

**NORTH KOHALA
PERCEPTION OF A CHANGING COMMUNITY
A CULTURAL RESOURCES STUDY**

by
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Division of State Parks,
Outdoor Recreation and Historic Sites
Department of Land and Natural Resources
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EXECUTIVE SUMMARY

The substance and strength of a community are founded in the cultural and historical traditions shared by the individuals who comprise the community. These traditions are the heritage which provide a sense of identity with which the community builds its place within a broader geographic and cultural context. Planning for the management of resources in an area necessitates an understanding of the community, and the processes which create a sense of identity among a group of individuals to each other, to a place, and to a common history.

The Department of Land and Natural Resources, through the Division of State Parks, Outdoor Recreation and Historic Sites, has recognized this need. In anticipation of potentially major impacts on the community of North Kohala by proposed resort and housing developments, the department has requested a cultural resources study as part of a broader effort to design a strategy for the management and protection of cultural, natural, scenic, and outdoor recreation resources in the district.

This study, then, is a data base for the overall management strategy, but one which extends beyond an inventory of archaeological and historical sites to encompass a view of cultural resources as manifestations of a community's heritage. The community and its traditions are the context which provide cultural significance to the historical and archaeological sites which are the physical remains of past events.

These structural remains provide a material continuity; they form a tangible skeleton, to which are added the oral histories and written records of explorers, missionaries, and historians. As components of the community tradition, written and oral histories are a vital part of interpreting the material remains. Together, the historical narrative and cultural sites can convey an idea of the changing and developing community.

Objectives and Methodology

The primary objective of this study is to identify the cultural resources of the district.

Identification goes beyond an assertion that sites exist; it is a conveyance of an understanding of what those sites mean,

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their context in the district, and their significance as cultural resources. To do this, identification incorporates two aspects: an overview cultural history of the district and an inventory of archaeological and historical resources. Historical research provides the base for the development of themes which will allow an evaluation of the significance of the cultural resources; the inventory provides a data baseline for the existing cultural landscape.

Background research and formulation of ideas for this study took place over a period of 16 months, between June 1980 and October 1981. The study involved extensive library research, field surveys, community interviews, and professional discussions with planners and archaeologists. The initial effort, completed in October 1980, was addressed to a broad, districtwide approach to the overview history (Tomonari-Tuggle 1980). Subsequent work was directed toward specific areas.

The present report, then, is a consolidated summary of the work carried out in the past year and a half. It is organized into two modular sections:

- I. an overview history of North Kohala and an elaboration of a theme around which resource evaluations are organized;
- II. the resource inventory and site descriptions.

As a set, they form a comprehensive survey for cultural resource management in North Kohala. But each can be read as a separate entity, independent of the other section. Because of this, there is considerable repetition, but this ensures the integrity and comprehension of each part (pages and illustrative material are numbered consecutively within each section).

An Overview History of North Kohala

This section traces the history of North Kohala as a community reacting to internally and externally initiated changes. A study of the nature and distribution of cultural sites lends itself to an analysis of the movement of people, the aggregation of settlements, and the utilization of land. Thus, community changes manifested in changing patterns of settlement, demographics, and land use can be examined through the temporal and spatial distribution of cultural sites.

This narrative is not an account of specific events and people that have passed through Kohala. Rather, it is an

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interpretation of the effects and impacts of those events and people on the community, as manifested in changes in land use, demography, and settlements. Internal development and external introductions are balanced, as a community adapting to change is reflected in the altering cultural landscape. The history is divided into several major periods:

1. the traditional Hawaiian culture up to approximately 1840 when the first longterm resident missionary arrived; this period encompasses the initial settlement and expansion of the indigenous peoples in the district and is the cultural baseline for later radical alterations to the Kohala community.
2. a period of transition to 1862 during which the missionary Bond was a dominant figure in a community confronted by cultural upheaval;
3. a frontier period from 1862 to approximately 1910 which is characterized by an influx of adventurous pioneers who saw their future in an undeveloped but potentially rewarding area of the Big Island; this period saw the initiation of the sugar industry which molded community life in the following century;
4. a period of community climax from 1910 to the start of the Second World War, culminating in the eventual consolidation of the various sugar mills into one conglomerate; and
5. the most recent period of Kohala's history from 1941 to 1975, which was dominated by one sugar company and which saw the emergence of the Kohala community as it is at present.

The influences of external forces, first the missionaries and later those involved with the sugar industry, are central to the post-Contact history. During the transitional period, Kohala communities were attempting to establish a new sense of place in the face of a changing economy, a new religion, a drastically declining population, and the centralization of political power away from the island of Hawai'i. The economy was shifting from one oriented to subsistence to one based on cash and markets. The native population, declining primarily from disease, depressed birthrate, and out-migration, was abandoning the leeward coast for the uplands or the windward side.

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The establishment of the sugar industry in 1862 is the terminus of the transition. The character of the Kohala community was fundamentally changed by the influx of new people for plantation labor and the dramatic shift to an economy based on an external, cash-based market. The indigenous culture was subsumed under the overwhelming influence of the sugar industry. Community identity centered on the plantations, the focus of community life and the source of the community economy. Sugar was dominant for over 100 years during which internal changes in community life were occurring and the character of the modern Kohala community was developing.

An Inventory of Resources

The resource inventory is an identification of cultural resources as a data base for the development of a management strategy. It involves three parts:

1. a description of the resources landscape modeled on existing historical and archaeological evidence for land use and settlement; in areas for which there is little or no data, hypotheses for site distribution are postulated;
2. a description of specific archaeological and historical sites, which are evaluated as significant based on the literature review;
3. an inventory of resources in areas which were selected by State Parks considerations of outdoor recreation, natural, scenic, as well as cultural interests; this was carried out through a reconnaissance survey of selected areas, involving an effort of 82 manhours.

The cultural sites, both those previously recorded and those presently located, are described and evaluated in the context of the historical theme and as representations of the existing resource landscape.

A total of 266 sites were identified: 48 sites are adjacent to or near the Kohala Ditch trail, 25 were described in the windward kula gulches, and 193 were surveyed along the leeward coast. Further, additional sites outside of the present survey areas were also defined. In the windward valleys, a virtually undisturbed set of archaeological and historical remains exist; it includes a total of 76 sites and two major complexes of 43 and seven discrete sites each (including the 48 sites on the trail). In the windward kula gulches and kula slopes, where modern

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intrusions have destroyed much of the archaeology, only eight sites outside of the survey areas were described; all are historical structures.

The leeward coast, like the windward valleys, have not yet been greatly impacted. In addition to the 193 surveyed sites are 370 archaeological and historical features in other areas of the coast, particularly south of Lapakahi. This tabulation does not take into account the resources in Lapakahi State Historical Park.

The spatial models of site distribution and the lists of known sites, which were generated by the 1980 literature review and historical research, have been incorporated with the findings of the 1981 archaeological reconnaissance survey. The presentation is organized by environmental zones, with discussion of the history, and history of survey, in each area, the organization of the present survey, a summary of survey results, site descriptions, and a statement of significance for the resources of each area.

Summary

Kohala's place in the history of Hawaii has varied from significant to inconsequential, but in its own right, its place as a representation of Hawaii's history is inestimable. It is a microcosm of the islands' history, clearly defined by its geographical boundaries. Its value lies in its potential for relating a multiplicity of historical themes with which the people of Hawaii can identify. To Kohala's residents, it is home and it is their own traditions and history. To other residents of the State, it is a sample of their own past; it is their stories, their communal memory, simply translated to a locale where history is immediate and visible in the well-preserved archaeological and historical structures.

Kohala has the potential for being one of the foremost examples of history-oriented planning in the State. In light of the potential for rapid and possibly intrusive changes from proposed developments, the time is appropriate to ponder a community future, not one which lies fixed to the past, but one which understands the past as the foundation of a community sense of place.

North Kohala is rich in a history which is manifested in the written documents of 200 years, in the stories of longtime residents, and in the historical and archaeological sites which still exist scattered throughout the district. These are

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integral parts of the Kohala past and a foundation for a future which incorporates and maintains the ambience of this special place. A strategy for cultural resource management for North Kohala, combining research and preservation priorities with alternative use possibilities, can provide a cohesive direction for the maintenance of this community and its traditions.

ACKNOWLEDGEMENTS

Misperceptions of time invariably result in misperceptions of effort; what originated as a five-page proposal for a brief overview of cultural resources in Kohala ended as a major task of accumulating and synthesizing an immense amount and variety of data.

This task could have been accomplished only with the help of a number of people. It is with sincere appreciation that I thank Jane Allen-Wheeler, Laura Carter, and Virgil Meeker for their assistance, cooperation, and enthusiasm in carrying out portions of the historical research in the earlier phase of this project. For the present phase Virgil provided invaluable help in maneuvering through the web of land and tax records.

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A number of people in Kohala and elsewhere commented on the original draft of this manuscript, predominantly the history section, and I wish to tell you that I appreciate your contributions and that this report is better because of them.

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M.J. Tomonari-Tuggle

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A HISTORY OF NORTH KOHALA

Section I
of

NORTH KOHALA:
PERCEPTION OF A CHANGING COMMUNITY

A CULTURAL RESOURCES STUDY

PREFACE

Like the Emperor's new clothes, history is as one would see it: clothed in a guise designed by the interpreter.

The challenge of history is to decipher it, to filter the existing data into a recognizable and understandable perception of past events. That this perception exists at several levels does not invalidate any of them. Historical events affect individuals and communities differently. The interpretation of those events is based on a selection of details, of causes and effects, which most closely fit the cultural context and analytical rationale of the interpreter.

History involves not only the events and personae of times past, but the psychology of the people who lived them and the people who have since interpreted them. To argue that any history is the truth is to argue that history is not only static, but stagnant. The stimulation of history is that it is a multitude of truths and one of its challenges is to unravel the sources and motivations of the historical interpretation.

The understanding that historical perceptions vary, that alternative interpretations exist, is integral to the management of cultural resources as the tangible remains of history. Since there is no one undeviating historical truth, thoughtful management necessitates an awareness of the variety and the analytical sources of the historiography.

This study is one perception of a district's history, of a community changing within the context of a larger world. The cultural resources are the manifestations of the history. They are a foundation of a communal memory which binds a group of individuals into a community called Kohala.

INTRODUCTION

Now let us take stock of Kohala. It is a little island off here by itself. Editorial, The Midget, 1916

The community of North Kohala participates in a common history with all of Hawai'i, but the nature of its historical experience is intensified by the impact of selected events on a circumscribed area. Geographically delimited as the northern projection of the island of Hawai'i, Kohala is bounded by the ocean on three sides, by the deep gorges of the windward valleys on the southeast, and the expansive dry slopes of the leeward southwest.

While the history of Kohala can be described as only a fragment of Hawai'i history, its significance lies in the ease by which events, individuals, and impacts are defined by the geographic boundaries. Certain historical periods may be better exemplified in other areas of the island, but none are more clearly defined in cultural and environmental contexts as in Kohala. The ambiguity created by nebulous social and geographic boundaries is insignificant in Kohala's historical experiences.

The following narrative is a history of a changing landscape. It is not an account of the specific events and people that have passed through Kohala. Rather, it is an interpretation of the effects and impacts of those events and people on the community, as manifested in changes in land use, demography, and settlements. Internal development and external introductions are balanced as a community adapting to change is reflected in the altering cultural landscape.

