court of Kalani'ōpu'u, along with two of the sons of Kalani'ōpu'u, Kiwala-ō and Keōua Kuahu'ula.

Kamanawa is reported to have been living at Kiholo at the time of the death of Kalani'ōpu'u in 1782, and his twin brother, Kame'eiamoku, at Ka'upulehu (originally Ka'ulu-pulehu, the roasted breadfruit), the adjacent ahupua'a to the south of Pu'uwa'awa'a [Kamakau 1961: 118]. A land with a fishpond (loko i'a) was called a "fat" land, 'āina momona [Kamakau 1976: 47]. Of course, the presence of fishponds in both Pu'uwa'awa'a and Pu'uanahulu went a long way toward making Hawaiian chiefs value these otherwise arid lands as places of residence.

Twin chiefs make history

AS SOON AS KALANI'OPU'U DIED and his son, Kiwala-ō, was declared his heir, the Kona chiefs expressed their opposition to Kiwala-ō and to his plan to bring the district of Kona under the domination of the Puna-Ka'u chiefs. The leeward (Kohala-Kona) coast of Hawai'i Island had more favorable harbors for the visits of western-sailing ships than the windward (Hilo-Puna-Ka'u) coast. Because of this, the Kona-Kohala chiefs had greater access to trade items from the foreign ships than the windward chiefs. The Kona chiefs—Kamanawa, Kame'eiamoku, and Ke'eaumoku among them—were opposed to giving up control over these leeward ports, and killed Kamehameha's cousin, Kiwala-ō, at Moku'ōhai. This battle has been called Kamehameha's first battle "for the empire of the group" [Fornander 1969(2): 310]. This put Keōua Kuahu'ula, the half-brother of the deceased Kiwala-ō, next in line.

From 1782 to 1791, the Kona-Kohala chiefs tried many times to conquer Keōua's army and kill him. Finally they devised a plan to send two of his "uncles" as messengers to encourage him to meet Kamehameha and declare peace between them. One of these messengers was Kamanawa, the resident of Kiholo, and the other was Keawe-aheulu, another strong supporter of Kamehameha. Keōua Kuahu'ula, tired of war, agreed to go to Kawaihae with the two emissaries. On the way Keōua and his followers stopped at a special site to perform an unusual and ominous ceremony.

They left Kailua and went as far as Luahinewai at Kekaha, where they landed the canoes. Keoua went to bathe, and after bathing cut off the end of his penis ('omu'o), an act which believers in sorcery call "the death of Uli" and which was considered to be a certain sign that he knew he was about to die [Kamakau 1961: 156].

Keōua's counselors again advised killing the two messengers, Kamanawa and Keawe-aheulu, but Keōua was against it. There were twenty-seven canoes with Keōua and his followers. As the canoes prepared to land at Kawaihae, one of Kamehameha's men shot Keōua. They took his body up to Pu'ukoholā Heiau, which Kamehameha's men had just completed rebuilding as a heiau (temple) dedicated to war. They sacrificed Keōua's body to the war god, Ku-ka-ili-moku (Ku, the island snatcher) [Kamakau 1961: 157–158; Kelly 1974: 7–8].

Unifying control of the Islands

IN THE EARLY HISTORICAL PERIOD at least three of the people who first came to the Hawaiian Islands with Captain James Cook returned within two decades. In 1786, Nathaniel Portlock and George Dixon came to trade for food, fresh water and firewood while on their way to China to sell furs that they had obtained from the Northwest Coast Indians. They were no longer explorers, but “were connected with an English commercial enterprise” [Kuykendall 1939:20]. They obtained a license from the British South Sea Company to trade on the Northwest Coast [Dunmore 1991:80–81, 196–197]. Among those who had accompanied Cook on his third voyage was Captain George Vancouver, who became the third person to return to the islands, making the trip in 1792, 1793, and again in 1794. Vancouver was sent from England into the Pacific to continue the search for that elusive “Northwest Passage,” which, if found, would greatly enhance British trade with China. Vancouver used the Hawaiian Islands to obtain fresh supplies for his ships, and to pass the winter months safely and certainly in greater comfort than would have been possible at Nootka Sound, Vancouver Island. Ever mindful of the needs of the British traders for food for their long voyages, Vancouver made his first attempt to import cattle to Hawai’i in February 1792. On a second try in February 1793, he landed both cattle and sheep.

Kamehameha staid (sic) himself on deck till he saw the ten canoes unloaded which contained about ninety hogs, and when they were all on board, Captain Vancouver presented him with four cows, two ewes and a ram, which were all that remained on the stock we brought from Monterey for these islands. They were immediately sent on shore in the same canoes that brought off the hogs. When landed they ran up and down the country in the wildest manner to the no small dread and terror of the natives, who fled from them with the utmost speed in every direction, which was not at all surprizing, as they were the first animals of the kind they had ever seen prancing about their country in a state so lively and vigorous. For though the bull and cow which were landed in a sickly state a few days before might in some measure have lessened their curiosity, yet they received these with the loudest acclamations of joy, and we sincerely wished that they may in due time increase and multiply so as to prove useful to the natives of these islands as well as to the future navigators that may touch here for refreshments [Menzies 1920:69].

On January 14, 1794, Vancouver again landed some cattle. This time “a bull and two cows, with two bull calves, three rams and three ewes ...” [Menzies 1920:144]. Apparently none of the bulls previously landed had survived, but one cow had borne a calf. This time a ten-year kapu (taboo) was placed on the animals—except for the bulls, should they become too numerous in that period of time. The object was to get them well established before they were slaughtered for the trading ships. On January 15, 1794, during his last visit to the Islands, Vancouver landed a young bull, two cows and two bull calves at Kealakekua Bay. This was the stock that provided the first cattle ranches in Hawai’i.

While Vancouver was in the Islands in 1794, he called a meeting of the important Hawai’i Island chiefs. He met with the Kona-Kohala chiefs and convinced them to devote their energies to unifying the Islands under one chief. This task was not difficult; they had already moved in the direction of gaining control of the whole Island of Hawai’i and needed little encouragement to take on the larger ‘project of gaining control of the entire archipelago.

When the Kona-Kohala chiefs had assembled at Kealakekua, Vancouver noticed that one of the twins, Kame’eiamoku, was absent [Kelly 1967:405–406]. Kame’eiamoku had stayed away because he did not trust Vancouver’s intentions. Kame’eiamoku had been the principal chief involved in capturing the sloop Fair American, and as such was responsible for the deaths of all but one of its crew. Kame’eiamoku did not want to be hanged from a yardarm of Vancouver’s ship, as had happened on O’ahu in 1793 to three Hawaiians who had been accused of killing three crew members from Vancouver’s supply ship, Daedalus, the previous year [Fornander 1969, vol. 2:256–258]. After being assured several times that this would not happen to him, Kame’eiamoku finally did join the chiefs at Kealakekua. He promised Vancouver that he would not capture any more foreign ships, and Vancouver extended to him the forgiveness of the British monarch. After shaking hands and exchanging gifts, Kame’eiamoku participated in the ceremony on Vancouver’s ship [Vancouver 1798(3):35–36; Kelly 1967:406].

Vancouver claimed that this ceremony was an act of cession in which the Hawai'i Island chiefs ceded their island to England. It is so reported by Sir Peter Buck: "On February 25 King Kamehameha formally ceded the Island of Hawaii to Great Britain" [Te Rangi Hiroa 1953:44]. Hawaiians later explained that their intention was to place Hawai'i Island under the protection of the King of England, not to cede their island to him. They needed protection from the western traders, many of whom were British, because some traders were cheating the Hawaiians: a barrel of "gunpowder" given to Hawaiians in trade for food, fresh water, and firewood was mixed with charcoal and was therefore useless; traded rifles exploded on discharge and killed or badly maimed the Hawaiian attempting to use them [Vancouver 1798:29–30]. Vancouver promised protection against such abuses and trained Kamehameha's warriors in the art of gun warfare, which was new to them. He also ordered his carpenters to build a boat large enough to hold the cannon captured by Kame'eiamoku so it could be used by Kamehameha in his efforts to unite the islands under his rule.

Vancouver's motive for all this assistance to the Hawaiian chiefs of Kona was to create a unified and stable government under one high chief. This would end the fighting among chiefs and between islands, all of which was disruptive to the needs of the fur traders. In this way the supplies that the traders wanted from the Islanders would be more easily and quickly obtained, and the prices would be uniform and controlled by a single high chief or his agents [Kelly 1969:406–408]. The traders' main objective during this period was to get their cargo of furs to China as quickly as possible, stopping only very briefly in the Islands to obtain fresh food, water, and firewood.

The chiefs assembled in 1794 by Vancouver at Kealakekua Bay agreed to support Kamehameha. Vancouver agreed to travel to each island and encourage its chiefs to support Kamehameha as the new high chief over all the islands. In this objective Vancouver's efforts were not successful [Kamakau 1961:165].

The lives of the twin chiefs of Kekaha, Kamanawa of Kiholo, and Kame'eiamoku of Ka'upulehu, are closely bound with the history of the Hawaiian Islands during the period of the rise of Kamehameha I, as the ali'i nui (high chief) of the Islands. Presumably, whoever had control over the leeward ports of the Island of Hawai'i would play an important part in the history of the Islands during this early historical period. As it was, that role fell to Kamehameha, Kamanawa, Kame'eiamoku, Ke'eaumoku, and a few others who were anxious to further their own interests.

Fishponds of Kekaha

IN MANY PLACES along the lava-covered coastline of this 'āina malo'o, fresh water seeps into the ocean from under the lava flows. Where a sand berm slows the seaward flow of the fresh water, it often pools behind the sand dunes. As the ocean level rises and falls with the tides, the fresh and salt waters mix. After filtering through porous lava and sand, the water from these two sources create brackish ponds (pu'uone). Such ponds provide prime environments for growing the types of limu (algae) on which live the diatoms that nourish herbivorous fish. It was in these naturally occurring ponds in the low-lying coastal areas that Hawaiians often raised their favorite herbivorous fish: 'ama'ama (mullet) and awa (milkfish). Kamakau remarks that these pu'uone (sand dune ponds) were "much desired by farmers," and ponds that were well taken care of provided much fish for the farmers, and, incidentally, for the fishermen when inclement weather prevented them from fishing in canoes off shore [Kamakau 1976:4950].

Where it was feasible, sometimes in small embayments, and other times directly on the coastal reefs, Hawaiians built walled ponds (loko kuapā). By building a stone wall, either in a large semicircle—from the land out onto the reef and, circling around, back again to the land—or to connect the headlands of a bay, they enclosed portions of the coastal waters, often covering many acres. These ponds provided sanctuaries for many types of herbivorous fish. One or more sluice gates (mākāhā) built into the wall of a pond allowed clean, nutritious ocean water and very young fish to enter the pond. This was the type of fishpond that was reported to have been built at Kiholo by early visitors to the area.

Perhaps the natural ponds (pu'uone) were sufficient for places with relatively small populations, but as the population throughout the Islands grew, problems of providing sufficient food undoubtedly would

have increased. Building a wall across an embayment was a great undertaking. It would have been engineered by those who had studied the site for many seasons to determine exactly where a wall should be built, and how high and wide it should be. Extensive planning and organization was then required to locate and transport stones to the site. Actual building of the wall would take a massive amount of labor, called together by chiefs with the power to make such demands on the people. From all accounts, the fishpond at Kiholo was a successful engineering project, as described by several witnesses who observed its impressive, massive structure.

Fishponds provided abundant food

THE QUESTION MIGHT BE ASKED: when there are so many fish occurring naturally in the ocean and on the reef along the shoreline, why did Hawaiians expend all that energy to build ponds with stone walls and sluice gates, and then take even more time to manage them properly? There had to have been some compensation.

A study done in the 1940s by Robert W. Hiatt on the subjects of food chains and food cycles in Hawaiian fishponds reveals the most probable reason why Hawaiians built and managed fishponds: They were more productive than the natural habitat of coastal reef. The fish selected for the ponds were herbivores, usually mullet ('ama'ama) and milkfish (awa); however, many other herbivores also came into and thrived in the Hawaiian fishponds. Thus, a fishpond is essentially a pasture, in which algae (limu) is raised as food for the selected herbivores. The more nutritious and plentiful are the various algae cultivated in the pond, the more herbivores can feed on them [Hiatt 1947]. Cultivation of algae depends on managing the environment of the pond, including fresh water/salt water balance, adequate sunshine for algae growth and seasonal cleaning to allow a fresh growth of algae.

Hiatt estimated that the Hawaiian fishpond is one hundred times more efficient in the production of protein for human consumption than is the natural food chain. Using MacGinitie's ratio of 10:1 in the conversion of one link by another, we find that the natural food chain requires 10,000 lbs. of algae to produce 1,000 lbs. of shrimp and other small marine animals, which are consumed by small carnivorous fish, producing 100 lbs. of small carnivorous fish which, when eaten by large carnivorous fish, provide 10 lbs. of large carnivores which, when consumed by humans, produce 1 lb. of human flesh [Mac Ginitie 1935; 1949; Hiatt 1947:278, 256–260; cited in Kelly 1989:83–86].