The historical narrative is divided into several major periods:

1. the traditional Hawaiian culture up to approximately 1840 when the first permanent resident missionary arrived; this period encompasses the initial settlement and expansion of the indigenous peoples in the district and is the cultural baseline for later radical alterations of the Kohala community;
2. a period of transition to 1862 during which Bond was a dominant figure in a community confronted

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with cultural upheaval;

3. a frontier period from 1862 to approximately 1910 which is characterized by an influx of adventurous pioneers who saw their future in an undeveloped but potentially rewarding area of the Big Island; this period saw the initiation of the sugar industry which molded community life in the following century;
4. a period of community climax from 1910 to the start of the Second World War, culminating in the eventual consolidation of the various sugar mills into one conglomerate; and
5. the most recent period of Kohala's history from 1941 to 1975, which is dominated by one sugar company and which saw the emergence of the Kohala community as it is at present.

The influences of external forces, first the missionaries and later those involved with the sugar industry, are central to the post-Contact history. During the transitional period, Kohala communities were attempting to establish a new sense of place in the face of a changing economy, a new religion, a drastically declining population, and the centralization of political power off the island of Hawai'i. The economy was shifting from one oriented to subsistence to one based on cash and markets. The native population, declining primarily from disease, depressed birthrate, and out-migration, was abandoning the leeward coast for the uplands or the windward side.

The establishment of the sugar industry in 1862 is the terminus of the transition. The character of the Kohala community was fundamentally changed by the influx of new people for plantation labor and the dramatic shift to an economy based on an external, cash-based market. The indigenous culture was subsumed under the overwhelming influence of sugar. Community identity centered on the plantations, the focus of community life and source of the community economy. Sugar was dominant for over 100 years during which internal changes in the community life were occurring and the character of the modern Kohala community was developing.

This section is organized into six chapters. The first is a description of the present Kohala landscape. Each of the other five chapters is a discussion of the land use and settlement patterns of the five historical periods, each preceded by a brief overview of significant events associated with the time.

Section I.1

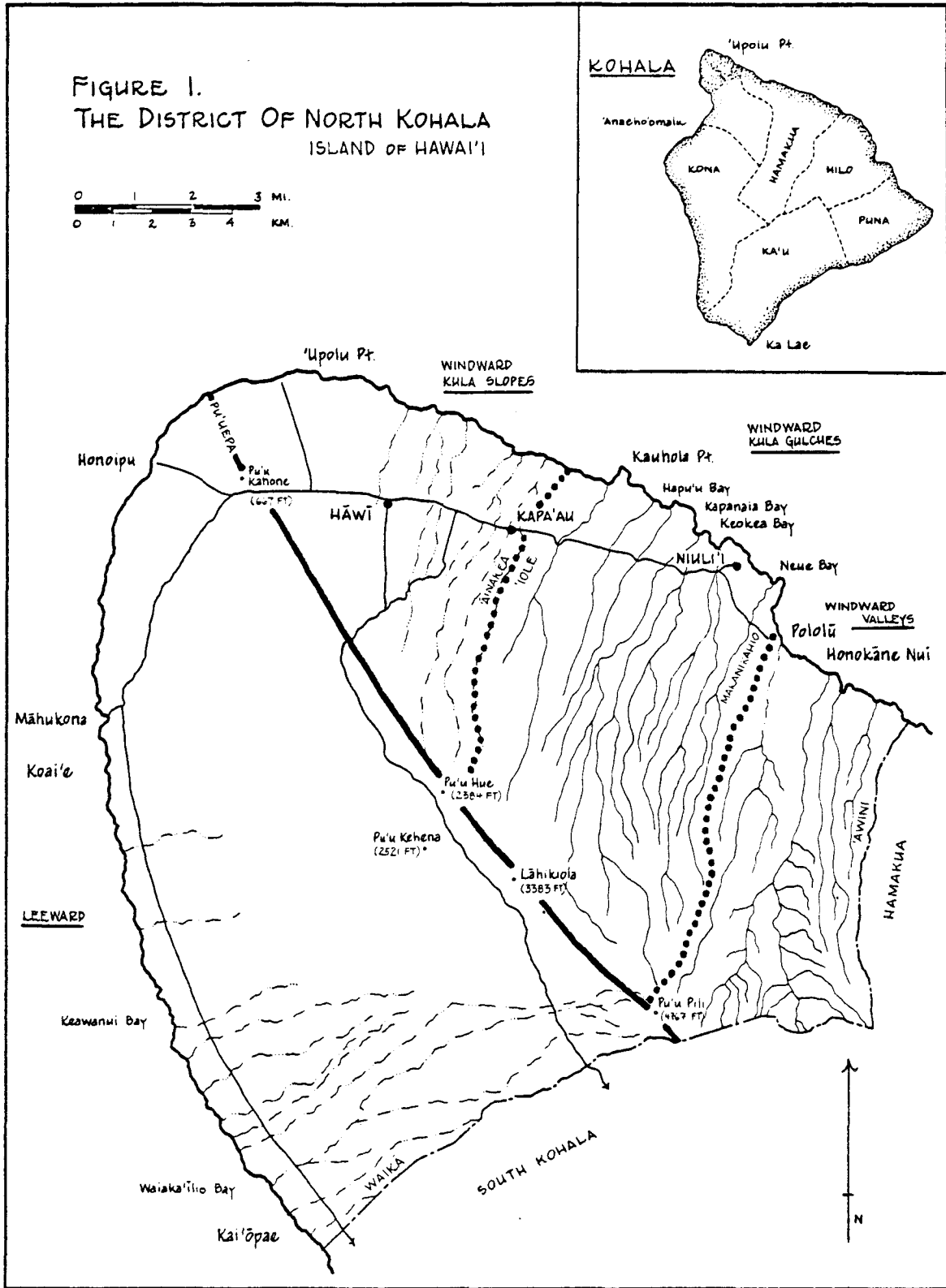
THE KOHALA ENVIRONMENT

The district of North Kohala forms the northern extension of the island of Hawai'i (Figure 1). It is surrounded by ocean on three sides with a southern boundary which crosses near Kai'ōpae Point on the leeward coast to the mouth of Honokē'a Stream on the windward coast.* Separated into two major environmental zones, leeward and windward, by the 1675 m (5500 ft) high ridge of the Kohala Mountain summit, the district encompasses a range of ecosystems to which the inhabitants have adapted throughout history. The great variety in environments, occurring in an area of 1020 sq. miles, makes Kohala a unique district of the Big Island.

The environmental variations are generally accountable by the basic geologic foundation of the area, and by the subsequent influence on topography of rainfall, winds, and surface runoff. The land area which is now called the district of North Kohala was formed by two eruption series of the Kohala volcano, the first of five to form the island of Hawai'i. Approximately 450,000 years ago, Kohala Mountain first emerged above the sea. The older Pololū Series, composed primarily of primitive basalts and olivine basalts, with ash forming the parent material of much of the present soils, was followed by an erosional period during which V-shaped valleys on the windward coast were carved and then alluvially filled by subsidence and emergence processes. The Hawi Volcanic Series occurring from 60,000 to 250,000 years ago, followed this period of erosion and deposited primarily oligoclase andesites over a portion of the original volcanic dome (McDonald and Abbott 1970).

The original caldera of the Kohala volcano was centered near the head of Waipi'o Valley, with the primary rift zone running northwest through Honokāne Nui Valley toward Māhukona and 'Upolu Point. Lavas from the younger Hāwī Series did not overflow this caldera, but rather, poured northwest and southeast, fanning over those slopes of the Pololū Series (Stearns 1966: 126). This left uncovered a section of the windward coast which graphically illustrates the differential erosion between the two series: the deeply gouged, flat-bottomed valleys from Pololū to Waipi'o,

* North Kohala was traditionally part of the district of Kohala, which extended south of Kai'ōpae to 'Anaeho'omalu (Figure 1). The separation into North and South occurred in 1859.



which formed from the original Pololū Series lavas, and the smaller gulches and wide, rolling kula slopes of the northern windward area, which formed from the later Hāwī Series.

With the exception of the windward valleys, the topography of North Kohala ranges from smooth to undulating, largely following the surface of underlying lava flows. The windward slope of the Kohala Mountain falls seven km (4.5 mi) from the 1220 m (4000 ft) elevation contour to the 300 m (1000 ft) high vertical cliffs which mark the windward coastline. In contrast, the leeward slope is more gentle, extending three km (1.9 mi) longer than the comparable windward slope (Newman 1970: 25) (Figure 1). Wind and water are largely responsible for differential erosion of these two environmental zones.

The long ridge of Kohala Mountain lies perpendicular to the predominant moisture-laden northeast tradewinds and acts as a deflector, pushing the trades upward, where the resultant cooling condenses the moisture, forming clouds and rain over the summit. The rainfall decreases rapidly on the leeward side as the air warms in its return to lower elevations.

High rainfall is centered over the head of the windward valleys, where average annual measurement is 200 inches. At the mouth of the Honokāne Nui Valley, it is 60 to 80 inches, decreasing northward toward Hāwī, where it is 50 inches per year. On the leeward side, median annual rainfall is approximately 60 inches at Pu'u Hue, which is 579 m (1900 ft) above sea level (Taliaferro 1959: 136-137) and approximately 13 inches at Māhukona at the coast (ibid.: 132-133).

The ocean currents, also directed from the northeast, pound against the windward coast, continuing the erosional processes which formed the distinctive sea cliffs. The leeward coast, is sheltered by the land mass from the northeast tradewind swell system. The lava flows which formed the leeward slope continue offshore and are the predominant underwater substrate. there are localized sandy bottom areas but no sand beaches (Newman 1970: 30).

Although the winds may not have been a critical factor in the formation of the Kohala environment, they were probably a significant element in the utilization of the various ecosystems. Newman (ibid.: 26) observed surface wind conditions as an estimated 20 to 50 km per hour over the ocean. A slight increase was marked from sea level to 1000 m (3000 ft), with constant speed held up to the summit.

Thus, the district of North Kohala can be clearly divided into two major environmental zones (Figure 1). The leeward zone extends from the boundary between North and South Kohala at Waikā

ahupua'a to the ahupua'a of Pu'uepa at the north point of the island. Its inland boundary follows the summit of the Kohala Mountain, along a line of cinder cones from Pu'u Kahone through Pu'u Hue and Lāhikiola to Pu'u Pili. It is characterized by a gentle slope with a poorly defined drainage system lacking in perennial streams. Rainfall is low at the coast, increasing with elevation. A strong wind called 'apa'apa'a blows from mauka to makai (influencing trunk declination and top shape which bend toward the lee side; Hawaiian agricultural field boundaries appear to be oriented perpendicular to the wind). A rich marine ecosystem lies in the shallow, offshore reefs.

The windward environmental zone extends from the boundary between North Kohala and Hamakua at 'Awini ahupua'a to Pu'uepa ahupua'a, and along the summit of the Kohala Mountain. Rainfall is considerably higher than on the leeward coast, highest in the windward valleys and decreasing toward the north. A strong swell system in deep offshore waters precludes as rich a marine ecosystem as on the more protected leeward side but near shore exploitation zones for shellfish and herbivores exist along sea cliffs and boulder beaches which alternate along a coastline dissected by valleys and gulches.

The windward zone can be divided into three sub-areas: the windward valleys, kula gulches, and kula slopes. Cut through Pololū Series lava flows, the valleys from 'Awini to Pololū are highly dissected, steep-sided, and flat-bottomed, separated by narrow ridges which end at 300 m (1000 ft) high sea cliffs. Gentle down-valley slopes on the valley floors are cut by perennial streams, except in Pololū whose intermittent stream flow is marked by alternating periods of drought and flood. Basalt sands appear periodically on the commonly boulder beach at Pololū.

The kula gulches from Mākanikahio to 'Iole ahupua'a are narrow, shallow, and geologically immature. Carved by perennial streams, the gulches are separated by broad kula areas with moderate, mauka-makai slopes and undulating topography. As at Pololū, a sand beach appears periodically at Kapanāia Bay.

The kula slopes from 'Āinakea to Pu'uepa ahupua'a are characterized by smooth to undulating topography dissected by small gulches with intermittent to dry streams. Its boundaries with adjacent environmental zones are indistinct; the transition from the distinctively wet windward kula gulches to the dry leeward slopes is gradual through this area. The sea cliffs in this zone decrease in height to approximately 10 m high at the north point.

The summit forest straddles the crest of the Kohala Mountain. High rainfall over the graben formed by the partially filled

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Section I.1. The Kohala Environment

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crater of the Kohala volcano has resulted in widespread swampy areas with numerous surface streams.

The present environment is the result of natural evolution and cultural modifications to the original pre-human landscape. An understanding of human adaptation, as expressed in where people settle and in the way land is utilized, necessitates an understanding of the environmental conditions and constraints acting on early colonizers, as well as the probability of degradation of land and water resources from later human alterations to the landscape. The present environment, in conjunction with archaeological and historical analyses, serves as a baseline from which hypotheses concerning earlier environments and cultural adaptation can be studied.

Section I.2

THE TRADITIONAL PERIOD: THE LEGENDARY PAST TO 1841

The traditional period of Kohala's history is characterized by the internal development of the indigenous culture from the initial settlement to the arrival of the first resident missionaries in the mid-1800's. During this period, the Hawaiian people developed a lifestyle which was attuned to environmental constraints of this area within the context of a Polynesian way of life.

The Legendary Past: Change by Introduction

Kohala figures in traditions relating to the origins of the Hawaiian people. Papa and Wakea are considered the progenitors of the Hawaiian people and it is said that

...it [Pololū] was originally the residence of Oakea and Opapa [Wakea and Papa]...the god and goddess who made Hawaii and all the others of this group of islands (in Damon 1927: 54).

Legendary accounts of migrations and settlement explain the development of Hawaiian culture in terms of an early mythological people, the menhune, who are overwhelmed by a migration of colonizers from lands to the south, sometime in the first centuries of the millenium. In a fluorescence of cultural activity associated with the resurgence of two-way voyaging between central Polynesia and Hawaii, significant changes, especially concerning religious practices, are introduced in the cultural environment. A new form of temple, human sacrifice as a religious rite, and symbols of sacred prohibition are attributed to this trans-Pacific contact. Polynesians infused new blood and new ideas to a Hawaiian population which had been isolated for centuries.

Traditions credit the Tahitian priest, Pa'ao, with the establishment of a new political and religious order, which set severe sanctions for religious observance emphasizing the separation of chief and commoner. He brought with him, Pili-Kaaiea, a Tahitian chief, to rejuvenate the dissipated blood of Hawaiian royalty resulting from intermarriage with petty chiefs (Fornander 1969II: 33-34; Beckwith 1971: 372). The Pili line of chiefs, from which later emerged the Kamehameha dynasty, is one of three lines of descent through which Hawaiian

ali'i traced their genealogies; the other two are the 'Ulu and Nana'ulu lines (Malo 1951: 6).

Pa'ao is also credited with the construction of Mo'okini Heiau at Pu'uepa in Kohala (Fornander 1969II: 36), which, with Waha'ula, which he also built, on the southeast coast of the island, may symbolize the environmental separation of the leeward and windward sides of Hawai'i which figure in the political successions of the Hawaiian ali'i in later centuries (Tuggle 1979).

The stones of the heiau were said to have come from Pololū. Bond (in Thrum 1907: 61) reports that he was told:

...the people having been gathered by the chiefs from various parts of the islands, stood in line from Pololu to Puuepa and passed the stones from hand to hand.

The heiau at Pu'uepa presents an interesting juxtaposition between the Pa'ao legend and another settlement tradition. During the same period of migration from central Polynesia, Moikeha, a grandson of Maweke, founder of the Nana'ulu line of ali'i, travelled from Tahiti to Hawaii. He brought with him a priest, Mo'okini, who stayed on in Kohala while he continued on to Kaua'i (Beckwith 1971: 352-353).

Fornander (1969II: 53) questions the implied relationship between Mo'okini the priest and Mo'okini the heiau; that is, the inference

...that the famous heiau of Mookini in Kohala was called after this companion of Moikeha, is an evident anachronism, as Pao who built the Heiau preceded Moikeha in time of arrival at Hawaii; and it is not probable that the Pao and Pili joint interest in Kohala would then, or in aftertimes, permit their special and sacred Heiau to be named after a chance passenger in the fleet of Moikeha.

However, present local tradition in Kohala supports the name of the priest in the heiau and in the family which now has stewardship over the heiau.

Early Settlement and Expansion: Scientific Conjecture

The legendary accounts bestow little credit on the dynamics of internal development and adaptation to the local environment. The impact of colonizers on a pristine environment, and conversely, of the environment on colonizers, resulted in

changing interactions between the social and natural spheres, and required modifications to the Polynesian culture from which the incipient Hawaiian society developed.

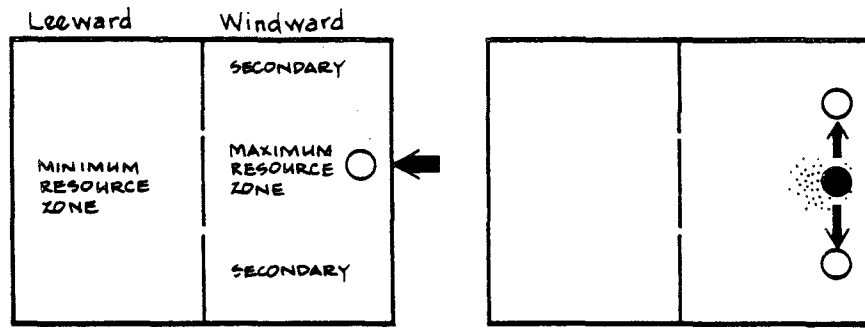
Evidence supports an east Polynesian origin for initial settlement of the Hawaiian chain, with colonization occurring as early as AD 400 (Tuggle 1979: 189; Kirch 1974). The pioneering Polynesians were fishermen and farmers who had a mental template and the paraphernalia to apply Polynesian subsistence practices to the primeval biotic situation of uninhabited Hawaii. They brought with them domesticated animals, such as pig and dog, a range of cultigens, including taro, breadfruit, yam, banana, sugar cane, and coconut, and tools, such as fishhooks and adzes, to pursue their subsistence activities. They were socially suited to the demands of voyaging, colonization, and later population and settlement expansion. It has been argued that in the conical clan which is characteristic of Polnesian cultures:

Authority is built into such a system by seniority, supported in Polynesia by the ideology of mana. Unquestioned authority is perhaps the key to success in long-distance voyaging. The conical clan, adapted to voyaging, is in turn suitable for settlement: contained in the authority structure through seniority is a potential for easy segmentation, so that expansion is one potential of the structure (Tuggle 1979: 195).

Early settlement may have been characterized by widely spaced initial colonies located in maximum resource zones, encompassing optimum agricultural land, coastal marine collection areas, and offshore fishing resources (ibid.: 195).

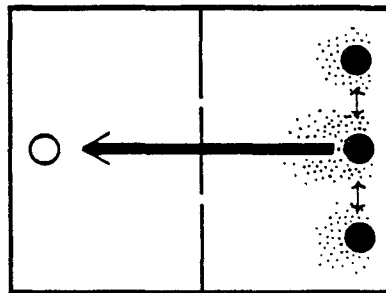
Archaeological investigations in areas such as Hālawā, Moloka'i (Kirch and Kelly 1975), Hā'ena, Kaua'i (Hammatt et al 1978), and Koai'e at Lapakahi (Tuggle and Griffin 1973; Rosendahl 1972) present a common pattern of settlement development, which appears independent of initial occupation dates and environmental situations (Hālawā, a windward valley in AD 600; Hā'ena, a windward coastal plain in AD 1000; Koai'e, a leeward coastal area in AD 1300) (Figure 2). Initial utilization, probably by a small founder population, is characterized by a short-term or transient occupation; early subsistence efforts probably revolved around wide-ranging forays, with a major portion of the diet obtained from littoral and marine habitats and supplemented with wild vegetable foods. Short-term occupations were organized near richer subsistence resources, i.e. primarily along the coast.

But Polynesians were agriculturalists as well as fishermen. The initial gathering adaptation to the pristine conditions would be presumably modified and quickly subordinated by some form of agriculture. In the three areas which were archaeologically

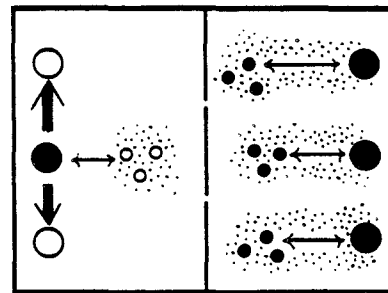


1. INITIAL COLONIZATION IN PRIMARY RESOURCE ZONE

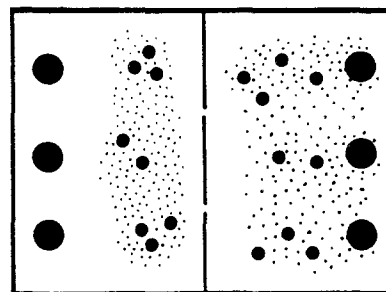
2. PERMANENT SETTLEMENT W/ RESOURCE COLLECTION IN SECONDARY ZONE; INITIAL AGRIC. DEVELOP.



3. EXPANSION OF PERMANENT SETTLEMENT; FURTHER AGRIC. DEVELOP.; RESOURCE COLLECTION IN MINIMUM ZONE.



4. INTERNAL DEVELOP. IN MAXIMUM/SECONDARY ZONE SETTLEMENTS; SETTLEMENT EXPANSION IN MINIMUM ZONE.



5. CLIMAX COMMUNITY (KOHALA AT CONTACT)

FIGURE 2. MODEL OF SETTLEMENT GROWTH

- SHORT-TERM OCCUPATION
- PERMANENT SETTLEMENT
- ⋯ AGRICULTURAL AREAS
- ↔ INTERACTION
- ← MOVEMENT

(AFTER TUGGLE & GRIFFIN 1973)

studied, the transient lifestyle of resource collection was replaced by a sedentary occupation, oriented still to marine resource collection but with some suggestion for incipient cultivation. Gradually, the dominance of littoral and marine resource gathering was supplanted, and such activities incorporated into a broader subsistence base involving agriculture, fishing, and collecting components.

Early colonies expanded and fissioned, with secondary communities exploiting the best unoccupied environments, resulting in a dispersed and spaced pattern of isolated coastal communities still probably bonded by expanded ties of kinship within the conical clan structure; control of authority remained vested in seniority (Hommon 1976; Tuggle 1979).

Sites interpreted as early permanent occupations dating from before AD 800 occur at Hālawā and at Bellows dune on O'ahu. Both are located in or on the periphery of maximum resource zones. No such sites have been located in Kohala, either spatially or temporally. While the contention is not that Kohala may have been settled as early as Hālawā or Bellows, it is suggested that initial settlements occurred in maximum resource zones such as the kula gulches.

The windward kula gulches of the Kohala Mountain may have been attractive to a founder population. They are characterized by optimum rainfall (up to 100" per year), permanent streams, bays such as Neue which afford landings for canoes, and the expansive, inter-gulch kula slopes, which were probably covered in forest and offered a range of non-cultivated resources. Although the northeast tradewind swell system would preclude a large, marine biomass such as on the more sheltered leeward coast, the windward coast provided major exploitation zones for shellfish, particularly 'opihi, and herbivores, such as surgeon fish and parrotfish (Newman 1970: 12-15).