In the herbivore food chain, 10,000 lbs. of algae, diatoms, vegetable debris and detritus produces 1,000 lbs. of mullet or milkfish, which in turn, when consumed by humans, produces 100 lbs. of human flesh. Enclosing a portion of a reef with a stone wall allows the fish farmer to enhance the environment of the walled, isolated area and produce more algae (diatoms, detritus, and other minute algae) than would occur in the natural reef, much in the way a cattle farmer cultivates pastures for cattle. Thus the pond can produce more fish per acre than the natural reef. In addition, the pond walls provide a degree of protection for the herbivores, as long as the caretakers of the pond are vigilant and remove the few carnivores that manage to get into a pond and become a problem [see Appendix A].

Kamehameha is said to have ordered the rebuilding of Kiholo pond while he was at Kawaihae, preparing his Pelelu fleet to attack O'ahu. If this is true, then the chief who originally was responsible for ordering Kiholo Pond to be built was not Kamehameha, and we do not know who this early chief was. As Kamakau states, "the majority of their [fishpond] builders is not known" [Kamakau 1961:47–48]. An educated guess would probably place the chief responsible for the Pond back in the time of Umi-a-Liloa (whose suggested dates range from the late fifteenth century to the early part of the seventeenth, depending on the number of years one allows for a generation [Kelly 1989:98]).

Kiholo and other ponds (Pā'aiea, for example) would have supplied food for Kamehameha's warriors when they sailed off in the great canoe fleet to conquer the chiefs on the Islands of Maui, Moloka'i and O'ahu in 1794 and 1795. We already have been told that Kamanawa was living at Kiholo long before Kamehameha took over. One would suspect some kind of a pond was in existence at Kiholo at that

time, perhaps not one as large as the one that was destroyed in the lava flow of 1859, but certainly it must have been a pond of some consequence to have induced a chief of Kamanawa's stature to reside there.

Still another source identifies 1810 as the year the pond was rebuilt (again?) with John Young as the overseer. One note mentions that John Young, Jr. (Keoni Ana?) was born at Kiholo while his father was seeing to the rebuilding of Kiholo Pond [Ka Hae Hawai'i, Nov. 1859]. In this case, reconstruction was taking place in preparation for Kamehameha's return to Hawai'i Island from O'ahu.

With the great pond of Pā'aiea destroyed by that time, Kamehameha may have felt he needed another large pond to provide for himself and all his counselors and supports who undoubtedly would move to Hawai'i Island with him.

Descriptions of Kiholo fishpond

REV. WILLIAM ELLIS'S ACCOUNT of his trip in 1824 from Kawaihae to Kailua in a canoe furnished by John Young mentions the coastal villages of Kapalaoa, Wainānāli'i, and Kiholo. He left Kawaihae about 6AM and proceeded down the coastline.

About nine a.m. I stopped at Kaparaoa [Kapalaoa], a small village on the beach, containing twenty-two houses, where I found the people preparing their food for the ensuing day, on which they said the governor had sent word for them to do no work, neither cook any food. When the people were collected, I addressed them ... again embarked on board my canoe, and sailed to Wainanari'i [Wainānāli'i], where I landed, repaired to the house of Waipo, the chief, who, as soon as the object of my visit was known, directed the people to assemble at his house.

At Kaparaoa I saw a number of curiously carved wooden idols, which formerly belonged to the adjacent temple. I asked the natives if they would part with any? They said, Yes; and I should have purchased one, but had no means of conveying it away, for it was an unwieldy log of heavy wood, twelve or fourteen feet long, curiously carved, in rude and frightful imitation of the human figure.

* * * * *

About four in the afternoon I landed at Kihoro, a straggling village, inhabited principally by fishermen. A number of people collected, to whom I addressed a short discourse

This village exhibits another monument of the genius of Tamehameha. A small bay, perhaps half a mile across, runs inland for a considerable distance. From one side to the other of this bay, Tamehameha built a strong stone wall, six feet high in some places, and twenty feet wide, by which he had an excellent fish-pond that is not less than two miles in circumference.

There were several arches in the wall, which were guarded by strong stakes driven into the ground so far apart as to admit the water of the sea; yet sufficiently close to prevent the fish from escaping. It was well stocked with fish, and water-fowl were seen swimming on its surface.

Just before sunset, I left Kihora [Kiholo]. The men paddled the canoe past Laemano [Ka Lae Mano, or Shark's-point], a stretch of land formed by the last eruption of the great crater on Mouna-Huararai [Mount Hualalai], which took place twenty years ago [1801-1802].

Between seven and eight in the evening, we reached Kaupulehu [Ka'ūpulehu], where the men drew the canoe on the beach, and as the inhabitants were all buried in sleep, laid down to repose on the sand till the moon should rise. About eleven p.m. I awoke my companions, and the moon having

risen, they launched the canoe, and after paddling hard several hours, reached Kairua [Kailua] [Ellis, 1963:294–296].

It seems readily clear that the fishpond at Kiholo was large and would have served well the needs of Kamehameha's army. Rev. Lor-enzo Lyons visited Kiholo village in 1843, and commented that the fishpond was "... one of the artificial wonders of Hawaii; an immense work! A prodigious wall runs through a por-tion of the ocean, a channel for the water, etc. Half of Hawaii worked on it in the days of Kamehameha" [Doyle, 1953:136–137].

The 1827 edition of Ellis' book provides a map of Hawai'i Island taken from Vancou-ver's survey in 1794. In the portion illustrating the South Kohala-North Kona coast-line, Ellis provides ten place-names that he collected, or confirmed, while on his 1823 journey between Kawaihae Bay and Kailua Bay.

Ellis's map indicates the location of the village of Wainānāli'i between Kapalaoa and Kiholo. This is particularly interesting, be-cause in her Kona Legends, Eliza Maguire places Kamehameha's fishpond at Kiholo and associates it with the name Wainānāli'i, although there was previously no such associ-ation made by Ellis or anyone else [Maguire, 1926:45]. In fact, Ellis described Wainānāli'i as a completely separate place between Kapa-laoa and Kiholo. The error is repeated in an archaeological report which misidentifies the place-name, Wainānāli'i, as the Kiholo Pond, and locates it on a map at the site of Wai'e-lepe.

Kiholo, besides being a place-name, was also the name of Kamehameha's fishpond. The Hawaiian word, when translated, is the name of a type of fishhook. According to the Andrews-Parker Dictionary of the Hawaiian Language, Kiholo, besides being the name of Kamehameha's large fishpond, was also "[a] large hook, formerly made of wood, used to catch the shark and other large fish" [Andrews-Parker 1922:287].

It may have been selected as a word descriptive of the coastline along that part of the island where the east-west coast meets the north-south coast and forms a bend similar to the angle between the point and the shank of a large fishhook. There is no confirmation for this theory, except for our knowledge that Hawaiian place-names have a strong tendency to be descriptive.

Pele threatens Kiholo in 1801–1802

THE LAVA FLOW FROM HUALALAI in 1801–1802 came down into Ka'upulehu and threatened to roll downhill to the big fishpond of Kiholo. Instead, it went southward and filled the great pond of Pā'aiea that stretched from Makalawena to Keahole [see Appendix B]. Of this 1801–1802 Hualalai lava flow historian Samuel Kamakau said:

Another important event which occurred in the fourth year of Kamehameha's rule was the lava flow which started at Hu'ehu'e in North Kona and flowed to Mahai'ula, Ka'upulehua, and Kiholo. The people believed that this earth-consuming flame came because of Pele's desire for awa fish from the fish ponds of Kiholo and Ka'upulehu and aku fish from Ka'elehuluhulu; or because of her jealousy of Kamehameha's assuming wealth and honor for himself and giving her only those things which were worthless; or because of his refusing her the tabu breadfruit of Kameha'ikana which grew in the uplands of Hu'ehu'e where the flow started [Kamakau 1961:184–185].

Pele stopped short of Kiholo, and the large pond there was preserved for the time being.

Lava flows in the 1850s destroy Kiholo Fishpond

THE 1850s SAW SEVERAL OUTBREAKS OF LAVA from Mauna Loa: in August 1851; in February 1852, when it came within a few hundred yards of Hilo; in August 1855, when it flowed for 16 months; and

in January 1859, when it started up again. Although it began at an elevation of 10,500 feet, the 1859 flow took only eight days to reach the sea, traveling "more than thirty-three miles in a direct line from its source" [Bryan 1915:158]. The lava continued to flow for about six months at an estimated speed of four to ten miles per hour, destroying the village of Wainānāli'i and with it, Kiholo Fishpond [Green, W. L. 1859, as reported in Wright and Takahashi 1989:98]. Viewing the racing stream of lava, particularly at night, was great entertainment for the many people who came from all over the Island and the other islands as well. Just eastward of the present mākāhā, the path leading in a northerly direction takes one up on the 1859 pahoehoe lava flow. In addition to filling in the great Kiholo Fishpond, the lava created a new coastline for that area. An interesting account of the 1859 flow is given by a resident of Puapua, North Kona, in the Hawaiian language newspaper, Ka Hae Hawaii, in November of the same year. Excerpts from the report on Kiholo are as follows:

The flow began to go seaward in the month of February of this year, from the northwest side of Mauna Loa ... it turned south to Wailoa, and continued on to the deep sea, smooth lava (pahoehoe) extending into it to about forty chains or more in length. This new point [of land] has been named Lae-Hou. The flow turned on the south side of Wailoa and went to Kiholo where it covered the pond. Then it turned to the west, where a new point is burning now. Lae-Hou is a long point, but this one is shorter. The lava has not finished building it, but it is now in the depths of the sea. I think it is about forty or more fathoms deep where it is burning, and from there it is about fifty fathoms to shore. In the year 1810, the Kiholo pond had been built, or rebuilt, during the reign of Kamehameha I. It was a fish pond in which many kinds of deep sea fish were kept and in this year, in the reign of Kamehameha IV, Kiholo is closed by the lava. It is now only a heap of rocks.

There is another thing. The Protestant church that stood at Kiholo was removed when the lava flow drew near. The people thought that it would be burned down so they razed it and took the lumber away lest it be destroyed. But when the lava flow came, it went around the site leaving it untouched. There is a circle of lava rocks surrounding it and the spot where the church stood remains there like a grave. I believe that if the church had not been razed, it would not have been destroyed anyway [J. H. Kaakua 10/25/1859; translated for the Public Archives by Mary Kawena Pukui].

Water is scarce in Kekaha

THE LAVA-COVERED LAND OF KEKAHA does not produce easily accessible sources of potable water. In places where there are springs, informants indicate that such places were kept secret by those who knew about them [Handy & Handy 1972:66]. In an interview for this report, Kiholo kama'āina Nel-son Ha'o stated that a person by the name of Kauai, a resident of Kiholo in the mid-1800s, sold water. This seems to confirm the assumption that fresh water was scarce in Pu'uwa'awa'a.

John Elemakule wrote an article that was published in a Hawaiian newspaper in which he describes the "waterless land" of Kekaha [Elemakuli, Hoku o Hawaii, Sept. 2, 1929]. He reports that Hawaiians living there obtained their drinking water from the numerous caves found in the lava flows. The following passage explains how people used to obtain water and the rituals they practiced in association with recovering water from inside the caves:

To catch water dripping from the ceiling of a cave the people made troughs of 'ohi'a, koa and kukui wood, dubbing them out to a depth of from three to six feet, as though for a canoe hull. Gourd containers and wooden calabashes were also used to catch drops from the ceiling of the cave. The interiors of these caves were dark, so the Hawaiians used torches made of kukui nuts when collecting their water vessels. As troughs and other containers filled, water was dipped out slowly with a small coconut shell cup and poured into a gourd bottle, or a ti leaf folded back on itself. The water was dipped carefully, so as not to put sediment into the water bottle.

These caves were sacred to Kane, and each was believed to have its guardian spirit. It was believed also that if menstruating women entered the cave, the water would dry up. The evil influence of these

women had to be exorcised; a kahuna (priest) would be summoned. An offering was made of a small black pig, a white fish (an aholehole), some young taro tops, and a small whole 'awa were cooked in a ground oven, removed, and allowed to cool until evening. The kahuna then took the foods and 'awa to the entrance of the cave, and prayed:

O Kane of the upland. Kane of the lowland.
O Kane of the waters, here is pork.
Here is 'awa, here are the taro leaves.
Here is the white fish.
They are offerings of the upland and of the sea,
Offerings to you, O Kane.
Pardon the fault committed by a human being,
And cleanse the house of the eater.
Grant more water in the house,
That man may live to inhabit this waterless place.
Amama.

The offerings were then wrapped in ti leaves and laid within the entrance to the cave. The kahuna "set up three bamboos put together as one" a sign (called puloulou) that the cave was kapu, and grass was piled around this to form a soft heap. The kapu, which forbade anyone to enter the cave, continued for ten days, after which the puloulou was removed, and the people went in and found the water again flowing [Handy & Handy 1972:66–67].

Wai-o-Keanalele

THERE IS A SERIES OF CAVES in Pu'uwa'awa'a that was formed from lava tubes. The ceilings of lava tubes often collapsed in some places and were left intact in others, forming caves with relatively easy access through the collapsed areas. Such caves were used for shelters by Hawaiians, perhaps during the summer months when they came to gather salt or to fish. The place-name, Ke-ana-lele (the discontinuous cave), is descriptive of caves found just inland of the coast in the ahupua'a of Pu'uwa'awa'a between Kiholo and Luahinewai. Some of them contain fresh or brackish water, particularly those located toward the makai (seaward) end of the cave series. Caves that contained water were precious to the inhabitants of the area, even if the water in them was slightly brackish. Handy and Handy describe the conditions of life by the sea: "Fishermen and their families living around bays and the beaches, or at isolated localities along the coast where fishing was practicable, led a life that was materially simpler than that of planters who dwelt on the plains. Their life was less diversified" [1972:286].