However, the earliest dated, permanent occupation of Kohala, dated only as early as AD 1300, is represented by a dense, artifact-rich, midden deposit at Koai'e on the leeward coast, which reflects a primary orientation toward marine resource collection, with limited utilization of alternative resources. Its primary asset is its proximity to the rich, offshore marine habitat. The pre-agricultural environment for this area could probably be characterized by the following description:

...from sea level to about 1300 feet in elevation (10 to 40" annual rainfall), the setting was an arid to semi-arid rocky slope dominated by pili grass...to the virtual exclusion of most other flora species. The upper portion of Lapakahi, extending up to about

1800 feet, probably corresponded to the lower limits of an open, mixed dryland forest which dominated the further mauka leeward slopes of the Kohala mountains. Narrow fingers of forest would have extended further makai, below the general forest limits, in the relatively moister gulches and gully channels (Rosendahl 1972: 445).

Thus, Koai'e may have been one of the small, isolated secondary settlements, dispersed along the dry leeward coast. Leeward settlements were probably oriented to marine resource collection with some initial efforts at cultivation, either in the immediate area with crops adapted to the dry coastal conditions or in the high, mauka forest. Trade with already established, kin-related communities and forest resource collection may have supplemented primary subsistence activities. Settlements were probably located around bays or inlets which provided easy access for canoes and near springs or wells (which may not presently be apparent).

During this same period, windward settlements may already have developed the broad resource base of combined fishing and farming in the favorable conditions of the windward environment. Although only conjecture at present, subsistence activities probably included the clearing and non-irrigated cultivation of garden plots in the extensive forest zone and fishing and littoral collection from the gulch beaches. Settlements probably focused in or adjacent to the gulches.

The summit forest, which probably extended further makai than at present, and the windward valleys, offered unmodified terrestrial resource collection zones.

The Archaeological Past: AD 1300 to Contact

The earliest chronometric date for Kohala is AD 1300 from a rich midden deposit at coastal Lapakahi, which is interpreted as a permanent settlement oriented primarily toward marine resources. In the context of hypothesized settlement growth in Kohala, this occupation at Koai'e may reflect the expansion of primary colonies into marginal areas.

From approximately AD 1300 to AD 1500, development was manifested by an elaboration of the dispersed coastal communities and efforts to increase agricultural production. The communities in the coastal strip enlarged in size and population. Agricultural activity accelerated, with the intensification of existing fields and expansion into unutilized areas.

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On the leeward coast, primary energy expenditure was directed toward the agricultural development of the upland area, probably initially by slash and burn techniques but eventually culminating in the extensive dry field systems described at Contact (AD 1778). Activities on the windward side were directed toward the intensification of existing agricultural fields, thus combining irrigated and non-irrigated methods in appropriate locales. It is possible that seasonal movements of summer fishing and winter farming, especially on the leeward side, may have afforded the most efficient resource procurement (Emory 1951; Schilt and Sinoto 1980).

A shift in resource procurement orientation toward a greater reliance on agricultural production precipitated a concomitant shift in social network interactions from a coastal orientation to a mauka-makai one. That is, as efforts were successfully made to establish subsistence independence, kinship links between coastal settlements disintegrated as those within the growing mauka-makai settlements expanded. Hommon (1976) argues that the subsistence independence generated by multiple resource procurement stimulated the establishment of the ahupua'a pattern, i.e. the classic Contact-period model of the pie-shaped wedge of land extending from the mountain to the ocean, which was characterized by basic self-sufficiency and social endogamy among commoners.

Continuing growth and expansion required a more elaborate mechanism for the management of people and resources. By AD 1500, an elaboration of the political system is implied by the configuration of the Great Wall complex at Koai'e. The wall, a massive and conspicuous structure in the coastal hamlet, appears to set the associated platforms in the complex apart from other contemporaneous features. The complex has been interpreted as a symbolization of growing class differentiation between chiefs and commoners, with a correlated consolidation of the ahupua'a as socio-political units (Griffin et al 1971: 108).

The windward valleys were intensively settled in the late 16th century (Tuggle and Tomonari-Tuggle 1980). Once hypothesized as the locale of the original Kohala settlement, it appears that the valleys were colonized late in the prehistory of Kohala. Agricultural development was rapid, and intensification from swidden to permanent dry field to irrigation which has been observed in other areas occurred only to a limited extent in the valleys. Rather, agricultural development, in Honokāne especially, appears to have reached its most intensive level without following the simple developmental progression.

Tuggle (1979) relates this late and rapid colonization to a change in the political system, i.e. that it suggests a

fragmentation of buffer zones between independent chiefdoms and the beginnings of a unified island political structure.

Unification within the district is suggested in the legendary account of Kapunohu, which is genealogically calculated (seven generations at 25 years per generation) to approximately AD 1600. A battle was waged between the chiefs of Kukuipahu and Niuli'i, the former's domain extending from Wainaia Gulch to Kahuā, and the latter's domain from Wainaia south to 'Āwini. Meeting on the battlefield of Hinakahua at Kapa'au, the forces of Kukuipahu were vanquished and the "whole of Kohala thus came under the charge of Niuli'i" (Fornander 1916: 215-220).

The supremacy of Niuli'i in this legend also suggests a growing, if not already evident, dominance of the kula gulch area of Kohala. If the argument for a 17th century unification of the island political sphere and a collapse of the independent chiefdoms is supportable, it could also be postulated that such a unification allowed a return of population into more favorable subsistence areas where the potential for agricultural intensification was greatest.

Evidence for a large-scale consolidation back into maximum resource zones is limited to suggestions for the abandonment of marginal areas; not enough work has been carried out in windward areas to test this hypothesis. Schilt and Sinoto (1980: 116) suggest the possibility that some of the leeward Kohala fields were being abandoned prior to Contact. They note that the chronometric dates from upland excavations range from AD 1400 to AD 1760 and that only one site yielded historical artifacts. Barrera (1971: 105-108) has noted a similar decline in population in the 17th century at 'Anaeho'omalu in southern Kohala, an area distinguished by barren stretches of geologically recent lava flows with marginal agricultural potential.

Thus in the four centuries before Contact, the small, dispersed settlements of the early period enlarged in size and population, with increasing agricultural activity. Growth occurred on a mauka-makai axis, with inland areas being intensively developed in cultivation; lateral growth along the coast was initially limited to the maturation of existing "core" settlements, with later limited expansion of small, dispersed permanent habitation clusters outside of the main communities. Although the expansion of agricultural fields into more environmentally marginal areas continued, such growth had probably reached its peak by the late 17th century. Internal intensification probably occurred up to and after Contact, although it is possible that a pre-Contact retrenchment into maximum resource zones was taking place.

Traditional Kohala: A Cultural Baseline

At Contact, Kohala was one of six major districts on the island of Hawai'i. Extending from 'Anaeho'omalu in the south to 'Awini on the windward coast,* the district encompassed a wide variety of environmental zones which made it a unique geo-political entity. The settlement and land use patterns at Contact and through the early post-Contact period reflect the ahupua'a system, that is, the social, political, and economic organization around land units extending from the mountains to the ocean. The mauka-makai orientation allowed a manner of self-sufficiency based on resource utilization from a variety of environmental zones. Socially endogamous among the commoners, the ahupua'a was under the political control of local chiefs, the konohiki, and integrated into the district, controlled by a paramount chief, through a system of taxation and redistribution, as well as by trade and ali'i kinship (Malo 1951; Handy and Handy 1972; Hommon 1976).

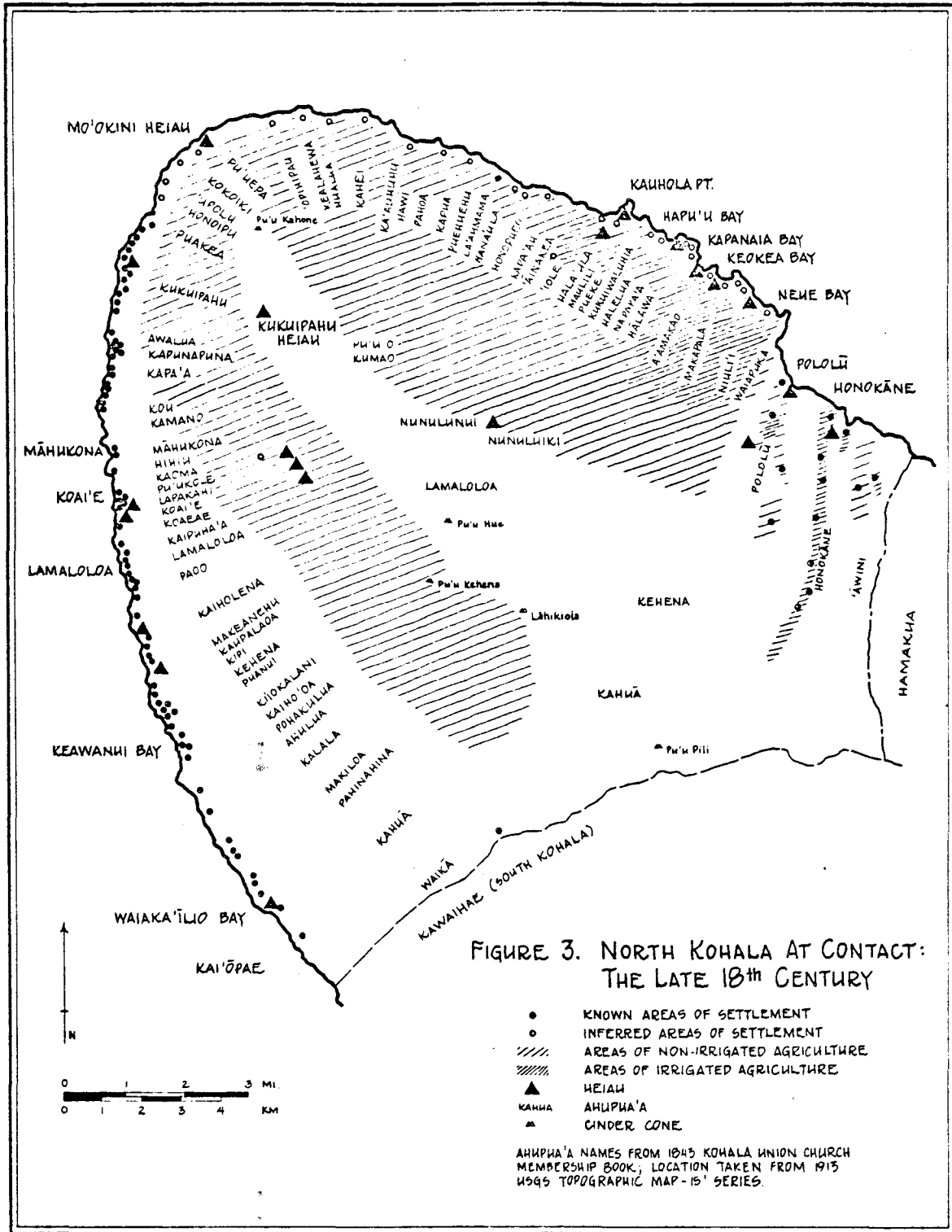
The cultural landscape at this time was a manifestation of a long period of internal development, which began with the initial settlement and continued through a process of growth and expansion that saw the establishment of localized, self-sufficient communities throughout the district (Figure 3). This landscape was a rich and impressive pattern of native plantations and houses which the first European visitors viewed with admiration.

Lt. King, sailing on James Cook's third voyage to the Pacific, explored Kohala after landing on the north coast in 1779:

The country, as far as the eye could reach, seemed fruitful and well inhabited...[three and four miles inland, plantations of taro and potatoes and wauke] neatly set out in rows. The walls that separate them are made of the loose burnt stone, which are got in clearing the ground; and being entirely concealed by sugar-canes planted close on each side, make the most beautiful fences that can be conceived. [The exploring party stopped six or seven miles from the sea] at the second hut they found among the plantations...To the left a continuous range of villages, interspersed with groves of coconut trees spreading along the sea-shore; a thick wood behind this; and to the right, an extent of ground laid out

* The present discussion is limited to the judicial district of North Kohala.