Many areas along the shoreline were not suitable for cultivation, particularly those covered with heavy lava flows and sunbaked with strong winds and sparse rain. Kiholo, however, was a place where fishermen and their families did plant sweet potatoes, at least seasonally. At the proper time, probably just before seasonal rains were expected, whatever soil was available was piled in heaps and nourished with leaves and other vegetable matter. Several pieces of 'uala (sweet potato) were planted in each heap. Planting at the beginning of the winter rains got the sweet potatoes off to a good start. In dry areas such as Pu'uwa'awa'a, a farmer would tend the plants carefully, being sure to gather the vines closely around the mound as they grew. In some areas along the coast it is believed that Hawaiians cultivated plants in small recesses within a lava flow. One of these areas was at Ka'upulehu, the adjoining ahupua'a to the south of Pu'uwa'awa'a. An example of this type of cultivation was observed in 1823 by the missionaries on a walking tour just north of Kailua Town:

They [the missionaries] enjoyed a fine view of the town and adjacent country. The houses, which are neat, are generally built on the sea-shore, shaded with cocoa-nut trees, which greatly enliven the scene.

The environs were cultivated to a considerable extent; small gardens were seen among the barren rocks on which the houses are built, wherever soil could be found sufficient to nourish the sweet

potato, the watermelon, or even a few plants of tobacco, and in many places these seemed to be growing literally in the fragments of lava, collected in small heaps around their roots [Ellis 1963:31].

Pu'uwa'awa'a, the King's Land

WITH MORE THAN 40,000 ACRES, the ahupua'a Pu'uwa'awa'a is listed in the Mahele Book of 1848 as having been selected by Kamehameha III as one of his private lands [Indices of Awards ... 1929:26]. Pu'uanahulu ahupua'a, the 3,000 acres to the north of Pu'uwa'awa'a, became government land at the time of the Mahele; and Ka'upulehu, the 23,545 acres to the south of Pu'uwa'awa'a, was awarded to Lot Kamehameha* [Indices of Awards ... 1929:36; 475]. No kuleana awards (small farmers' land awards) are listed in any of these three large lands. In order to receive a kuleana award, a farmer had to have been cultivating the land for at least two years prior to registering his claim. Such a restriction probably would have discouraged any fishermen from making claims. Even if a fisherman had registered a claim, the requirements of the Kuleana Act of 1850 probably would have prevented him from being given an award of land.

Lands such as Pu'uwa'awa'a that were set aside for King Kamehameha III in the Mahele of 1848 were originally his private property and were called the King's Lands. Changes were made by the legislature which, in a sense, confiscated the remaining King's Lands, renamed them the Crown Lands and placed them under the control of an appointed Commissioner of Crown Lands. Such lands could be leased but not sold, and a 35-year maximum limit was placed on the length of all Crown Lands leases. In addition, the Crown Lands Act authorized the government to pay all outstanding mortgages on the King's Lands—which the legislature accomplished by floating bonds. The impetus for this change in the legal status of the King's Lands was said to have been the fact that Lot Kamehameha, who held the throne in 1865 as Kamehameha V, had no direct heir. Thus, funds might be needed to provide a source of income for persons elected to occupy the throne who had no private fortune.

The sugar industry, however, was growing rapidly between 1854 (the year Kamehameha III died) and 1865, when the legislature passed the Crown Lands Act. It seemed plausible that commercial interests would gain by having the King's Lands declared quasi-public, thus placing them under the control of appointed commissioners. These lands then became available for lease in large acreages such as sugarcane plantations and ranchers could readily use.

In 1893, when the Dole government overthrew the Kingdom of Hawai'i, it got control of the Crown Lands as well as the lands of the Hawaiian government, calling them Public Lands. In 1898, the Dole government, now the Republic of Hawaii, ceded the so-called "Public Lands" to the U.S. in exchange for annexation. Today these lands are being identified by Hawaiian sovereignty groups as "stolen lands" that must be returned to the Hawaiian people.

The Hind Family at Pu'uwa'awa'a

THE HISTORY OF THE ORIGINAL ROBERT R. HIND, the first Hind to arrive in the Islands, indicates that he was at one time a machinist apprentice in Jarrow, Durham County, England. He left the "old country" as so many did, expecting to relocate in Vancouver, B.C., but before long he moved on to the "Sandwich Islands" and sent back to England for his wife and son, John Jr. (who was named after his paternal grandfather). In the mid-1860s Robert Hind located on Maui, and went into partnership with William Weight, whom he had known back in Durham County. There on Maui, Hind and Weight set themselves up in a business that served the needs of the fledgling sugar industry. Apparently, Hind's mechanical skills were more in demand than Weight's carpentry, for Weight soon sold his interest to Hind. Apparently, also, Hind saw no future working for the sugar plantations on Maui, and subsequently moved to Hawai'i Island to establish a ranch and plantation of his own at Waimea and North Kohala.

In the 1880–1881 Directory for the Hawaiian Islands [Bowser 1880], Robert R. Hind is listed as a sugar mill proprietor (Hāwi Sugar Mill) and sugar planter residing at Honoipu Road, Ka'auhuhu, North

Kohala. R. R. Hind rented 55 acres and cultivated 50 acres, presumably in sugarcane, according to the article [Bowser 1880:209–210, 337]. In the same volume, John Hind is listed as being the manager of Hāwi Sugar Mill, Honoipu Road; and Robert R. Hind is the engineer for the Hāwi Sugar Mill [Bowser 1880:209]. In a summary about Hāwi Sugar Mill, Bowser wrote that Robert R. Hind was the proprietor and that the agent in Honolulu was Theo. H. Davies. The mill's capacity was seven tons, it employed thirty-four people and had, according to Bowser, "all modern improvements" [Ibid.:419].

It was considerably later when Robert Hind, Jr. picked up his first Pu'uwa'awa'a lease (General Lease No. 186; March 1, 1894) covering 40,000 acres for 25 years, and established a ranch there in partnership with Eben P. Low.

In the "List of lands known as 'Crown lands'" in the report of the Governor of the Territory of Hawaii to the Secretary of the U. S. Department of Interior in 1901, there are only six ahupua'a listed as Crown Lands located in Kona, Hawai'i, and only two of those six lands are listed as having been leased out to others. One was Honomalino (6,000 acres), leased on January 1, 1889 with an annual rental of \$405.00, to expire in January 1904. The Honomalino land was valued for grazing and growing coffee.

The only other Crown Land listed as having been leased out at that time was Pu'uwa'awa'a (40,000 acres). The lease (No. 186) was signed and carried with it an annual rental of \$1,210.00, according to the records in the Hawaii State Archives. The lease was due to expire in August 1918. Under "Remarks" are noted some characteristics of the Pu'uwa'awa'a Crown Land: "Grazing land, rocky, and no running water." Its "estimated value" was listed as \$25,000.

When the report was made in 1901, leases of government lands included Pu'uannahulu, the second largest government-owned ahupua'a on the Island of Hawai'i with 83,000 acres. The lease ran from June 1, 1898, through June 1919, for an annual rental of \$150. Another 852 acres "taken for settlement purposes" were valued at an estimated \$10,000. Remarks: "Dry, barren grazing land?" The Pu'uwa'awa'a lease included a requirement that within three years, lessees would erect "substantial improvements of a permanent character to the value of Three Thousand (3,000.) Dollars, and the same to keep and maintain in good repair during the full term hereof." While it was not permitted to cut down any "timber trees" the lessees were allowed to "take such timber and other trees for their own use as firewood, or for mechanical, fencing, or building purposes to be used only on the demised premises?" The document was signed before a notary public on March 9, 1894, by the Commissioners of Crown Lands: James A. King, William O. Smith, and Curtis P. Iaukea. Robert Hind, Jr. and Eben P. Low, the lessees, both signed.

By July 1894 (only four months after they had signed the lease), Low and Hind, Jr. wrote to the Commissioner of Crown Lands asking that the lease rental be reduced from \$750. to \$500. per annum. There is no mention of the fact that the original lease rental was \$1210. per annum, half of which was to be paid by the fifteenth of February and the remaining half by the fifteenth of August each year. Attached to the letter from Low and Hind, Jr. is a statement signed by thirty-three persons, including a J. S. Low, James M. Hind and Jno. Hind, detailing all the reasons why the land of Pu'uwa'awa'a could not support ranching if the cost were any more than \$500. per annum, and if the improvements required by the lease had to be fulfilled.

One of the big problems with the lease requirements for the lessees was the requirement that called for clearing the land of lantana, which was fast encroaching on the forest land. The lack of water and the sparse rainfall were also serious problems, as was the required construction of tanks and a cistern for storage of water. In addition, they complained, roads were lacking and distances to be traveled were great. The document describes the distances they had to travel with cattle as one of the drawbacks of ranching on the land of Pu'uwa'awa'a. For example, driving cattle from Pu'uwa'awa'a to Kawaike (Kawaihae?) in preparation for shipping them out was a distance of 21 miles, and took thirteen hours.

Also, the report complains that out of a total of 40,000 acres awarded to the lessees, only 9,000 were good for grazing cattle. The document labels 10,000 acres "good only for 6 mos. in the year or when it rains." The season when rain is most plentiful is from October to March. From March to May there is little rain, and between May and October the climate is very dry.

Only about 1,000 acres are identified as "very rich soil suitable for Cultivation." Judging from these documents, it appears that Hind and Low had about 1,000 head of cattle along with 135 horses and 7 mules. Presumably by arrangement with Hind and Low, other people were grazing their cattle and horses on Pu'uwa'awa'a land.

Spencer had about 400 head of cattle and horses, and "Natives" grazed 150 of the same, the report stated.

With regard to the lease requirement of building construction, the ranchers complained that they would have to pay freight on anything shipped to Kiholo. The cost was five dollars per ton on the steamship to Kawaihae, and another five dollars per ton from Kawaihae to Kiholo on the "sloop." The document also stated that the ranch would then have to pack lumber from "Kiholo to P'waa hill, a distance of nine miles by road, by pack mules and horses." The estimated cost of ordinary merchandise, such as rice or flour at a rate of one-half cent per pound would cost ten dollars. The estimated cost of packing the lumber up to the ranch was an additional fifteen dollars. The document pointed out that all these costs do not include the cost of Low's "personal overseeing."

Also, the report mentions that the lessees intended to "put in a large area under coffee ...", but could not because the rent was too "heavy" and they would "have to lay out money besides rent and then wait for 3 years to get any return." Whether they ever did plant coffee is not revealed in these records.

Eben Low was listed in Bowser [1880:233] as a sugar planter and proprietor of Hilea Sugar Plantation and Sugar Mill Company. Hilea, Honu'apo. Hilea and Honu'apo are located in the District of Ka'u. In another entry, Hilea Sugar Plantation is said to have owned 5,000 acres of land at Honu'apo. In still another entry, Hilea Plantation and Sugar Mill Company is said to rent 20,000 acres and have 500 acres under cultivation [Bowser 1880:337].

A Mrs. Low is described by Bowser [1880:233, 344] as a landowner in Waimea on the Kohala Road at Pu'uhue, North Kohala, with 600 acres of leased land.

Eben "Rawhide Ben" Low was known as "one of the better artists with a rope, horse and steer" [Breenan 1978:77]. Low had lost his left hand in a roping accident, but "managed to excel at roping despite his handicap of the one missing hand" [Ibid].

The Land Act of 1895

IN 1895 THE LEADERS OF THE DOLE GOVERNMENT (Republic of Hawaii) were anxious to bring in non-Asian homesteaders who would be willing to become farmers and make their homes in Hawai'i. They were anxious to attract the American yeoman farmer, whose presence would increase the non-Hawaiian and non-Asian population, and who would at the same time be successful commercial farmers or ranchers. Large tracts of Hawaiian Government land were set aside for homesteading under the Land Act of 1895. Already there had been several attempts along these lines, such as the "Homestead Act of 1884, with amendments in 1888, 1890 and 1892. Some 527 claims, covering 8,491 acres of land, were completely or partially patented between 1884 and 1895, and an additional 3,553 acres were taken up under special conditions as to improvements and cultivation without residence" [Lind 1938:85].

From time to time, some of the government land ended up on the auction block and was sold to the highest bidder under the liberal provisions of the Republic of Hawai'i's Land Act of 1895. This act permitted large tracts of government land to be diverted for other than bona fide settlement and small

scale cultivation purposes; in 1911 the governor of the Territory asserted that a large portion of the 90,000 acres of public land that had passed through homestead form since 1895 "might as well have been cast into the ocean, as far as real homesteading is concerned." Most homestead land was being used for

sugarcane cultivation: 62 percent of all the products from homesteaded lands were sugarcane and pineapples [Lind 1938:85–86]. How much homestead land was actually taken over by large ranches is not known.

When Hawai'i was annexed as a Territory of the United States in 1898, all land controlled by the Republic of Hawaii at that time was ceded to the United States. This included all of the remaining Crown Lands, as well as all of the remaining Hawaiian Government Lands. At the time that the Republic was declared, these lands were taken away from the Hawaiian government by the Dole Republic, consolidated and renamed "Public Lands." The laws of the Republic that governed the ownership and use of land were automatically accepted as laws of the Territory of Hawaii.

Under the liberal conditions of the 1895 Land Act, Robert Hind purchased certain parcels of land in the ahupua'a of

Pu'uwa'awa'a as early as 1904, and subsequently in 1910, 1914, and 1915. Other parcels of land along the coast were purchased later. (See Appendix C.)

In 1903, Robert Hind purchased Mr. Low's interest in the ranch and assumed full management of the property, resigning his position with the Hāwi Mill & Plantation Co., Ltd. Hind became a territorial senator in 1916, holding the office for nearly twenty years [Hammatt, Borthwick, Shideler 1989:12]. In 1918 Hind started Kapahulu Dairy, and in 1924, the Hind-Clarke Dairy, both located on O'ahu [Ibid.]. 'Aina Haina, a suburb of Honolulu, means "Hind's Land" which was where the Hind-Clarke Dairy was located [Day 1984:52].

By 1917, and from time to time after that date, Senator Robert Hind leased land in both Pu'uana'hulu and Pu'uwa'awa'a. The lease to Hind of homestead land amounted to 74,000 acres (Lease No.971) and 12,000 acres (Lease No. 1038) in Pu'uana'hulu for \$1001 and \$501 per annum, respectively. For the Pu'uana'hulu lands Hind paid less than two cents per acre. By 1919, it was noted that most of the homestead lands acquired by Pu'uwa'awa'a Ranch were used to grow corn for the cattle. Also, by the 1920s, Hind had over two thousand head of cattle at Pu'uwa'awa'a [Builders of Hawaii 1925:513].

Senator Robert Hind's son, Robert Leighton, Sr., became involved in the management of Pu'uwa'awa'a Ranch in 1914. He also managed Puakea Ranch from 1928 to 1932 [Men & Women of Hawaii 1954:213]. Robert Leighton, Jr. held the position of foreman at Pu'uwa'awa'a Ranch 1944 to 1950 [Ibid.]. The Hinds sold the Ranch with its accompanying government leases to the Dillingham Ranch Ltd. in 1958. Between 1958 and 1972, both Donn Carlsmith and his father, Carl Wendell Carlsmith, were shareholders in Pu'uwa'awa'a Ranch and both held property in the ahupua'a, including an interest in the property now owned by Earl Bakken. After the Dillingham family took over, the caretakers were the Carlsmiths. It was Carl Wendell Carlsmith who put the signs on the paddocks in Pu'uwa'awa'a Ranch [as stated to the author in a personal communication from Donn Carlsmith, 11/27/91]. In 1972, Newell Bohnett bought out Dillingham and is currently the lessee of these lands. It was under Mr. Bohnett's tenure that a well was constructed, replacing the catchment systems that had previously been used to water the cattle.

Salt making

ONE OF THE BEST WAYS HAWAIIANS HAD of preserving fish that could not be consumed immediately was to salt and dry them. Salt was made by pouring sea water into shallow pans carved out of lava or sedimentary rock found along the shoreline. Exposed to the sun, the ocean water would evaporate and leave a residue of salt, which would then be collected in baskets and stored until needed.

Captain Cook remarked on the ready availability of salt in Hawai'i, as well as its excellent quality. When Cook came to the Islands he purchased hundreds of hogs and had them salted with Hawaiian salt and the meat placed in kegs as food for his crew. He made the important discovery that giving the crew members a daily ration of salt pork prevented scurvy.

Hawaiian historian David Malo provides a brief description of Hawaiian salt making: "Salt was one of the necessaries and was a condiment used with fish and meat, also as a relish with fresh food. Salt was manufactured only in certain places. The women brought sea water in calabashes or conducted it in ditches to natural holes, hollows, and shallow ponds (kaheka) on the sea coast, where it soon became strong brine from evaporation. Thence it was transferred to another hollow, or shallow vat, where crystallization into salt was completed" [Malo 1951:123].

By the late eighteenth century, Hawaiian salt was being used by the fur traders to properly cure the furs they had obtained from the Native American Indians on the northwest coast of North America. At the same time, the hides of Island cattle were being cured with salt, and the salted and dried meat—jerked beef—provided western traders with food for their long voyages.

Others remarked on the excellent salt made by Hawaiians:

Amongst their arts, we must not forget that of making salt, with which we were amply supplied, during our stay at these Islands, and which was perfectly good of its kind. Their salt-pans are made of earth, lined with clay; being generally six or eight feet square, and about eight inches deep. They are raised upon a bank of stones near the high-water mark, from whence the salt water is conducted to the foot of them, in small trenches, out of which they are filled and the sun quickly performs the necessary process of evaporation. The salt we procured at Kauai and Niihau, on our first visit, was of a brown and dirty sort; but that which we afterward got in Kealakekua Bay, was white, and of most excellent quality, and in great abundance [Thrum 1923: 113, quoting Cook's journal].

It should be noted here that Kaua'i salt is known for its faintly reddish color because it was mixed with 'alaea, an ocherous earth said to have medicinal qualities.

In 1823 Rev. William Ellis observed salt-making at Kawaihae while on a tour with the American missionaries:

The natives of this district manufacture large quantities of salt, by evaporating sea water. We saw a number of their pans, in the disposition of which they display great ingenuity. They have generally one large pond near the sea, into which the water flows by a channel cut through the rocks, or is carried thither by the natives in large calabashes. After remaining there some time, it is conducted into a number of smaller pans about six or eight inches in depth, which are made with great care, and frequently lined with large evergreen leaves, in order to prevent absorption. Along the narrow banks or partitions between the different pans, we saw a number of large evergreen leaves placed. They were tied up at each end, so as to resemble a shallow dish, and filled with sea water, in which the crystals of salt were abundant. ... [I]t has ever been an essential article with the Sandwich Islanders, who eat it very freely with their food, and use large quantities in preserving their fish.

They have, however, besides what they make, salt lakes, which yield them large supplies. The surplus thus furnished, they dispose of to vessels touching at the islands, or export to the Russian settlements on the northwest coast of America, where it is in great demand for curing fish, &c. The facility which many parts of the coast afford for this purpose, and the length of the dry season, are favourable to the process; and, together with the ready market which the natives find for it, will probably induce them, as they advance in civilization, to manufacture it in much greater abundance [Ellis 1963:287–288].

Even as late as the 1920s, when John Reinecke made his survey of the Kona-Kohala coast, salt pans were observed:

The large number of native salt pans were sometimes built directly on the pahoehoe as a floor; sometimes the base was built [in] carefully arranged flat rocks. As the sun's rays had to strike the pan directly, the walls were usually about 8–12" high, built of carefully selected stones. Sometimes the pan was rectangular, but oftener rounded or circular, about 8 or 10 feet across. The floor and the base of the wall were cemented with a hard native cement [lime-stone made from coral heads] of good quality, which still clings to scattered stones and to patches of pahoehoe floor where there are now no walls. Salt is still gathered here, but from natural pockets [1929:Site 122(5)].

At times during the 1930s and 1940s, families from Kaloko and Makalawena would, when the weather was calm, go by motor boat to Kalaemano to gather salt. During the winter months the heavy surf comes crashing against the great boulders that form this part of the coast and sends salt water and spray up onto the boulders. Wherever surfaces hold moisture, salt collects naturally as the sun evaporates the water. There are ruins of habitations a short distance from the ocean along the coast of Kalaemano. Undoubtedly, Hawaiians were at one time collecting salt here and even processing it in man-made salt pans, remnants of which can still be seen. In about 1920 Waldemar "Henry" Muller subleased a parcel of land at Waia'elepi from Senator Hind and constructed large cement salt pans for a commercial salt works. The exact date when Muller abandoned the venture is not known, but he is thought to have stopped producing salt before 1929. This parcel of land with the historic salt pans on it was later sold to R. L. Hind (Gr. 9945) by the Territory of Hawai'i. The Hinds have since sold this parcel of land.

Kiawe and lehua honey

CATTLE RANCHES IN HAWAI'I often ran subsidiary ventures. Many raised hogs, did lumbering on the side, or raised bees for honey. For a few years during the 1930s, Pu'uwa'awa'a Ranch engaged in raising bees for kiawe honey. Kiawe trees (algaroba or *Prosopis* sp.) were about the only tree that would grow in the very dry areas of Kekaha. When in bloom, the trees have thousands of small, sweet-smelling yellow blossoms that attract honeybees. They make excellent honey from the kiawe blossoms. Some attempt was made to develop lehua blossom honey on the upland portions of the ranch, but lehua trees were growing at a very high elevation and they were not easily reached by truck. There were few roads into the uplands of the ahupua'a. On the other hand, one could place bee hives in groves of kiawe all along the coast, because transporting the hives in small boats along the coast was easier than taking them inland by truck, especially in the upland areas that lacked roads

Small land-parcel purchases

BEGINNING IN 1904 Robert Hind purchased several parcels of land in Pu'uwa'awa'a ahupua'a. Grant No. 4862 was the first parcel. With an area of 25.38 acres, it sold for \$507.60 at public auction on December 10, 1904, "in conformity with Section 17 of Part IV of the Land Act of 1895." This parcel had on it a couple of corrals, one of which was very large and was located at the head of the trail that eventually divided into two trails: one to Kona and the other to Waimea.

Hind's second purchase was Grant No. 5344, an area of 4.16 acres that he bought at auction for \$251. The parcel had several ranch buildings on it and was located adjacent to the first purchase (Gr.4862). According to the records, the auction took place on April 9, 1910, and the grant is signed by E. A. Mott-Smith, Acting Governor of Hawai'i, on June 25, 1910. The Commissioner of Public Lands at that time was Marston Campbell.

A third parcel of three acres was purchased by Hind for \$76.00, and was obtained at public auction on November 30, 1914. It too was next to Grant No. 4862. It was signed by Governor Lucius E. Pinkham on December 29, 1914. The Commissioner of Public Lands was Joshua D. Tucker, and the secretary of the Board of Public Lands for the Territory of Hawai'i was J. F. Brown. These parcels were all considerably inland and were part of the ranching activities.

The fourth parcel was again of three acres, purchased at public auction on August 28, 1915, for \$76.00. It is located at the inner section of the present fishpond, just inland of Kiholo Bay. The document records the sale of this parcel by the Territory as Grant No. 6498; it is dated November 22, 1915, and bears the signatures of Lucius E. Pinkham, Governor; Joshua D. Tucker, Commissioner of Public Lands; J. F. Brown, Secretary of Board of Public Lands; and Arthur G. Smith, Deputy Attorney General [see Registered Maps 3000 and 2767].

In addition to the above land purchases, R. Hind was issued a "Special License for Water Privilege" at Ka'auhuhu, Hawai'i, on August 2, 1898 (Lease No. 520A), to run for 15 years at an annual rental of \$100. This lease (and other sales and leases entered into by the Dole government between July 7, 1898 and September 30, 1899) was signed by U. S. president William McKinley on April 30, 1900. On May 1, 1899, J. M. Hind obtained an agreement (No. 176) for 20.02 acres in Pu'uanahulu at a cost of \$50.

According to Mr. Donn Carlsmith, the Hinds built their house at Kiholo in 1903, but it was damaged in 1946 by the tsunami. Carlsmith recalled that there were no full-time residents on the coast as of 1945. However, the Browns had a caretaker at Keawaiki and the Stillmans had a caretaker at Kuki'o.

PART TWO: THE RANCH

IT WAS PROBABLY DURING the period from 1920 to 1940 that the ranch was at its peak: there were some 15,000 head of cattle on more than 127,000 acres of leased land. By this time, cattle were being shipped out of Kiholo, rather than being driven all the way to Kawaihae on the rough trail over the lava.

Driving the cattle to Kawaihae took two days. The drive would start on a Thursday, with the cattle being kept in holding pens to rest along the way. Then on Saturday, they were shipped out. After 1958, cattle were no longer shipped out of Kiholo, and improvements were made to the roads that allowed ranchers to drive the cattle to Kawaihae in trucks. Today, much of the trail is covered in fountain grass and would be difficult to find [Robert Keakealani, in a personal conversation with H. W. Smith].

The original landing of cattle on Hawai'i Island by Vancouver in the 1790s, the landing of horses by Capt. Richard J. Cleveland 1803, and the landing of the vaqueros, the expert cowboys, in 1832, altogether made possible the development of the large ranches that spread throughout the Island in the nineteenth century. The largest was Parker Ranch, and the second largest was Pu'uwa'awa'a Ranch.

Getting the cattle to market

FOR GENERATIONS the trails of Kekaha kept Hawaiians in touch with their relatives and neighbors and facilitated the gift exchange that kept their subsistence economy healthy. In later years some of the trails kept cattle ranching at Pu'uwa'awa'a in business, allowing ranchers to pursue a market for their sugar, molasses, hides, and beef.

There were different kinds of trails. There was the trail of Pu'uanahulu, cutting through the kipuka (the open spaces around which lava had flowed). There were the fishermen's trails across the 'a'a lava next to the sea made with waterworn stones that were brought in and placed at step-distance intervals, making it easier for fishermen to cross the rough 'a'a while carrying their poles, lines, nets, and fish. Shoreline trails take advantage of any breeze that comes off the ocean, making the walk several degrees cooler than it would be on an inland trail. There were also the connecting trails, usually rather informal and relatively short, that meandered between the shoreline villages and the great highway, the King's Trail.