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in regular and well-cultivated plantations, as far as the eye could reach.

[Returning out of the forest belt the party again encountered plantations.] As they passed along, they did not observe a single foot of ground, that was capable of improvement, left unplanted; and indeed it appeared, from their account, hardly possible for the country to be cultivated to greater advantage for the purposes of the inhabitants, or made to yield them a larger supply of necessaries for their subsistence (in Handy and Handy 1972: 528).*

Archibald Menzies (1920), the surgeon with George Vancouver in 1793, and William Ellis (1969), the first missionary to travel by land and sea around the island of Hawai'i, in 1823, held similar regard for the agricultural excellence of the Kohala farmers.

Subsistence and Land Use

The Hawaiians practiced a range of agricultural techniques in growing a variety of subsistence crops, of which kalo and sweet potato were dominant. On the leeward uplands, sweet potato was grown in large, impressive fields marked by long, rock alignments and walls running roughly parallel to the natural contours and perpendicular to the prevailing downslope winds. Rosendahl (1972: 77) suggests that dryland taro, yam, gourd, sugar cane, banana, coconut, pandanus, and ti were also grown.

The upland field system correlated with the zone of optimum rainfall, i.e. the lower edge approximately followed the 20 inch isohyet, with the upper boundary falling between the 40 and 60 inch rainfall contour. The upper boundary was limited by low temperatures and the availability of sunlight (Murabayashi, in Newman 1970: 179). Thus, at 'Upolu, the lower edge corresponds approximately with the 200 to 500 ft elevation, while at Kahua the lower edge was at the 2000 to 3000 ft elevation. The higher areas of the field system have been destroyed by historic ranching activities and road construction.

Murabayashi (*ibid.*: 142) suggests the practice of shifting crops. The lower limit of the field zone at Lapakahi, susceptible to a five to seven month dry period precluded consistently successful farming. He proposed that the area was used principally during the wetter periods and was cultivated in crops with short growing cycles. The upper fields, susceptible to only a one to three month dry period, were

* A subsequent check of the original source (Cook 1784) shows that Handy and Handy were in error and that this description is probably of South Kohala.

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cultivated in long-term crops with intense use when the lower fields were dry. Field boundaries, planted in sugar cane, served as windbreaks against the prevailing 'apa'apa'a winds, as well as for water retention. Crops were also cultivated in garden areas within the larger fields, in moister gullies, and on knolls which dot the upper areas.

On the windward side, water and slope were critical factors in the development of agricultural systems. Thus, the availability of surface water allowed for intensive irrigation agriculture and optimum rainfall permitted high yield from dry field plantations. Historical accounts note extensive cultivation on the windward side. Ellis (1969: 384) described "fields of considerable size, containing several acres each", which were "kept in good order, and well stocked with potatoes and other vegetables".

Flat lands in the windward valleys were cultivated in irrigation kalo. But archaeological survey has ascertained conspicuously different adaptations in Honokāne and Pololū valleys. While water sources varied from dike springs to direct feed off the main stream in Honokāne, nearly every level parcel of land was developed in kalo fields. Polulū, on the other hand, with an unpredictable and often uncontrollable water source, was developed primarily in dry fields, although some irrigation fields were constructed in areas where water was available. The lower half of the valley, which could be fed by springs, was put into kalo cultivation, with a small portion constructed into a fishpond.

Ellis (*ibid.*) described the windward kula gulches, where "streams of water were frequent, and a large quantity of ground was cultivated on their banks, and in the vicinity". The wide ridges between the narrow gulches were also developed in irrigation fields. Between Mākanikahio and 'Iole these broad swails were intensively cultivated in wet kalo, similar to the development of the flats of Pohaku'au on the Na Pali coast of Kaua'i. Irrigation canals tapped water from the higher reaches of permanent streams which dissect this kula area.

A visitor to Kohala in the 1850's described a massive 'auwai located two miles southeast of 'Iole, in the vicinity of Halawa or A'amakao.

To convey water over the surrounding district it was necessary to have it brought from the head of this ravine, and thus turn it from its original channel. To achieve this object, an embankment seems to have been raised from the bed of the ravine to a height of nearly two hundred feet. Where the embankment

terminates, a channel has been hewn in the sides of the solid rock more than a half a mile in length (Bates 1854: 340).

While he may have been confused about the measurement, Bates nonetheless described a system in which water was brought out of a gulch to fields on the kula slopes.

North of 'Iole, the windward kula slopes, limited by the absence of permanent streams, were developed in the dry fields which continue around to the leeward side. Menzies noted in 1793 that:

from the north-west point of the island [Upolu Point], the country stretches back for a considerable distance with a very gradual ascent, and is destitute of trees or bushes of any kind. But it bears every appearance of industrious cultivation by the number of small fields into which it is laid out (Menzies 1920: 52).

Settlement and Population

An 1833 letter from missionaries at Waimea, Hawai'i, to the Board of Commissions for Foreign Missions, noted that:

The population as enumerated in 1832 was 8,014--many of these live along the western shore where there is a good fishing ground, a still greater number along the line of cultivation which commences two or three miles inland. Over all the interior and also the eastern part of the district, the population is more uniformly scattered (American Board of Commissioners for Foreign Missions circular of March 15, 1833; copy in the Hawaii Mission Children's Society Library).

Two years later, the population of North Kohala was listed as 6,175 in another missionary census, the first accounting of population by named land units (Kumu Hawaii 1835: 98). The census showed an even distribution among the ahupua'a of the district, with a slightly higher population on the leeward side. Only nine of the 49 land units had assessed populations of more than 200. Three are clustered in nuclear Kohala (Hālawā with 214, Makapala with 299, and Niuli'i with 300), one is on the kula slopes (Kahei with 266), and the other five are dispersed along the leeward side ('Upolu with 233, Kukuipahu with 319, Hihū with 224, Kahua with 256, and Kalala with 233).

As in the pre-Contact period, settlements in the early 1800's continued to concentrate on the coastal strip. Ellis in 1823

(1969: 384-396) observed coastal villages at Honokāne, Pololū, Hālawā, Awalua, and Hihiu, as well as an inland aggregation at Kapa'au. Permanent mauka habitations were characteristically scattered, with seldom more than three or four houses standing together among the cultivated fields. King's description (see p. 16 in this report) corroborates this coastal village/dispersed upland settlement pattern.

Leeward trail systems, chronologically associated with the development of the upland field system, reflect the mauka-makai orientation between coastal occupations and upland agricultural areas. Situated at regular intervals approximately 1000 feet apart, they appear to mark boundaries between named land units, either ahupua'a or the smaller 'ili, as well as serving as access routes between coast and uplands (Kaschko 1973: 129-136; personal communication).

After Contact: Inevitable Change

From this beginning, the Kohala community expanded to encompass the entire north point of the island of Hawai'i. Early explorers and visitors to this area describe a rich landscape densely populated and heavily cultivated. Wealthy, fertile, and well-stocked, Kohala at the beginning of the 19th century was the bounteous consequence of a long history of settlement and local adaptation to the varied environments in which the interactions of agricultural development, population growth and political elaboration were integral factors.

But Western Contact began a train of events that changed the character of culture and society in the Hawaiian Islands. For a brief span of time, Kohala remained outside the immediate sphere of impact. It lacked a good harbor for foreign vessels and was located a considerable distance from the major towns of Lahaina, Honolulu, Hilo, and Kona. Few foreigners visited the area, and fewer stayed. But the effects of interaction between Westerners and natives, especially chiefs, made inroads even in isolated districts such as Kohala.

Ellis, on his 1823 tour of the island, was served goat's milk by natives in Honokāne Nui Valley, where large flocks were being raised "by some of the natives for the supply of ships touching at the islands for refreshments". At Hālawā, he was served mint tea procured from ships at Kawaihae. Later, at Kawaihae, he observed between two and three thousand Kohala men, on the orders of their paramount chief, transporting sandalwood logs from the mountains for shipment to O'ahu (Ellis 1969: 379, 381, 397).

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But if the impacts of foreign contact on the Kohala lifestyle were minimal in the first forty years of Western Contact, they were anything but insignificant after that. Where the prehistory of Kohala is related in centuries, the history of the area is accounted in decades. The traditional culture manifested in the patterns of land use and settlement are the baseline for the multiplicity of changes which occurred in the ensuing century and a half.

Section I.3

KOHALA 1841-1863: A COMMUNITY IN TRANSITION

The arrival in 1841 of Elias Bond, of the Protestant American Board of Commissioners for Foreign Missions, to Kohala marked the beginning of a 22 year period of transition in the district's history. In those years a new religion, a new land tenure system, and a changing economy altered the lifestyles and world view of the indigenous population of the district. The Kohala community was in flux, attempting to find a firm footing in a changing world, in a much larger network of social, political, and economic interactions than had previously existed.

This was a period in which settlements were consolidating on the windward side and in the leeward uplands as the declining Hawaiian population was withdrawing to more habitable and attractive areas. The economy was gradually shifting from subsistence, based on farming and fishing, to a cash-based, market orientation.

Father Elias Bond and the Advent of Christianity

The central character in this historical period is Elias Bond, one of the first foreign residents in the district. His influence, through his role as Protestant minister to the large district congregation, extended over all of North Kohala and included the southern area toward Kawaihae, which he toured four times a year for the 43 years which he served (Damon 1927: 74). His spiritual concern for his charges was integrally mixed with an inherent New England morality and stimulated a concern for their secular well-being and prosperity.

Bond, and the missionary Isaac Bliss who briefly preceded him, appeared in Kohala at a momentous time for Christianity in Hawaii. The traditional Hawaiian religion had been abandoned by the ali'i more than 20 years prior to Bond's arrival in Kohala. Unrelated but conveniently coincident was the first appearance of the Protestant missionaries in 1820. In the spiritual turmoil following the breaking of the kapu, interest in the new religion peaked, and then waned by the mid-1830's. By the latter half of that decade, however, a revitalization of the mission emanated from Hilo under the tutelage of Reverend Titus Coan.

The enthusiasm of the early Kohala congregation, numbering

up to 5,000, was certainly related to the religious resurgence:

[Bond's] earnestness had its effect and in three months' time inquirers flocked to the meeting house and to the Pastor's study. They would come from miles away, and sit patiently till their turn came to tell their manao (Damon 1927: 76).

From an auspicious beginning, Bond preached the Protestant beliefs, a philosophy of hard work and a firm conviction in the Christian god. Integrally associated with his preaching were his efforts directed toward the continued survival of the Kohala people in the face of momentous events and changes occurring in this time.

In some ways, it could be suggested that he replaced the Hawaiian ali'i as a paternal figure; his mandate to rule originating from a Christian god rather than a Hawaiian pantheon, his source of mana or spiritual power from his knowledge of Western ways and politics. He established districts within his field to most efficiently reach the people, he organized schools for children and for his teachers, and he became an arbitrator for district residents in political matters with the Hawaiian government. He took on the responsibilities of postmaster, land surveyor, road and school agent, doctor, shipping and selling agent, as well as employer and teacher. Kamehameha IV called him the "king of Kohala" in a biting reference to his pervasive presence in the district.

The presence of Father Bond during this period was not essential to the changes occurring to the district community. There were events taking place elsewhere in the islands which would have influenced Kohala regardless of the missionary's presence. However, the dominant role that he played as an agent of change left its mark on the events as they occurred in the district.