Constructed in the 1860s and 1870s, the King's Trail (also called the Kiholo-Puako Trail) guided cattle and horses safely over the roughest areas of the jagged lava flows between North Kona and South Kohala. The long arms of several 'a'a lava flows, some of them twelve to fifteen feet high and extremely rough, had made any attempt at crossing the area difficult and even dangerous. The King's Trail was a vast improvement. Proceeding in a fairly straight line for miles, it gave the impression of having been laid out with a surveyor's compass. It was about six feet wide and almost level, with causeways built over de-pressions in the lava flows. Much of the trail was fitted with lava curbstones.

Driving cattle on the King's Trail was surely a difficult task. A trained ox led the herd along the trail, while mounted cowboys rode both the "lead" and the "drags." The cowboys also had trained dogs to help them keep the herd on the trail along the flanks; any cattle wandering off the trail could easily break their legs and be lost. Heat radiating from the sunbaked lava made high-noon cattle drives next to impossible; rest periods in the heat of the day were welcome breaks.

Driving the cattle to a steamship at Kawaihae Harbor was easier for some ranchers, providing the ocean was calm. In this case they took the Kiholo-Puako Trail. Not far from the shoreline salt works was a corral used by Pu'uwa'awa'a Ranch when they shipped cattle out of the bay next to the 'a'a lava flow. There are photographs of the corral that show the technique of taking the cattle out to the steamship by securing them to a small boat. Driving the ranch cattle down toward the sea from the

upper pastures of Pu'uwa'awa'a placed them directly on the "new trail" over the 1859 pahoehoe lava flow.

Who Built the King's Trail?

THE PEOPLE WHO BUILT THE TRAILS that were so important to the success of the ranches were Hawaiian prisoners who were incarcerated for two main reasons. The first reason was because people could not prove under the Vagrancy Act of 1850 that they were gainfully employed and had a place to live and therefore were not vagrants. Thus, found guilty of being "vagrants" they were held for a year at hard labor and used for such projects as building roads. Roads built by prison labor facilitated, primarily, the transportation needs of sugar plantations and cattle ranches.

Why was it that Hawaiians in their own homeland were incarcerated as "vagrants," people without homes, or land on which to cultivate crops and thus feed themselves? In the mid-1840s foreigners were demanding to own land privately and to be rid of the Hawaiian system of use rights in land. A scheme to accomplish this end was devised by three Americans: Rev. William Richards, Dr. Gerrit P. Judd and Attorney William Little Lee.

The first step in privatizing the land was to set up a board of commissioners to Quiet Land Titles. The enabling legislation was passed in 1845, and members were appointed to the commission in early 1846. They immediately wrote a set of guidelines, which they called Principles. After two years of discussion, they arranged a series of quit claims that separated the interests of the chiefs and the king in the lands of the Islands. Thus, the Ma-hele (land division) of 1848 was carried out in which the king (Kamehameha III) received approximately 1,000,000 acres of land as his personal private property; two hundred and fifty-one chiefs received approximately 1,600,000 acres of land as their personal private property. In the end, the Hawaiian government received approximately 1,500,000 acres of land. Each deed, whether for the King's Land, the Konohiki (chiefs') Land, or the Government's Land, specifically reserved the rights of the *ho'a'aina* (Hawaiian farmer). The commissioners announced in the local newspaper that the common Hawaiian farmer (adult male) would have two years in which to "register" his *kuleana* (personal land) claim for his house lot (maximum of a quarter acre) and the gardens that he cultivated to feed himself and his family. The deadline was February 14, 1848. The rules were strict. If the *ho'a'aina* were to claim additional land, for example, land on which he cultivated crops that he took to market, those lands would not be awarded him. The rules of the commission effectively prevented participation in the market economy by the common Hawaiian farmers. Also, to obtain a permit to sell food in the market required a cash payment. The fine for being caught selling without a permit was \$500.

There were some fourteen thousand claims for *kuleana* recorded, but fewer than 9,000 of those were awarded to common Hawaiian farmers, and the total amount of land awarded to *kuleana* claimants was less than 30,000 acres. Those who received *kuleana* lands represented less than one third of the adult male population. The rest of the adult male population, with their wives and children, were forced to make other arrangements for a place to live and for their livelihood.

Post-1850 living arrangements for some Hawaiians might have been to continue living on the land where they had been living, providing the chief who owned the *ahupua'a* agreed. Without a deed their situation lacked stability. For many of the farmers, there came a time when a less agreeable person took over the *ahupua'a*, having purchased it, or received it in exchange for a debt owed to him by the chief. The farmer could be (and often was) evicted. It was not difficult to become a vagrant in Hawai'i after the Mahele of 1848 and the *Kuleana* Act of 1850. For some Hawaiians, even if they were awarded a *kuleana*, having a place to live might be only temporary. In the 1850s a land tax, payable only in money, was placed on each *kuleana*. Without a resource to money, many Hawaiians lost their land for nonpayment of taxes.

Some Hawaiians left their land in search of money-paying jobs so they could pay their land tax. Many were forced to migrate to urban centers to find work, perhaps as stevedores on the docks in Hilo or Kawaihae, or perhaps going to sea as sailors. Hawaiians were excellent seamen and were sought after by ships' captains. However, leaving one's land for an extended length of time was dangerous. Even

though a Hawaiian faithfully paid the taxes on his land, it could be taken away from him. Quiet title action and adverse possession rules permitted a person's land being taken from him or her. While continuing to pay taxes, the owner might not be aware that the ranch was running cattle on it, or the plantation was growing cane on it. A ranch owner who ran cattle on kuleana land for 20 years could claim it, and under certain conditions, have the court award the land to the ranch. When the Hawaiian landowner returned thirty years later, ready to retire on his kuleana, he found that his home was no longer his, but had been awarded to the ranch (or the sugar plantation) under the Adverse Possession Law of 1871, or under quiet title rules.

Another cause for many incarcerations was a law that made moekolohe (adultery) punishable by imprisonment and hard labor. It applied to women as well as men.

Conclusions

THE SUCCESS OF MANY SUGAR PLANTATIONS and ranches depended over the years on the alienation of Hawaiian land from Hawaiians and on the exploitation of Hawaiian labor and natural resources. Today while Hawaiians comprise 19% of the population, they occupy only 10% of the housing units in Hawai'i [OHA 1994:50]. Hawaiians also are over 40% of the prison population [Ibid.: 292]. More Hawaiian families live below the poverty level than any other ethnic group in Hawai'i [Ibid.: 322]. Numerous statistics on child abuse, failure to graduate from high school, etc., show the general picture of Hawaiians as being at the bottom of the economic and social scale. Today after nearly a hundred years of being controlled by the United States government leaders, Hawaiians are worse off than any other ethnic group in Hawai'i. There surely have to be better things for Hawaiians in the future.

REFERENCES

- AHLO, Hamilton, and Robert J. HOMMON
1982 Mauna Lani Resort: An Interpretive and Management Plan for Its Historic Resources at Kalāhuipua'a. Honolulu: Service Management, Inc.
- ALLEN, Helena G.
1988 Sanford Ballard Dole, Hawaii's Only President, 1844–1926. Glendale, California: Arthur H. Clark.
- ANDREWS, Lorrin
1922 A Dictionary of the Hawaiian Language, revised by Henry H. PARKER. Honolulu: Board of Commissioners of Public Archives, Territory of Hawaii.
- BEAGLEHOLE, John C. (Ed.)
1967 The Journals of Captain James Cook on his Voyages of Discovery. Vol. 3, Parts 1 and 2: The Voyage of the Resolution and Discovery, 1776–1780. Cambridge: Cambridge University for the Hakluyt Society.
- BECKLEY, Emma M.
1886 "Hawaiian Fishing Implements and Methods of Fishing." Bulletin of the United States Fish Commission 6 (1886): 245–256.
- BOWSER, George
1880 "Itinerary of the Islands. IN The Hawaiian Kingdom: Statistical and Commercial Directory ... 1880–1881. Honolulu: George Bowser.
- BRENNAN, Joseph
1978 Paniolo. Honolulu: Topgallant.
- BRYAN, William Alanson
1915 Natural History of Hawaii. Honolulu: The Hawaiian Gazette.
- DOYLE, Emily
1953 "Makua Laiana: The story of Lorenzo Lyons. "Compiled from manuscript journals, 1832–1886. Honolulu: Honolulu Star Bulletin.
- DUNMORE, John
1991 Who's Who in Pacific Navigation. Honolulu: University of Hawaii.
- ELLIS, William
1963 Journal of William Ellis. Honolulu: Advertiser Publishing.
- FORNANDER, Abraham
1969 An Account of the Polynesian Race, its Origin and Migrations; and the Ancient History of the Hawaiian People to the Times of Kamehameha I. Rutland, Vermont: Charles E. Tuttle.
- GREENWELL, Amy
n.d. Papers in the Kona Historical Society.
- HANDY, E., S. CRAIGHILL, and Elizabeth HANDY
1972 Native Planters in Old Hawaii, Their Lift, Lore and Environment. With the collaboration of Mary Kawena PUKUI. Bishop Museum Bulletin 233. Honolulu: Bishop Museum.
- Hawaiian Kingdom
1851 Interior Department Files, Hawai'i State Archives, Jan. 22, 1851.

HIATT, Robert W.

1947 "Food-chains and the food cycle in Hawaiian fish ponds. Part 1: The food and feeding habits of Mullet (*Mugil Cephalus*), Milkfish (*Chanos chanos*) and the Ten-pounder (*Elops machnata*). Part 2: Biotic interaction." Cooperative Fisheries Research Staff, Territorial Board of Agriculture and Forestry and University of Hawaii, Research Paper 2, 250–80. Reprinted from Transactions of the American Fisheries Society 74.

'I'I, Papa John

1959 Fragments of Hawaiian History. Mary Kawena PUKUI, trans.; Dorothy B. BARRERE, ed. Honolulu: Bishop Museum.

Indices of Awards ...

1929 Indices of Awards Made by the Board of Commissioners to Quiet Land Titles in the Hawaiian Islands. Honolulu:

Territorial Office Building.

KAMAKAU, Samuel M.

1961 Ruling Chiefs of Hawai'i. Honolulu: Kamehameha Schools.

1976 The Works of the People of Old. Honolulu: Bishop Museum.

KELLY, Marion

1969 "Some Problems with Early Descriptions of Hawaiian Culture" In HIGHLAND, Force, et. al. Polynesian Culture History: Essays in Honor of Kenneth P. Emory. Spec. Pub. 56. Honolulu: Bishop Museum

1971 Kekaha: 'Ama Malo'o. Historical Survey and Background of Kaloko and Kuki'o Ahupua'a, North Kona, Hawai'i.

Rpt. No. 71-2, Dept. of Anthropology, B. P. Bishop

Museum. Honolulu: Bishop Museum.

1973 "Historical Background of Kekaha, North Kona, Hawai'i" Appendix B. In ROSENDAHL, PH., Archaeological Salvage of

the Keahole to Anaehoomalu Section of the Kailua-Kawaihae Road (Queen Kaahumanu Highway), Island of

Hawaii. Rept. 73-3, Dept. Anthropology, B. P. Bishop

Museum. Honolulu: Bishop Museum.

1974 E Ho'olono I Ke Kai Hawanawana: Listen to the Whispering

Sea: Historical Survey of the Waimea to Kawaihae Road

Corridor, Island of Hawai'i. Dpt. of Anthropology, B. P.

Bishop Museum. Honolulu: Bishop Museum.

1975 Loko I'a O He'eia: He'eia Fishpond. Rept. 75-2, Dept. of Anthropology, B. P. Bishop Museum.

Honolulu: Bishop

Museum.

1989 "Dynamics of production intensification in precontact Hawai'i." In VAN DER LEEUW, S. E., and R. TORRENCE, eds.,

What's New? A Closer Look at the Process of Innovation.

London: Unwin Hyman, 82–106.

KUYKENDALL, Ralph S.

1938 The Hawaiian Kingdom, Foundation and Transformation. Vol. 1: 1778–1854. Honolulu:

University of Hawaii.

LIND, Andrew

1938 An Island Community: Ecological Succession in Hawaii. Chicago, Illinois: University of Chicago.

MAGUIRE, Eliza

1926 Kona Legends. Honolulu: Paradise of the Pacific.

MACGINITIE, G. E.

1935 "Ecological aspects of a California marine estuary." American Midland Naturalist 16(5): 629–765.

ME'EMI'I, G. W.

1862 "Kiholo Church." IN Ka Nupepa Ku'oko'a.

PUKUI, Mary Kawena, S. H. ELBERT, and E. T. MOOKINI

1974 Place Names of Hawaii. Honolulu: University of Hawaii.

REINECKE, John E.

n.d. "Survey of Hawaiian Sites, 1929–1930." MS. in Dept. of Anthropology, B. P. Bishop Museum. Honolulu: Bishop Museum.

SCHMITT, Robert C.

1973 The Missionary Censuses of Hawaii. Pacific Anthropological Records No. 20. Dept. of Anthropology, B. P. Bishop Museum. Honolulu: Bishop Museum.

TE RANGI HIROA (Sir Peter Buck)

1953 Explorers of the Pacific. Spec. Pub. 43. Honolulu: Bishop Museum.

Territory of Hawaii

1901 Report of the Governor of the Territory of Hawaii to the Secretary of the Interior, 1901. Washington: Government Printing Office.

THRUM, Thomas G.

1924 "Hawaiian Salt Making." IN Hawaiian Annual for 1924.

VANCOUVER, George

1798 A Voyage of Discovery to the North Pacific Ocean and Rount the World ... in the Discovery ... and ... Chatham. 3 vols. and atlas of charts. London: Robinson.