The Great Mahele and a New Land Tenure System

The mid-1800's saw a formal codification of a land tenure system based on fee simple ownership which had been developing in Hawai'i over 70 years of Western influence. The traditional land system, which operated in a highly stratified hierarchy of chiefs and commoners, was based on a reciprocal relationship of rights and obligations. The commoners provided material resources to the chiefs; the chiefs provided leadership and a spiritual relationship with the gods.

Land was not owned in any legal sense, but revocable rights

to its use were allocated and reallocated from the paramount chief down through the ranked system of lower chiefs and finally to the commoners.

When the potential for commercial and agricultural development became apparent in the 1830's and 1840's, some Western foreigners became increasingly dissatisfied and frustrated with the insecure position they held without fee simple ownership of land; few could justify an outlay of capital for a business venture without the security of land and water titles.

At the same time, other foreigners who were concerned about the welfare of the Hawaiian people speculated that ownership of land would encourage natives to work harder for their own benefit rather than for an apparently uncaring landlord.

If there seems...to be an incompatibility between the desires of the foreigners and interests of the native people, it was argued that this was not really the case, but that the two were mutually dependent one upon the other. The foreigner's enterprise would afford profitable employment for idle hands and would produce goods for export; commerce would then have a solid basis on which to rest and the country would become more prosperous; the general standard of living would be raised. Furthermore, foreign enterprise would furnish an example that would be a spur to native industry (Kuykendall 1968: 273).

Pressures from foreigners, as well as from disaffected, western-educated natives, made the late 1840's a critical period in the politics of the land tenure system.

Through a declaration of rights in 1839 and a constitution in 1840, it was legally established that land in Hawaii was owned by the people and chiefs in common, and that the king, as head of the nation, had only the authority of management. The Great Mahele of 1848 clearly defined the division of ownership between the king and chiefs. Laws enacted in 1850 authorized the sale of land to resident aliens and the award of kuleana, those lands actually occupied, cultivated, and improved, to native tenants. Fee simple ownership of land in Hawaii was a reality.

Unlike the ali'i, commoners were required to have their lands surveyed and to have supportive testimony to validate their land claims. In many areas of Hawaii, natives, unacquainted with the value (in foreign terms) of fee simple ownership, unable to pay surveyors' fees, or dissuaded by their chiefs, failed to apply for

kuleana grants, thus losing any claims to the land which they customarily lived on and worked under the traditional system. Bond, as land agent in Kohala from 1850 to 1862, encouraged natives to make their kuleana claims, "in order to protect the interests of the Hawaiians against foreigners coming in" (Damon 1927: 180).

Seventy ahupua'a in Kohala are listed in the Indices of Awards to Quiet Land Titles (1929), a record of the disposition of lands during this crucial period of history. Of those, 43 were claimed by the King as Crown or government lands and 27 were claimed by the ali'i. Native kuleana claims totalling less than 3,000 acres were made in 33 of the ahupua'a, primarily on the windward side. Between 1849 and 1865, land grants to foreigners and natives totalling more than 15,000 acres were awarded in 29 ahupua'a. (Table 1).

A Changing Economy

The basis of the traditional Hawaiian economy was subsistence farming and fishing, supplemented by intra- and inter-district trade networks. However, after Contact, the integration of Hawai'i into a world economy through the growing foreign population and a developing role in trans-Pacific trade and the whaling industry stimulated a shift toward a cash-based market system. The introduction of foreign goods and a concomitant increase in demand for them as status items underlined the inadequacy of a subsistence economy to deal with the new system.

This shift in economic orientation precipitated a change in the concept of wealth and relative well-being. Early missionaries who passed through Kohala described a fertile region, rich in cultivated produce and thickly scattered with dwelling houses. By 1860, however Bond remarks; "Money has been very scarce; and besides we have learned for the hundredth time, the compulsory but most unwelcome lesson that we are a miserably poor people" (Damon 1927: 155).

He notes the changes in the concept of status as defined by material goods. Horses became the symbol of new wealth; in 1857, tax records show a total of 700 horses in a district with only 695 taxable males. Fifty-seven individuals owned three or more horses. Native houses were cluttered with riding paraphernalia. Western furniture was also a status symbol and Bond describes small, thatched houses filled with large beds and chairs which were used, the natives continuing to sit and sleep on mats on the floor (ibid.: 158). Conflict was inevitable in the need for cash to pay for these items.

Table 1. DISPOSITION OF LANDS BY AHUPUA'A: 1848 to 1865
LAND COMMISSION AWARDS (LCA) AND LAND GRANTS (LG)

AHUPUA'A	DISPOSITION	TOTAL		TOTAL	
		LCA	ACREAGE	LG	ACREAGE
'Āwini	Government	-	-	2	582.0
Honokane	V. Kamamalu	4	15.4	-	-
Pololū	Crown	3	62.9	-	-
WINDWARD VALLEYS TOTAL		9	78.3	2	582.0
Makanikahio 1	Kupa (for Keaka)	-	-	-	-
Makanikahio 2/ Auau	Government/ Lunalilo (s)	-	-	6	243.6
Waiapuka	Kekuanaoa	7	101.8	-	-
Niuli'i	Leleiohoku	17	148.3	7	154.59
Makapala	Lunalilo	11	131.8	-	-
A'amakao	Crown	4	20.8	-	-
Hālawā	Kaoanaeha/ Crown	10	59.7	11	1696.0
Napapa'a	(?)	-	-	3	140.5
Halelua	Kekuanaoa	-	-	-	-
Apuakeauhau	Government	3	31.2	4	267.9
Kukuiwaluhia	(?)	1	17.4	3	189.0
Pueke	Kaaihinahina/ Government	2	7.9	2	207.5
Maulili	Government	-	-	1	146.4
Hala'ula	Keohokalole (s)	-	-	6	435.0
'Iole	Crown	-	-	1	200.0
WINDWARD KULA GULCH TOTAL		55	518.9	44	3680.5
'Āinakea	Government	3	77.6	12	470.5
Kapa'au	(?)	5	70.0	7	968.6
Honopueo	Leleiohoku (s)	9	143.9	13	910.5
Hana'ula	Keohokalole	1	10.3	4	199.4
La'aumama	Government	-	-	4	322.9
Puehuehu	Government	-	-	1	487.5
Kapua	Government	1	9.8	4	214.0
Honomakau	Government	7	65.2	8	270.8
Pahoa	(?)	4	38.4	5	286.0
Hāwī	L. Kamehameha/ Government	-	-	-	-
Ka'auhuhu	Crown	1	22.4	-	-
Hikiaupea	L. Kamehameha	-	-	2	220.7
Kahei (1 to 4)	Government	2	39.2	6	729.7

North Kohala Cultural Resources
Table 1. Land Disposition

-28-

AHUPUA'A	DISPOSITION	TOTAL		TOTAL	
		LCA	ACREAGE	LG	ACREAGE
Hualua	Government	2	9.5	1	118.0
Kealahewa	Kekauonohi/ Kaonaeha	-	-	-	-
Kealahewa 2	Leleiohoku (s)/ Beckley	-	-	1	170.0
Opihipau	Government	-	-	-	-
Hukia'a	Leleiohoku (s)	-	-	-	-
WINDWARD KULA SLOPE TOTAL		36	486.3	68	7354.9
Puuepa	Kekauonohi	2	23.3	-	-
Puuepa 1	Akahi/ Government	-	-	1	50.5
Kokoiki (1 & 2)	Government	3	23.3	3	433.0
Upolu (1 & ½ of 2)	Government	2	18.7	-	-
Honoipu	Government	-	-	7	751.7
Puakea (1 & 2)	Government	1	4.3	6	340.67
Kukuipahu	Kekauonohi	6	116.0	2	135.8
Awalua	Leleiohoku (s)	1	15.7	3	56.2
Haena	Government	-	-	1	70.0
Kapunapuna	Government	-	-	5	516.2
Kapaa	Leleiohoku (s)	-	-	1	114.0
Kapaanui	Kale Davis	-	-	-	-
Kou	Government	-	-	1	143.5
Paopao	Government	1	3.2	-	-
Kamano	L. Kamehameha	1	38.1	-	-
Māhukona	Government	3	41.4	5	934.5
Hihui	Government	-	-	-	-
Hihui 1	L. Kamehameha/ Government	-	-	-	-
Puukole	(?)	-	-	1	182.0
Lapakahi	Government	-	-	2	265.0
Kaipuha'a	Keohokalole (s)	-	-	2	316.7
Lamaloloa	Government	1	21.6	3	215.8
Paoo 1	Kanaina/Govt.	-	-	5	391.0
Paoo (2 to 6)	Government	-	-	-	-
Kaiholena 1	Kaopua	-	-	-	-
Kaiholena 2	Kamakahonu	-	-	-	-
Makeanehu (1 to 4)	Government	-	-	3	228.0
Kaupalaoa	L. Kamehameha	-	-	-	-
Kipi	Government	-	-	5	600.9
Kehena	Government	-	-	5	361.0
Kehena 2	Lunalilo	-	-	-	-
Puanui	Leleiohoku	-	-	-	-

North Kohala Cultural Resources
 Table 1. Land Disposition

-29-

AHUPUA'A	DISPOSITION	TOTAL		TOTAL	
		LCA	ACREAGE	LG	ACREAGE
Puaiki	Government	-	-	1	60.0
Kiiokalani	F. Young/ Government	-	-	-	-
Kaihoaa	Government	-	-	2	246.5
Pohakuloa	(?)	-	-	1	16.6
Kokio	Government	-	-	3	110.0
Kalala	Government	-	-	8	1439.6
Pahinahina	(?)	-	-	1	155.0
Kahua	V. Kamamalu	-	-	-	-
Kahua 1	L. Kamehameha	-	-	-	-
Waika	Gini Lahilahi	-	-	-	-
LEEWARD TOTAL		21	305.6	77	8134.2
Nunulu	Kamakahonu	-	-	-	-
Puuokumau	Kekauonohi	-	-	-	-
SUMMIT FOREST TOTAL		0	0	0	0

NOTE:

1. The listed number of LC awards excludes those which were awarded to ali'i, e.g. in Pu'uepa 1, LCA 5368 to Akahi, for 466.0 acres.
2. The symbol, (s), denotes the surrender of a particular ahupua'a to the government in lieu of commutation due on other lands.

The transition to a money economy is evident as well in the operation of the schools and mission. In early days, salaries and contributions were paid in kind. Teachers earning 25¢ a day would appear at Bond's door to be paid in cloth or miscellaneous household supplies. A list for mission supplies included "cloth, plates, nails, etc., to pay workmen" (ibid.: 108). In 1843, Bond notes that "the monthly contributions of this Church to benevolent objects for the past mission year has been about \$230. This has been given in work and material for my school houses and houses for boys and food for support of my school". A collection made for construction of the church building in 1844 totalled \$60.00, a sum which Bond evaluated as "quite equal to the ability of the people to pay" (ibid.: 140).

But in the 1850's, cash was becoming not only increasingly common, but a necessity. By 1851, Bond was able to collect \$800 in cash for a new church. By the end of the decade, he writes that "the total of our cash contributions in the 10 years has been \$11,000" (ibid.: 167).

The codification of the tax system for the kingdom in the mid-1850's, further exacerbated the need for cash. Traditionally, taxes were paid in kind or in labor with commoners and lower chiefs producing material resources for the higher chiefs. The first documented tax records appeared in 1855. Taxes, to be paid in cash, were required for horses, mules, and dogs. A poll tax was assessed of all males 17 to 60 years old at \$1.00 a year. A road tax was \$2.00 a year or six days of labor for the government, at 8 hours a day. In the 1859 records, real estate and personal property were added to the assessable list, with real estate taxed at 25¢ per \$100.00 of the assessed value.