WRIGHT, Thomas L., and Taeko Jane TAKAHASHI

1989 Observations and Interpretation of Hawaiian Volcanism and Seismicity, 1779-1955: An Annotated Bibliography and Subject Index. Honolulu: University of Hawaii.

APPENDIX A:

Mrs. Emma Metcalf Beckley's explanation of how fishponds were used

IN THE 1880s Emma Metcalf Nakuina Beckley wrote an article, "Hawaiian Fishing Implements and Methods of Fishing." At this time many Hawaiian fishponds were being leased to Chinese immigrants and being run by them as commercial enterprises. The system used for stocking the ponds by the those who leased the Hawaiian ponds was markedly different from the Hawaiian system described by the Hawaiian historian Samuel M. Kamakau [1976: 47–50]. After describing different types of fishponds and how they were built, Kamakau suggests that the new pond should be left on its own to gather fish. "After five or six months fish would begin to be seen in the loko kuapa" [Kamakau 1976: 48].

Beckley, in her article, describes two types of nets for capturing the young mullet to stock a fishpond. One is a long net (40 to 50 fathoms) with a small mesh (1/2 inch), and generally 11/2 fathoms deep. It was used in fairly shallow water to catch small mullet and awa for stocking fishponds [1887: 250]. "Small pebbles, frequently ringed or pierced, are used for sinkers and pieces of the Hibiscus tiliaceus [hau] and candle-nut tree [kukui] for the floaters." For capturing larger mullet the same type of long net is used, but with a larger mesh (1 to 2 inches). Of course, the more fish raised per acre of pond, the greater the sale value of the "crop." If too few fish entered the pond on their own, or if it took "too long" for the pond to stock itself, then the pond owner and workers would go along the coast with nets to capture the fingerlings, wherever they could be found, and place them in the pond [Kelly, 1975: 37–38].

A second type of net for catching mullet fry Beckley called the pua net.

This net is generally a piece, a fathom square, attached on two sides to sticks about 3 feet in length and pulled in, the bottom rope being shorter than the upper one and forming an irregular square opening to a shallow bag, which is supplemented by a long narrow bag about 3 or 4 inches wide and 2 feet deep. The sea convulvulus [morning glory vine], generally found growing on the beach, is twisted, leaves, branchlets and all, into two thick, bushy ropes some 15 or 20 feet in length, and these are attached on each side of the net to the side sticks; these lines are then drawn forward in a semicircle sweeping the shoals of fry before them till enough are partly inclosed, when the two free ends are brought rapidly together in a circle, which is gradually reduced, the same as in long-net fishing, till the fry are all driven into the bag [Beckley, 1886: 252].

In her remarks about fishponds, Beckley divided them into categories—freshwater ponds, which were usually a half an acre to two or three acres in size; and saltwater ponds, which were "generally very large and inclosing an area of many acres" [1886: 255]. The salt-water ponds she divided into two types—those that were entirely closed, in which fish were fed and fattened; and those surrounded by a low wall that was submerged at high tide and had openings, which were walled on each side like lanes leading in or out of the pond. The lanes, or fish-runs, were from 15 to 20 feet in length and radiated from the wall inside and out. The space between the walls of the run was about 2 feet wide at the opening in the fishpond wall and widened until it was from 8 to 10 feet wide at the ends of the walls of the run. She described how dip nets were used to capture fish when there was no gate or obstacle in the opening (makaha) in the fishpond wall.

At night when the tide is coming in, a man, or more frequently a woman, takes a small scoop-net just wide enough to fill the entrance of the opening [makaha] and of 3 or 4 feet in depth, wades out to the entrance of one of these runs, and sitting on a raised platform on its [the run's] side, made for that purpose, holds the net in the water at the entrance of an opening towards the sea and sits very quiet until a jerk in the net is felt, when it is immediately pulled up before the fish have time to return, and the fish are dropped into a gourd or basket, when the net is immediately returned to the water and waiting and watching are resumed. Two persons generally go to this kind of fishing and sit on opposite sides of the entrance, so that as one net is raised another one is still there,

as under certain conditions of the water and weather, two persons will be kept busy scooping up fish as fast as the net can be lowered. No fish must be allowed to get free, as that would put a stop to the fishing at that entrance during that turn of the tide.

These entrances are favorite stations for the ground-sharks of the neighborhood to prey on the fish as they go in or out, and so when the tide is about medium height the fishing people return to shore, as their platforms would be entirely submerged at high tide. At the turn of the tide, and when the platforms are exposed, other parties take their turn at the lanes, using those with entrances opening inwards. These fish ponds are sometimes owned by the proprietors of two adjoining lands, the people of one owning the right to fish during the rise of the tide and the other during the ebb. Long nets are also used in these ponds, but only during the condition of the tide belonging to each.

The large salt or brackish water ponds, entirely enclosed, have one, two, or four gates. These are of straight sticks tied onto two or three cross-beams, the sticks in the upright standing as closely as possible, so that no fish half an inch in thickness can pass freely in and out. Scoop-nets the width of the gates are used at these places at the flow of the tide to scoop up such fish as may be desired by the owner or pond-keeper for family use. When any large quantity is wanted the long net is used, the same as in shallow-sea fishing.

Fresh-water ponds are very seldom over half an acre in extent, and are for "‘o‘opu" and "‘opae" preserves, and sometimes for "awa" ... [Beckley, 1886:255–256]

APPENDIX B:

Chronology of Kiholo and Pu'awa'awa'a

1500s The lands of Napu'u, between Pu'uwa'awa'a and Pu'uanahulu, North Kona, were cultivated and well populated during the time of Keawe-nui-a-Umi (High Chief Keawe, Son of Umi) [Maguire 1926]. Keawe appointed Ehu as the supervisor of this area, and he made it highly productive. Kona, kai malino a Ehu became a famous saying; "Kona, calm seas of Ehu." Grown in this area were banana, sugar cane, sweet potato and yam [Pukui, Elbert, Mookini 1974:63].

1660 Kauhiokalani reports on the population of Kona to Kamalalawalu of Maui, who desired to conquer that district. Kauhiokalani explores the lands south of Kawaihae, including the lava bed {of Kaniku} and the pond that lies along the length of the land [Kiholo] [Kamakau 1961:310].

1754 Twin half brothers of Ke'eaumoku, Kame'eiamoku and Kamanawa, are given the lands of Kekaha by Kalani 'Opu'u, ali'i of Hawai'i Island [Kamakau 1961:310].

1779 Capt. James Cook sailed past Kekaha and South Kohala. His surgeon, Dr. Samwell, noted the barren lava fields, but also reported that Hawaiians "seem to prefer the lava to any other spot for building their towns on, as they are thicker on those parts that are covered with it than anywhere else." [Beaglehole, ed. 1967:1189].

1782 Kalani'opu'u dies, leaving western Hawai'i to his elder son Kiwala-o. Kamehameha and the Kona chiefs succeed in killing Kiwala-o in a battle shortly after Kalani'pu'u died. Kamanawa, uncle of Kamehameha, who was living at Kiholo, backs him in his claim for the lands of Kona, Kohala and half of Hamakua. Kamanawa is later made kuhina (governor) by Kamehameha in return for his aid.

1791 Keoua, another son of Kalani'opu'u, emasculates himself at Luahinewai in preparation for his assassination by Kamehameha's men at Pu'ukoholā heiau [Kamakau 1961:156].

1794 Captain George Vancouver sails past coastline and describes it as "uninteresting, being chiefly composed of volcanic matter, producing only a few detached groves of cocoa nut trees, with the appearance of little cultivation and very few inhabitants" [Vancouver 1798, vol. 3:62].

1801–2 Flow from Hualālai covers much of Ka'upulehu and encroaches into Pu'uwa'awa'a. Kamehameha makes an offering to prevent Pele's lava flow from destroying his fishpond at Kiholo. It had already destroyed the large pond of Pā'aiea that stretched from Keahole to Ka'ele-huluhulu, near Mahai'ula (Kelly 1971:3).

1803 First horses were landed in Hawai'i by Captain Cleveland. By 1851, there were an estimated 11,700 roaming wild throughout the Islands.

1810 John Young, Sr., supervises the repair and additions to the fishponds of Kiholo in anticipation of Kamehameha moving the seat of government to Kailua, Kona. John Young II (Keoni Ana) is born at Kiholo at this time (Greenwell KHS).

1812 John Papa 'I'i wrote of a trail stretching from Kamakahonu, Kamehameha's residence in Kona, to Pu'u-o-Kaloa and continuing on as far as Kiholo, where it joins the road from the upland that is called Ke-ala-Ehu, or the road of Ehu ['I'i 1959:120].

1820 Kepa'alani receives all of Pu'uwa'awa'a from Liholiho in recognition of his paddling from Kailua to Kawaihae without rest ['I'i 1959:132]. The first group of American missionaries arrives on theThaddeus from Boston.

1823 Rev. William Ellis of the London Missionary Society visits Kiholo, which he describes as “a straggling village, inhabited principally by fishermen” [Ellis 1963:294].

1825 Rev. Artemis Bishop arrives at Kiholo where he dined with “the chiefs of the place, Pulekoleko, a daughter of the late Tamehameha I and Milika, her husband ... at our departure received 40 fish as a present” [Bishop MS.].

1835 Missionary census reports a total population of 5,957 in North Kona [Schmitt 1973:31].

1843 Rev. Lorenzo Lyons visits Kiholo village and comments on the pond “one of the artificial wonders of Hawaii; an immense work! A prodigious wall runs through a portion of the ocean, a channel for the water, etc. Half of Hawaii worked on it in the days of Kamehameha” [Doyle 1953:136–7].

1848 Kauikeaouli (Kamehameha III) takes the ahupua'a of Pu'uwa'awa'a as his private land [Indices ... 1929:26]. Board of Education reports Protestant school at Kiholo has 21 students with a teacher named Punihale.

1851 In a letter, Governor Kapeau informs the Minister of the Interior, John Young II, that he allows Luhi to keep the land of Kiholo for the King [Int. Dept.: Jan. 22, 1851].

1853 John Papa 'I'i stops with Kamamalu to swim at Luahinewai ['I'i 1959:171].

1859 The great fishpond of Kiholo was filled in by the lava flow from Mauna Loa. The flow took only eight days to reach the sea and continued for about ten months, during which time it formed Lae Hou (New Point). Protestant church at Kiholo was razed in fear of being destroyed by lava. However, the flow encircled the site and did not cross it.

1862 G. W. Me'emi'i wrote to the newspaper, Ka Nupepa Ku'oko'a telling of the generous donations to the church of Kiholo [Hawai'i State Archives].

1866 S. C. Wiltse wrote to J. O. Dominis stating that Kiholo is leased to Kaukuna & Co. He wrote: “Kiholo is the name of a place in North Kona, not a land. It was situated on the Crown Lands, “Puuwaawaa” leased at present to Kaukuna & Co. “Kiholo” was almost intirely [sic] covered by the lava flow of 1859. Upulehu joins Puuwaawaa on the South or Kona side; it belongs to the Crown. This is a large land, but not worth much, as it is nearly all covered with lava. I will find out all about it while on this trip, and let you know the result the first opportunity” [Interior Dept., Ltr. S. C. Wiltse to J. O. Dominis].

1867 The Inspector General of Public Instruction reports that the school at Kiholo “is very small in number of scholars and were it not for its isolated position, might be suppressed.”

1871 A letter from parents of students of Kiholo school reports there are 13 students and a teacher by the name of Kupaniki, whom they like very much.

1872 S. Kanakaole writes to J. O. Dominis that he and Kaukuna are the remaining lessees of the land of Pu'uwa'awa'a, and that he has heard that Kaukuna intends to sell or transfer his share to the King for \$500 and a piece of land in Honolulu.

1876 Probate of estate of Kahinali'i claims 1,500 goats at Kiholo.

1870s Portion of coastal trail through Kiholo improved by the Hawaiian Government to facilitate travel between Kailua and Waimea [Ahlo, 1982:8].

1880 Hawaiian Kingdom Directory lists one goat rancher and one fisherman at Kiholo [Bowser, 1881:n.p.].

1882 J. S. Emerson surveys and locates a number of structures near the ponds [Reg. Map No. 1278].

1880s Frank Spencer of Parker Ranch grazes goats at Pu'uwa'awa'a.

1893 Eben Low and Robert Hind start a sheep ranch on land acquired by Government lease.

1897 Survey by A.B. Lobenstein of homestead area in uplands of Pu'uwa'awa'a lists twelve grant parcels which might be used for homesteading.

1898 T. H. Gibson reports to the Minister of Public Instruction that the school at Kiholo is on the beach.

1902 Robert Hind informs the Commissioner of Agriculture and Forestry that wild cattle and sheep are being killed on the Forest Reserve of Pu'uana'hulu, and that he had made an offer for the sole right to kill these animals. He asks that a proclamation be made preventing the trespassing for the killing or taking of either wild cattle or sheep.

1903 Robert Hind builds beach house at Kiholo. One would disembark a ship at Kiholo and then go upland to Pu'uwa'awa'a. Kiholo was a flag stop for the inter-island steamers.