Experimentation in and development of diversified commercial agriculture was one means of meeting a growing demand for legal tender. By as early as 1830, Honolulu was an important center of a world trade network involving China, Great Britain, the United States, the Pacific Coast, Mexico, Chile, and Peru. Between 1846 and 1850, the acquisition of California and Oregon by the U.S., in conjunction with the Gold Rush of 1848, resulted in the rapid settlement of the Pacific Coast and a concomitant demand for potatoes, vegetables, sugar, molasses, and coffee.

The whaling industry, which peaked between 1843 and 1860, created a similar demand for goods, as well as services, which bolstered local economies in the early port towns of Lahaina and Honolulu and later in Hilo, Kawaihae and Koloa (Kuykendall 1968: 306).

On Hawai'i, Kuakini, governor of the island, was instrumental in encouraging commercial diversification. Irish and sweet

potato cultivation was a lucrative operation during this period. Of the domestic produce furnished to 80 ships at Hilo in the year ending May 1854, potatoes brought in revenues of \$6,936.50; fresh beef followed with revenues of \$3,854.62. Only \$84.00 worth of taro, the traditional Hawaiian staple, was sold (ibid.: 307).

At Kawaihae, Lyons reports that Irish potatoes brought several thousand dollars in 1855 and sweet potatoes brought \$7000 in 1859 (Apple 1978). Further, in 1859, 62 vessels were supplied with more than 5,000 pounds of Irish potatoes (Thrum 1910: 158).

It is probable that potatoes were being cultivated in Kohala for commercial purposes. Damon (1927: 172) notes that "when potatoes were raised in too great quantities and brought by the trusting native to his [Bond's] door, literally by the barrellful, he had no recourse but to buy and ship them to 'Brother Chamberlain' at Honolulu on the chance of there being a demand from some California vessel or whaler in port". He says, "If any loss accrues, I am willing to bear it to secure the permanent cultivation of good Irish potatoes or any other useful or edible article among this people".

In contrast, sugar cultivation was carried out primarily by Chinese sugar masters, the Tong See. A lease for land in 'Iole, adjacent to the Bond residence, was used by two sugar masters, Aiko and Hapai, for sugar cane cultivation and milling. Their operation lasted from at least the late 1830's to the mid-1850's.

Up to the late 1840's, cattle hunting was also supported by Kuakini. An active business revolved around the collection and shipping of hides and tallow for the South American market. Although at the time its contribution to the native economy in Kohala was limited, it was the forerunner of the cattle ranches which eventually took over much of the leeward slopes.

Pulu collection, like sandalwood in the 1820's drew people away from their farms. Pulu is the wool-like fiber found at the base of the leaves of tree ferns. As early as 1851, a market had developed in San Francisco for pulu, which was used for pillow and mattress stuffing. In that year, 2,479 pounds were shipped to California. Between 1860 and 1864, the annual export was 600,000 pounds. In Kohala, Bond decried the:

great Pulu cause [which] has, alas been suffered to invade our population...Instead of occupying spare time and feeble hands...entire families enter into the picking. Tearing themselves from the places of their abode, they leave lands unplanted, houses desolate, schools neglected, the sanctuary forsaken,

and in short all social and religious privileges cast aside, to go away into the woods and live for months in a most heathen and abandoned manner. Pecuniarily they save nothing whilst morally they lose much (Damon 1927: 157).

Commercial activities and the search for cash to operate in a market system grew in opposition to native farming and fishing, which continued to provide the primary foundation for subsistence. The inevitable economic upheaval underlined a social upheaval manifested in population decline and settlement movements.

Demographic Considerations

...But there is something in the deep silence and desolation of Kohala which seems to say:

Stop! for thy tread is on an empire's dust;
A Nation's spoil is sepulchred below!

Bates, 1854

Between 1778 and 1850, the total population of the Hawaiian islands decreased from an estimated maximum of 300,000 to 84,165. Disease was a major factor in this massive depopulation of the islands in less than 75 years. Venereal disease, introduced in the islands by the Cook expedition in 1778, affected both fertility and morality, and its impact continued to be felt during the 19th century.

A series of other epidemics in the first half of the century eliminated a large portion of the population.

There is nothing done or to be done here...but to care for the sick and dying...the poor people are a doomed race, like snow before a summer sun they are wasting away (Bond, in Damon 1927: 102).

Epidemics in 1848 and 1849 carried off more than 10,000 people in 12 months throughout the islands. In Kohala, "100 have died in this district within three weeks. Seven died yesterday near us. The old and the very young can't hold out against the combination of diseases and live a la Hawaii and so they will live (ibid.: 101-102). In October of 1848, a measles epidemic made "all Kohala...a hospital and every inhabitant...a patient therein" (ibid.: 138). This was followed by protracted suffering and death in the next year, when an influenza epidemic swept through the district.

Bond notes that in addition to a physical and mental effect on the district residents, the series of diseases had a moral and spiritual impact: "In many, a listless, care-for-nothing

spirit seems to have engendered with regard, not only to the conditions of life, but also to life itself" (ibid.: 139).

Outmigration and a demographic shift from rural areas to growing urban centers reflected the lure of a larger world and world view on a previously isolated community. Foreigners, especially whalers and merchants, settled around good harbors and roadsteads. Ali'i and their followers gravitated toward these areas, which were the sources of Western material goods, novel status items which would otherwise be unavailable. Associated with the emergence of the market, cash-based economy, commoners followed in search of paying employment.

The floodgates of licentiousness...opened in the various ports of the island and specially in Honolulu, drew in great numbers of our young and most hopeful population, especially females, who, enticed to the Capital, prostituted themselves to the lusts of men calling themselves civilized and from Christian lands...the numbers who have left this district for Oahu during the last 18 months has often startled me and caused me great hours of sadness (Bond 1848).

The lure of urban life was difficult to withstand. In the face of a growing need and desire for paid employment, and the inability to acquire it in Kohala, and the decimating and demoralizing diseases, the population of the district had fallen from an estimated 8,000 in 1832 to little more than 2,600 in 1860 (Figure 4). Depopulation occurred primarily on the leeward side of Kohala, with district residents moving to Honolulu, Hilo, and Waimea, as well as to the windward area (Kohala Union Church Book). In the 1859 tax book, 62% of the 818 taxpayers lived on the windward side, and only 38% on the leeward.

Settlement and Land Use

The mid-decades of the 19th century spanned a period of consolidation of settlements and agricultural areas. At a district level, the settlements were shifting to the windward side as the population, decimated by disease and outmigration, abandoned the marginal areas for maximum resource zones. Father Bond, his church, and his schools were an attractive resource which also figured in demographic shifts. The windward side, especially the kula gulches which had been a focal point of settlement in earlier periods, became even more so as the leeward side was gradually abandoned.

The growing primacy of nuclear Kohala is clear in the government records and historical accounts of the mid-century.

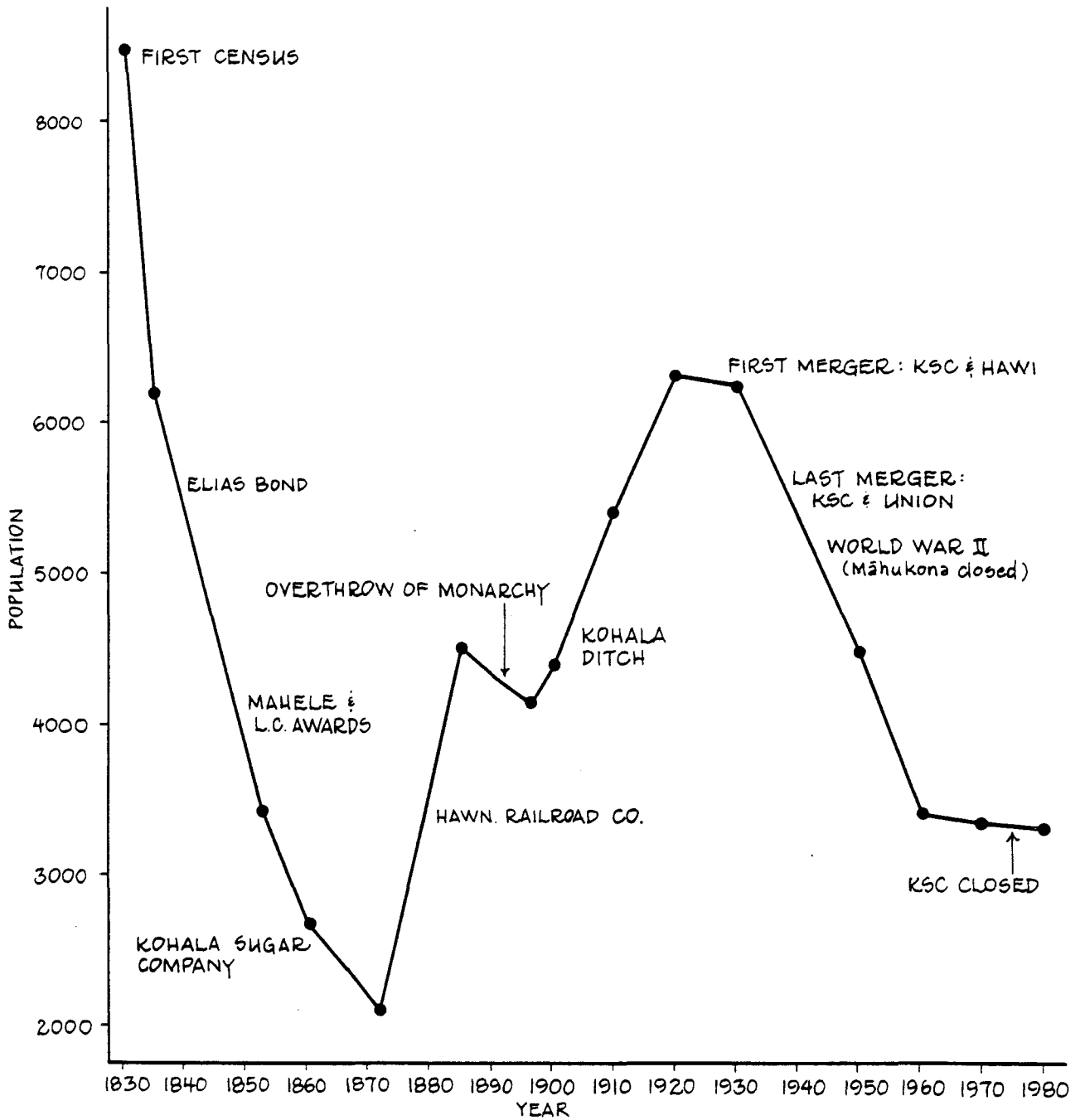


FIGURE 4. THE POPULATION OF NORTH KOHALA (SCHMITT 1977:12-14)

Of the 125 Land Commission awards granted in Kohala, 55 were located between Hālawā and Makanihāhio ahupua'a; only 21 were granted on the entire leeward side from Pu'uepa to the boundary with South Kohala (Figure 5; see Table 1).