1905 Land Patent No. 4862 made out to Robert Hind for a 25.38-acre lot in the Pu'uwa'awa'a uplands (see Appendix C).

1908 Kaukuna is granted a government license to sell water at Pu'uwa'awa'a.

1910 Land Patent No. 5344 made out to Robert Hind for a 4.16-acre lot in the uplands of Pu'uwa'awa'a.

1914 Robert Hind obtains Land Patent No. 6268 for a three acre lot at Kiholo, Pu'uwa'awa'a.

1915 Robert Hind obtains Land Patent No. 6498 for a three acre lot at public auction for \$76.00 at Kiholo.

1916 Robert Hind obtains Land Patent No. 6748 for a three acre lot at public auction for \$75.00 at Kiholo.

1918-40 Robert Hind leases lands in Pu'uwa'awa'a and Pu'uana'hulu for the expansion of the ranch. These included: Lease #971 for 74,000 acres in Pu'uana'hulu for \$1001; Lease #1038 for 12,000 acres in Pu'uana'hulu for \$501; and Lease #1039 for 40,000 acres in Pu'uwa'awa'a for \$3,001 [State Land Management Office].

1918 Letter from Governor to the Commissioner of Public Lands in regard to the homestead of Woldemar Muller at Kiholo.

1919 Most of the homestead lands acquired by Pu'uwa'awa'a Ranch. These lands were used to cultivate corn for the cattle that were kept farther mauka (toward the mountain).

1920s Salt pans at Kiholo operated by Woldemar Muller on land leased from Robert Hind. William Paris recalls these were abandoned by 1929. Also in the 1920s, Robert Hind is said to have planted the coconut grove.

1920s Wild goats driven to Kiholo for slaughter. "These drives must have been quite an event ... on one the Boy Scouts and Marines were there and everyone that wanted to come ... they camped on the beach and jerked the meat, or as much of it as they could preserve. There are still piles of bones on the island in the lagoon where they were slaughtered [Greenwell, Kona Historical Society, n.d.].

1922 Some 15,000 goats driven down to Kiholo to eradicate them from mauka ranch lands. They were guided into fenced area and slaughtered at water's edge, attracting sharks and wild pigs to feast. Also, in 1922, the plant, Spanish Needle, got into Hind's Dairy pasture on O'ahu, due to the cattle being shipped back and forth from Kiholo.

1929 Anthropologist John Reinecke surveyed the coastline and identified several shelters and platforms near the northeast end of Kiholo Bay. [Maps in Bishop Museum Dept. of Anthropology.]

1930 Robert Hind purchases Government parcels at Kiholo through public auction. Each three-acre parcel sold for \$77.00.

1932 Road paved past Kiholo. WWII prisoners paved the road to the Saddle. Eben Low drags telephone poles down to the shoreline.

1940s Leighton Hind fashioned billyclubs from Kauila wood for police. These were found to be too hard and caused too much pain.

1946 Hind's beach house damaged by the tsunami of April 1, 1946. It was separated into three sections by wave action, so walkways were built to access each portion of the house.

1960 Tsunami action demolished the Hind's beach house and damaged the Keanalele spring at the property that Bakken now owns. The tsunami greatly altered the lagoon at Kiholo, which previously was completely enclosed.

1961 The last goat drive to the shore of Kiholo [as stated in a personal communication with the author by S. Yano, 8/28/92].

APPENDIX C:

Land leases and purchases by Hind in
Pu'awa'awa'a and Pu'uanahulu placed on maps

Land parcels on Registered Map No, 2633

At least three of the parcels of land that were purchased and that are shown on Reg. Map 2633 were directly or indirectly related to ranching activities:

Lot No. 1 Gr. 4862 to R. Hind

Lot No. 2 Gr. 5344 to R. Hind

Lot No. 3 Gr. 6268 to R. Hind

These three parcels are located at the base of the volcanic cone, Pu'uwa'awa'a, at approximately 3300 ft. elevation. In addition to these purchases, there are also indicated on this map several leases:

Leases in Pu'uwa'awa'a:

Lot No. 1, 1000 acres, exclusive of Grants

This lease includes all the rest of the cone named Pu'uwa'awa'a, excluding Grants 4862, 5344 and 6268.

Lot No. 2, 160 acres on the border of Pu'uwa'awa'a and Pu'uanahulu.

Lot No. 3, 5470 acres in Pu'uwa'awa'a

Lot No. 4, 1050 acres in Pu'uwa'awa'a on the border of Pu'uwa'awa'a and Pu'uanahulu.

Leases in Pu'uanahulu:

Lease No. 2: 1950 acres in Pu'uanahulu Homestead Land

General Leases identified on FITS Plat 305, Dec. 1914:

General Lease No. 971 to Robert Hind, 21 years

9/27/1917 to 9/27/1938. Rental: \$1001.00

Area: 74,000 acres

General Lease No. 1038 to Robert Hind, 21 years 6/1/1919 to 6/1/1940. Rental \$501.00. Area: 12,000 acres

General Lease No. 1039 to Robert Hind, 21 years. 8/15/1918 to 8/15/1939. Rental \$3001. Area: 40,000 acres

Parcels of land shown on Registered Map No. 2767

Lot No. 1 3 acres Gr. 6498 to R. Hind

Lot No. 2 3 acres Gr. 6748 to R. Hind

Lot No. 3 3 acres Gr. 10,432 to R. Hind

Lot No. 7 3 acres Gr. 9944 to R. Hind

Lot No. 8 3 acres Gr. 9943 to R. Hind

Lot No. 9 3 acres Gr. 9945 to R. Hind

Lot No. 11 .71 acres Gr. 10,431 to R. Hind

Lot No. 14 2.65 acres Gr. (CSF 8117) (Luahinewai)

Lots 1 and 2, above, cover the area in which is located the present fishpond. The pond area is described on the map as a "mud flat" with only one small pond indicated.

APPENDIX D

Informant Interviews

Material prepared by Helen Wong-Smith

WITH THE EXCEPTION of the interviews of ROBERT KEAKEALANI and ANNABELLE DOLE LOW RUDDLE, all interviews were conducted for this report. ROBERT KEAKEALANI was interviewed by H. WONG-SMITH in 1989 in conjunction with the Royal Vistas development in Pu'uuanahulu. The transcript of the ANNABELLE RUDDLE interview was conducted in 1969, by ROBERT LEIGHTON HIND JR. and was provided by the Kona Historical Society.

ROBERT KEAKEALANI and his daughter, LEINA'ALA LIGHTNER were interviewed on Pu'uwa'awa'a Ranch property on September 8, 1989. Mr. Keakealani, who died shortly thereafter, was very familiar with the area: his family once homesteaded here, and he worked for the ranch from the age of 14. His tenure on the ranch extended from 1932 to 1983.

Keakealani recalled that in the ranch's heyday, there were 15,000 head of cattle on 40,000 acres of land. In fact, Pu'uwa'awa'a Ranch was a more extensive acreage than Parker Ranch: it used to run from about Ho'okena to Pu'u-anahulu. However, Pu'uwa'awa'a came second to Parker Ranch in stock. Leina'ala Lightner speaks of the Dilling-ham Ranch's tenure of ownership as the "good years." The cowboys met their families at Kiholo and spent weekends there, often picnicking on beef provided by the ranch. The ranch allowed them to hunt game birds on its land. During our tour, we saw wild turkeys and Franklins. At this time three full-time cowboys were employed.

YASUICHI IWAMASA was head mechanic for Pu'uwa'awa'a Ranch between 1932 and 1968. When he started work for the ranch, cattle were being shipped out from Kiholo. They ceased shipping cattle from Kiholo in 1958. The area is a bad anchorage for boats, and by that time the road to Kawaihae had been improved. It took two days to drive the cattle down from Pu'uwa'awa'a Ranch to Kiholo, and now they could drive the cattle to Kawaihae in trucks in just a few hours.

They would start driving the cattle down on a Thursday and keep them in holding pens en route. (The cattle were kept at Weliweli pen; then at four in the afternoon they would head them down to the shoreline [Billy Paris, January 16, 1992]). Then, on Saturday, they would ship them out. The trail is covered with fountain grass now and Iwamasa doesn't believe there is any way to find it today. The new road is in an altogether different place. The ramp for shipping was located at a small bay with a gradual slope. The pen was a half to three-quarters of a mile toward Kailua.

Occasionally Iwamasa would go from the ranch down to Kiholo to fix the portable generator the Hinds used for lighting their home at the bay.

Lands to the north in Kekaha were cultivated by KAKUICHI YANO. Yano kept bees for Parker Ranch in the area of the Spencer Beach Park pavilion. In the 1930s, general manager A.W. CARTER encouraged Yano to make this into a private enterprise, with Parker Ranch becoming the sales agent. Yano expanded his hive cultivation to Puako, Kalā-huipua'a, and Kawaihae, in places that were not leased by the Hinds. (At one time the Hinds had some 1500 acres at Puako.) Cattle ranches in Hawai'i often ran subsidiary ventures. Many raised hogs or had lumber mills. In addition to providing corn fodder for their own cattle, Pu'uwa'awa'a Ranch exported three to five tons of corn to O'ahu each year [Robert Keakealani, in a personal communication, September 8, 1989]. Raising bees for honey was another such venture. For a few years during the 1930s Pu'uwa'awa'a Ranch engaged in raising bees in the kiawe grove of Kiholo, located near the coconut grove. The hives were worked by ICHIRO GOTO, who was employed by the Hinds. Goto also cultivated lehua honey mauka on the ranch in Pu'uwa'awa'a. Lehua was more difficult to obtain as there were few roads to access the hives among the lehua trees. Hives in the kiawe forest, conversely, could be reached relatively easily along the shore by boat, thus making kiawe the more popular of the two types of honey to cultivate. Goto kept his hive "year" at Kiholo in the structural

remains of what is possibly the church that was razed during the 1859 lava flow [in personal communication, S. Yano, August 28, 1992].

Kiawe honey had been cultivated along the Kekaha shoreline from the late 1800s to the 1930s. Hives were cultivated in the kiawe forests from Kawaihae, at the location where the 7-11 convenience store is now located, down to Kalāhuipua'a. For Pu'uwa'awa'a Ranch, the main area of hive cultivation was at Puako in addition to those located at Kalāhuipua'a. From Kiholo, the honeycombs were taken to Puako by boat. After a few years of this procedure, it was decided that it was not worth the effort. The water there was very brackish, so the area was used for cattle feed. The Hinds sold their interests at Puako to Parker Ranch [as stated in a personal communication with Donn Carl-smith, November 27, 1991].

SANCHIRO YANO worked with his father and would walk weekly from their home at Kawaihae to Kaunaoa Beach, where the Mauna Kea Beach Hotel is presently located. He was the head water tender for Pu'uwa'awa'a Ranch from 1959 to 1974. This was a year after Dillingham Ranch acquired the ranch from the Hind family. The Hinds retained parcels at Kiholo, including Luahinewai and their original beach house. Yano was responsible for some 30 miles of pipeline, 130 tanks and 50 troughs. During the years 1967–1968, they built a water reservoir. Yano said that in addition to the Pu'uwa'awa'a lands, the ranch had pasture lands at Honomalino and Holualoa. The location of Jose's Mexican Restaurant, Napa Auto Parts and MacDonald's fast foods, was at one time pasture land for Pu'uwa'awa'a Ranch. On the makai (toward the ocean) section of Honomalino were the fattening paddocks where the cattle were "finished up" prior to shipping. For a couple of years, the steers of Parker Ranch were finished here as well. The first areas of these pasture lands that were given over to other uses were those of the Sunset subdivision.

When Yano joined the ranch, JOHN PEACOCK was the manager. Yano relayed that Peacock was a progressive rancher who moved the fence lines. Mr. WILLIAM PARIS managed the ranch for about a year and then left to manage the family ranch, Palika, at Kainaliu. ROBSON "KUAKINI" CUMMINGS (a nephew of Hind's) followed Paris as manager.

When the Dillingham Ranch, Ltd. took over ownership of the ranch, one of the partners, LOWELL B. DILLINGHAM, kept an aviary of exotic birds. Another partner, CARL WENDELL CARLSMITH, brought in hunting birds, including erkels and wild turkeys. These smaller birds and hunting fowl spread from Pu'uwa'awa'a to cover the island.

Yano reported that there was a wagon trail that started at the salt pans of Kiholo and went up to Hu'ehu'e. A trail starting at Waki'i also ended at Hu'ehu'e. Hawaiian ranch hands told Yano that Hu'ehu'e was the crossroads, a place for trading. Yano was told by the Hawaiian ranch hands of such sites. Robert Keakealani offered to show the location of a burial site mauka (toward the mountain) of the Hind's beach house, but they "never got around to it." Yano did, however, spend many hours fishing at Kiholo. In fact, they would often camp in the coconut grove on the Kailua side of the parcel now owned by Earl Bakken. Here, at Keanalele, the water from the pool was fresh enough to drink. Yano recalled a "formidable" red hala tree, but did not see its remains during a visit in August of 1992. This shelter area at Keanalele was also planted with loulou palms. Yano reports that the coconut trees at Keanalele were of considerable size when he first saw Kiholo. He believes that in comparison to the trees that he knows for sure were planted by the Hinds, those at their house to the north and those at Luahinewai, these trees were most likely planted by the native fishermen who inhabited Kiholo. He estimates the age of these coconut trees to be well over a hundred years [as given in a personal communication, September 15, 1992].

KIKUE AND HERBERT KOMO were caretakers for the Hind's beach house at Kiholo between 1939 and 1942. They moved mauka after the war broke out. In 1941, when Kikue was ready to give birth to her daughter, she said they started up the jeep trail. When they realized they wouldn't make it to the main road, they turned around. But she didn't make it back to the house and had the baby on the trail. They kept the baby in the afterbirth to keep her warm. Marjorie Hind and Josephine Hall, the public nurse, arrived on horseback around midnight and took the baby up to Pu'uwa'awa'a. The daughter bears the names of these two women.

FLORENCE "COCO" VRENDENBERG HIND, wife of Robert Leighton Hind, Jr., was interviewed at her home on January 23, 1992. Using the family album, she relayed places and history of Kiholo and the Hinds. A picture taken some-time around 1930 shows a rock wall around the Hind's beach house. This was built to keep the pigs out of the com-pound. Another shows the young coconut trees planted by Grandmother Hannah Hind in front of the house in the sand. The 1960 tidal wave reached in some 180 feet to destroy the Hind's house.

Coco's mother-in-law, MARJORIE HIND, obtained additional parcels in the southern part of Kiholo at public auction between 1932 and 1935. One of Marjorie Hind's acquisitions was Luahinewai, which was inherited by her son, ROBERT JR. It was Robert Jr. and Coco who planted kamani and kou at Luahinewai. Coco has been told by SCOTT SEYMOUR, a landscape artist, that the present owners of the parcel, the KEENANS, are interested in planting native plants.

According to ANABELLE LOW RUDDLE, before the Hinds built their house at Kiholo, there were still grass shacks used by Hawaiians. There were only two wooden houses, one belonging to the Lows and the other to the Hinds, where Robert Jr. and Coco's place is located.

DONN CARLSMITH and his father, CARL WENDELL, were shareholders in Pu'uwa'awa'a Ranch and both held property in the ahupua'a, including an interest in the property now owned by Earl Bakken, between 1958 and 1972. It was Carl Wendell Carlsmith who put the signs on the paddocks in Pu'uwa'awa'a Ranch [from a personal communication with Donn Carlsmith, November 27, 1991].

According to Donn Carlsmith, the Hinds built their house at Kiholo in 1903. This house was damaged in the 1946 tidal wave. Carlsmith recalls that there were no full-time residents on the coast as of 1945. At that time, however, the BROWNS had a caretaker at Keawaiki and the STILLMANS had one at Kuki'o. The coconuts planted by the Hinds were from JOHN 'I'I who procured them from Waipi'o, O'ahu, in the area now called Pearl Harbor. Kiholo was a "check flag stop" for steamers: One would get off at Kiholo and travel up to Pu'uwa'awa'a. When the road was built from Waimea to Kiholo, Eben Low built a trail to Kiholo to drag telephone poles down to the shore.

APPENDIX E

Helen Desha Beamer's Song: Pihanakalani Composed in honor of Hannah Low Hind (Mrs. Robert L. Hind Jr.)

| | |
|-----------------------------|--|
| Aia i ka la'i | There in the serenity |
| O Pu'uwa'awa'a | Of Pu'uwa'awa'a |
| Home noho o ka wahine | Home where dwells the Lady |
| Pu'uwai aloha | Loving heart |
| Keli'iheloa, kou inoa | Keli'iheloa, your name |
| E o, ka wahine nona ka lei | O answer, Lady for whom this lei |
| E o, ka wahine nona ka lei | O answer, Lady for whom this lei |
| Wehiwehi Pihanakalani | Pihanakalani is beautifully arrayed |
| I nā pua 'ala onaona | In lovely fragrant flowers |
| Kahi a nā manu e luana ai | Gathering place of the birds to enjoy at leisure |
| Ia home i puia i ke 'ala | O'erspread with sweet fragrance |
| Home nani ho'okipa malihini | Beautiful home, gracious hospitality |
| Home nani ho'okipa malihini | Beautiful home, gracious hospitality |
| E o, ka wahine nona ka lei | O answer, Lady for whom this lei |

While we were at Keawaiki we were invited to Pu'uwa'awa'a to a birthday dinner for Aunt Hannah (Hind). Helen and I sat in the back seat . . . As we were riding ... she picked up her ukulele and started putting words and melody together and by the time we got to Pu'uwa'awa'a—even before—at Pu'uanauhulu, she had the song done.

—From a letter written by ANNABELLE RUDDLE

APPENDIX F

Kiholo

Material prepared by Helen Wóng-Smith from documents of the Daughters of Hawai'i, May 25, 1991

FROM KIHOLO, when we look to the uplands, our eyes and perhaps our hearts are drawn to Napu'u, as the hills of Pu'u'anahulu and Pu'uwa'awa'a are called by some. From Volcanoes in the Sea [Macdonald, Abbott, and Peterson, 1983: 365-366] comes this reference to Napu'u.

On the north slope of Hualalai, 9.5 kilometers from the summit, Puu Waa waa is a large cone of trachyte pumice more than 1.5 kilometers in diameter. A trachyte lava flow more than 270 meters thick extends 9.5 kilometers northward from the cone. Scattered through the pumice are many blocks of black trachyte obsidian. The lava flow consisted of several flow units, each 75 to 150 meters thick. Seen from the southwest, the edges of some of these units form conspicuous terraces. ... The eastern side of the flow has been completely buried by later basalt flows of Hualalai and Mauna Loa. ...

The Waawaa trachyte was probably formed by differentiation in a relatively small magma chamber belonging to Hualalai, but isolated from the main magma chamber of that volcano.

From 'Olelo No'eau [Mary K. Pukui, 1983:36] comes this reference to kekahi mau kama o kela mau pu u, which may describe the source of the aloha which some of us feel.

E ho'i keiki oki uaua o na pali. "Home go the very tough lads of the hills." These "lads of the hills" were the cowboys of Pu'uwa'awa'a and Pu'u'anahulu, who were well known for their endurance.

In Legends and Myths of Hawaii, Kalakaua [1980: 109], relating the late 12th century activities of the chiefs Kama'i'ole and Kalapana, describes the resolve of Kama'i'ole, "to give him battle at a place called Anaehoomalu, not far from the northern line of Kona."

In Ruling Chiefs of Hawaii, Kamakau [1961: 58] described the late 16th century warfare between the chiefs Kamalalawalu of Maui and Lonoikamakahiki of Hawai'i.

Kama-iaia-waiu's men went up to the grass covered plain of Waimea. After Kama-iaia-waiu's warriors reached the grassy plain, they looked seaward on the left and beheld the men of Kona advancing towards them. The lava bed of Kaniku and all the land up to Hu'eju'e was covered with the men of Kona. Those of Ka-'u and Puna were coming down from Mauna Kea, and those of Waimea and Kohala were on the level plain of Waimea. The men covered the whole of the grassy plain of Waimea like locusts. Kama-iaia-waiu with his warriors dared to fight.

It was for times of battle that refuge caves were prepared. The following description is taken from Feathered Gods and Fishhooks [Kirch, 1985: 1751].

During the second phase of the Queen Ka'ahumanu Highway salvage program, Rosendahl [1973: 68-73] also carried out excavations in a large refuge cave inland of Kiholo. The entrance to this spacious lava tube, Cave 900, had been blocked by tons of lava rock. Only a narrow passageway was left, through which people would have had to enter single-file, at the mercy of those defending the shelter from within. Excavations of the interior floor yielded 1,742 artifacts.

From Kamakau [Ruling Chiefs of Hawaii, 118], we know that during Kamehameha's rise to power the twin chiefs, Kame'eiamoku and Kamanawa, resided at Ka'upulehu and Kiholo respectively.

From 'I'i [Fragments of Hawaiian History, 1973: 132] we know that Kepa'alani was a strong paddler, and for his ability was awarded the "whole of Pu'uwaawaa and the fish ponds Paaiea in Makaula and Kaulana in Kekaha?"

In Kona Legends [1926: 14-20], Eliza Low Maguire, sister of Hannah Low Hind, described in some detail the consumption of the breadfruit grove near the village of Manuahi, called Kameha'ikana by Kamakau [Ruling Chiefs, 184–186] and also her consumption of the pond of Pa'aiea. The passage in Ruling Chiefs gives the impression that the lava which came to Kiholo was from the outbreak at Hu'ehu'e. The lava which came to Kiholo was not from Puhiapele at Hu'ehu'e, but rather from vents in Ka'upulehu between 5,000 and 6,000 feet above sea level. These might better be described as two separate events of the same volcanic series. It was the Ka'upulehu lavas which defined the pond, Luahine-wai, as we know it.

Following the destruction of the great pond, Pa'aiea, Kamehameha marshalled his forces for the building of the great pond at Kiholo in 1810. This pond was described by the missionary William Ellis [Journal of William Ellis, 1963: 294–296]:

A small bay, perhaps half a mile across, runs inland a considerable distance. From one side to the other of this bay, Tamehameha built a strong stone wall, six feet high in some places and twenty feet wide, by which he had an excellent fishpond not less than two miles in circumference.

There were several arches in the wall, which were guarded by strong stakes driven into the ground so far apart as to admit the water of the sea; yet sufficiently close to prevent the fish from escaping. It was well stocked with fish, and water fowl were seen swimming on the surface.

At the time of Mahele, Kauikeaouli chose two ahupua'a in kekaha, North Kona, as his own, Hale'ohi'u and P Pu'uwa'awa'a. These thus fell into the inventory of Crown Lands.

In 1859, during the reign of Alexander Liholiho the pond at Kiholo was filled by lava from a Mauna Loa flow. The outbreak occurred on January 23rd and after a short summit eruption, activity was sustained at about 9,000 on the north flank of the mountain for 300 days [Volcanoes in the Sea, 64].

In The Hawaiian Kingdom Statistical and Commercial Directory 1880–1881 prepared by George Bowser [1880: 226, 341, 548], "Kauai," a fisherman, is noted as owning three acres at Kiholo, one of which was cultivated. "Accommodations for travelers" and "Plenty of fish" are also noted.

The family of Robert Hind became land owners at Kiholo in the late 19th century, and Kiholo became an important asset to the family and the Pu'uwa'awa'a Ranch operation. The fish from the ponds and pigs of domestic and feral stock which were kept at Kiholo supplemented the tables of the families of Pu'uwa'awa'a, and were occasionally shipped to O'ahu for market at times when inter-island steam ships called at Kiholo for cattle.

The tidal waves of 1946 and 1960 did much damage to the family's Kiholo residence. And the construction of the Ka'ahumanu Highway has also resulted in considerable change to the lifestyle enjoyed at Kiholo.

APPENDIX G

Pu'uwa'awa'a

Material prepared by Helen Wong-Smith from documents of the Kona Historical Society, October 26, 1991.

PU'UWA'AWA'A IS A WONDERLAND of Hawaiian geology, botany, and wildlife. Pu'uwa'awa'a itself is a trachyte cone, and what we know today as Pu'uuanahulu is the flow which issued from it. Early potassium-argon dating indicated the geologic unit to be c. 400,000 years old; more recent work indicates the age to be c. 105,000 years [G. B. Dalrymple, 1985]. The cone is veined with volcanic glass which was mined by ka po'e kahiko for use as a cutting tool.

The western boundary of the ranch is the 1800 Ka'upulehu flow of Hualalai. From source vents between 5,000 and 6,000 feet above sea level, this flow entered the sea at two fronts. One front is in the vicinity of the present Kona Village Resort, and the other, at Kiholo, forms that bewitching body of water which we know as Luahinewai.

Between these two geologic units are various other flows whose ages, when combined with climate regimes and elevations, provide the growing conditions for the various plant communities we will travel through. It is these factors which in turn determine the wildlife we might encounter.

ENTRY DRIVE 'A'a flow with 'ohi'a dominant tree cover. Interspersed among the 'ohi'a are various native trees including ohe, kolea, 'iliahi, and kauila (*Alphitonia ponderosa*).

RANCH HEADQUARTERS Heavily modified, primarily alien species present. Nene frequent this area especially near the recreation area.

RANCH LANDS The open pasture just beyond the ranch headquarters is dotted with a native tree with deep green, large leaves. This is hoawa; its fruits are one of the favored foods of the 'alala. We will be seeing hoawa throughout our field trip. We next cross an 'a'a flow again with 'ohi'a tree cover. Along our drive through this forested area we might also see pilo and 'ulei growing among the 'ohi'a.

Beyond the 'ohi'a covered 'a'a is again open pasture land. The native tree species represented here are primarily mamane and naio. As we gain elevation we will see lolea in increasing numbers and an occasional 'alea or 'a'e.

Before we come to the Pu'uwa'awa'a Wildlife Sanctuary, we will pass an enclosure approximately one acre in size, constructed to protect the last known hau kuahiwi growing "in the wild." This enclosure is presently maintained by the State of Hawai'i. Koki'o has also been planted within this enclosure. These plant species were recognized by former lease owner Robert Hind who built enclosures during his time with the land. Subsequently Robert Keakealani was associated with tending this particular enclosure and sharing his vast knowledge of the land and the things of it with us.

PU'UWA'AWA'A WILDLIFE SANCTUARY With the removal of cattle c. 1985, this section of land has demonstrated remarkable recovery in terms of native plant cover. The koa is most conspicuous and familiar but a whole host of companion, understory plants are also present including olapa, akala, 'ala'ala wai nui, ho'i kuahiwi, and hapu'u. The Wildlife Sanctuary is habitat for various native bird species including a variety of honey creepers, 'elepai'o, and 'io. An individual 'alala has been verified as frequenting this area.

SHANGRILA Shangrila is just outside of the plant sanctuary. As we travel east towards Shangrila and beyond, we will be entering a drier climatic regime, and this will be reflected by the plants present.