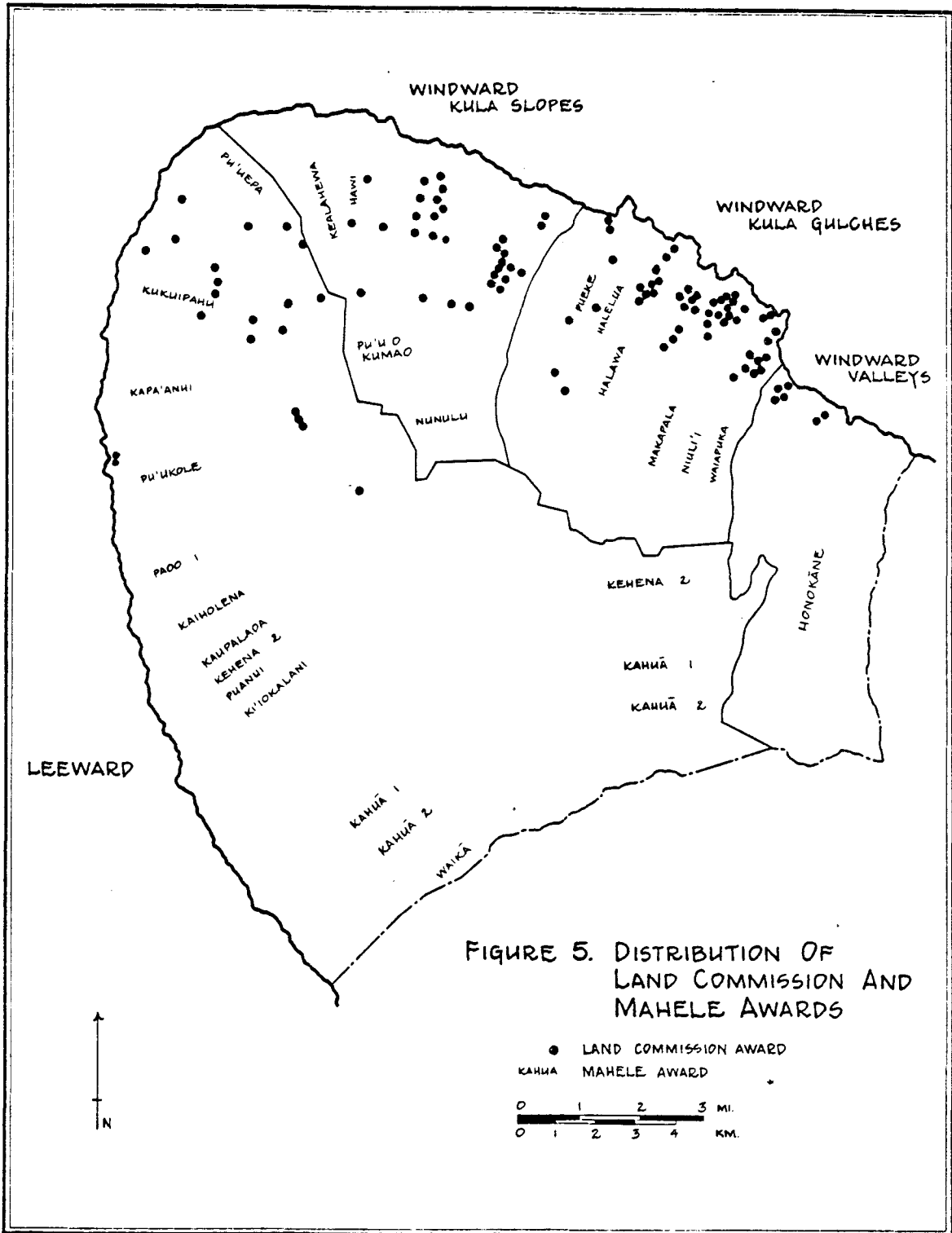
Land Commission testimonies specify the greatest variety of land use in this area as well. In Niuli'i alone, lo'i kalo, potato patches, gardens, pasture, and hala, banana, and coconut groves, are identified. The specificity of land use decreases outside of the nuclear area. On the slopes to the north, only kula lands are identified; in the leeward area (with the exception of Kukuipahu), lands are described only as "'aina".

Tax records support the implications of the land testimony. Nuclear Kohala was the residence of the largest number of taxpayers in the district*: 65 resided in Niuli'i and 60 in Makapala. Waiapuka, also in the kula gulch area, followed with only 32 taxpayers. Of 314 houses valued at \$100.00 or more, 98 were located in this area: 31 in Niuli'i, 23 in Makapala, 17 in Waiapuka, 15 in Hālawā, and 12 in A'amakao. Bond describes Niuli'i as the "crack Apana for enterprise" (Damon 1927: 121).

Although nuclear Kohala was clearly dominant, all of the windward side saw a growing importance. Land Commission awards are scattered throughout this area: 42 occur between Apuakeauhau and Kealahewa. Of the total tax population, 27% resided in this area; of the assessable houses, clusters occur in Kahei, Apuakeauhau, Kapa'au and Honopueo.

In contrast to activity taking place on the windward side, settlement and agricultural activity on the leeward coast and slopes were declining. It has been suggested that abandonment of much of the coast is implied by the failure of surveyors (in 1856) to map ahupua'a boundaries along the coastline, suggesting that defined boundaries were no longer necessary for areas in which no one resided (M. Kaschko, personal communication). Also, Land Commission awards are concentrated in the uplands of the northern ahupua'a of the leeward area. The paucity of coastal kuleana may reflect the agricultural priorities of the 19th century Hawaiians in Kohala, that is, of farming over fishing.

* The demographic composition of Hawaiian taxpayers is vague. The age and sex criteria for each type of tax varied, e.g. poll taxes were charged to males, aged 17 to 60, school taxes were assessed males, aged 20 through 60, women or children were taxed if they owned dogs. The assumption made here is that tax records reflect a differentiation among ahupua'a, though not necessarily an actual population.



The remnant leeward population nucleated into a few small coastal settlements and dispersed upland habitations which entrenched themselves in a fluorescence of wall building, probably stimulated by nearly feral ranging animals (a scourge on agricultural fields in the mauka area) and the new land tenure system which emphasized private ownership. Kuleana walls enclosed family houses, family gardens, and family animal pens, as much for protection from cattle and other animals as for property boundaries. Complexes of walled enclosures and platform structures in the upper portion of the leeward agricultural fields have been interpreted as the functional and spatial equivalent of kuleana (Rosendahl 1972: 125).

Within the leeward area, Kukuipahu maintained its role as a settlement focus, although government records attest to its waning dominance in the district as a whole, concomitant with the general abandonment of the leeward area. Of the 314 Kohala houses taxed in 1859, only eight were located in this ahupua'a, with fewer in other leeward land units. Of the total number of taxpayers, only 23 resided in Kukuipahu, as compared with 65 in Niuli'i and 60 in Makapala.

Land Commission awards are conspicuously absent from the southern portion of the leeward areas. Of a total of 21, for the leeward area, six are located in Kukuipahu; the others are situated in the nine ahupua'a between Pu'uepa and Lamaloloa. None were awarded in the 20 ahupua's south of Lamaloloa.

In contrast, a diversity of land use practices and crops is concentrated in nuclear Kohala. Agriculture included the irrigation of kula and gulch lands for kalo, and the cultivation of dry fields for sweet and Irish potatoes, dry kalo, fruit trees, and pasture.

This area, and the lands as far north as Paliakamoa, were distinguished by the irrigated fields, or lo'i kula, of the wide, rolling inter-gulch ridges. Such fields were described by B. D. Bond later in the century (Damon 1927: 266):

Certain it is that that old water course of Kamehameha the Great had been carefully and skillfully constructed to water the taro patches for as much as a mile down the Iole land. In the old days each taro patch had its own name. Beautiful they still are today, terraced up the hill to the outlet of the watercourse.*

Many of the Land Commission awards include land on the kula as well as in the gulches, implying a scheme of access to two

* A photograph of the taro fields is found in Damon 1927: 71.

arable environments: the floor of the gulches in irrigation systems and the kula in dry fields with the potential for intensification from dry to irrigated.

In the kula slopes north of nuclear Kohala, it appears that the predominant form of cultivation was non-irrigated, due to the limitations of insufficient surface water. However, with the shifting emphasis toward commercial agriculture, it is possible that the cultivation of Irish potatoes may have been a significant part of the landscape. It is certain that the Tong See sugar masters were cultivating cane in this area; Bailey, a school teacher with the early mission in 1838, noted the abundance of sugar cane growing in the vicinity (Damon 1927). Land Commission testimony for native parcels describes kula fields without specifying the type of crops.

The extensive dry leeward fields had largely been abandoned by the end of this period, although small gardens were probably still maintained in upland enclaves. Ranging cattle and other animals had created havoc in the fields; Bond (Damon 1927: 159) describes "the herds of cattle and horses belonging to the natives themselves, suffered to run at large through the most ruinous negligence, had well-nigh annihilated all possibility of cultivation".

On the Edge of the Frontier

By the early 1860's, Western Contact had made its inevitable mark on the community of North Kohala. Drastic population decline, virtual abandonment of half the district, and a growing detraction from subsistence activities characterized these brief two decades. However, the community remained essentially Hawaiian in nature and in actual numbers as well; foreigners were still a small minority.

But a need existed for some mechanism to keep the Hawaiian population in Kohala and to provide a means for their survival in the aggressive market economy. Father Bond saw sugar as a vehicle and in 1862, he approached his friend, S. N. Castle, of Castle and Cook, to investigate Kohala for potential development in sugar cane.

Although some aspects of traditional Hawaiian culture remained in Kohala, the dominance of this lifeway was ending in the mid-19th century. The ensuing decades saw the emergence of a fundamentally different Kohala community.

Section I.4

KOHALA 1863-1910: AN ECONOMIC FRONTIER

...when the sugar era dawned in Hawaii...cotton, potatoes, wheat, and other experimental crops retired before the triumphant march of the gilded newcomer.

T. Thrum, 1909

When Elias Bond directed his efforts to initiating sugar as a major agricultural industry in Kohala, he could not have foreseen the incredible success of his modest venture. His primary concern was to develop a means for the Hawaiian people of the district to compete successfully in the market economy that had evolved in Hawaii. What resulted was a vigorous, stable, and competitive industry which survived over a century of changing economic situations. For the Hawaiian people, however, the impact was not what Bond anticipated.

The "triumphant march" brought along not merely a strengthened economy but a new and prevailing resource, the sugar industry, which abruptly interrupted the process of indigenous adaptation to Westernization and instituted fundamental changes to the demographic composition of the community, to the organization of settlements, and to the patterns of land use.

Kohala during this 50 year period was a frontier community characterized by a variety of people, settlements, and commercial ventures. Newcomers to the district were filling an economic void with numerous and diverse endeavors, from which only a few would emerge successful. The void presented a challenge and what already existed in the district was insignificant in terms of what could potentially develop.

The nature of the community and the organization of land were drastically altered. The Hawaiian population, already decimated by disease and outmigration, was insufficient for the needs of market-oriented agriculture, and waves of immigrant labor from the Orient, Portugal, Puerto Rico, and the Philippines arrived. Americans, British, and other northern Europeans came as managers and administrators. All were pioneers, leaving family, friends, and homes to seek better lives in the Kohala sugar frontier.

Settlements were no longer based on traditional subsistence which demanded access to a variety of resources. They developed

around the main sugar mills and associated plantations, and were socially stratified within a plantation hierarchy (Figure 6). Sugar, for commercial purposes, became the primary cultigen, and, although subsistence farming continued, most evidence of native cultivation went under the sugar plow.

In a larger context, this 50 year period was also one of political turmoil in the Hawaiian kingdom. Although the year 1863 marked the rise to power of Lot Kamehameha, within ten years, the Kamehameha dynasty had ended and the next three decades saw the demise of the Hawaiian monarchy itself. This period was characterized by political machinations between supporters of the ruling ali'i and anti-monarchists, primarily Western businessmen who saw the monarchy as unstable and unsympathetic to their profit-making interests.

Although the Hawaiian rulers had made concessions to Westernization, the establishment of the Republic of Hawaii in 1893 and eventual annexation in 1898 by the United States ended any vacillation of the political direction and control of the Hawaiian nation. The end of the monarchy marked the beginning of a concerted Westernization effort. Hawaii, and Kohala, became a part of a much larger national entity.

The Sugar Industry and Other Agricultural Enterprises

In 1893, when the Hawaiian monarchy fell before a group of annexation-minded Americans, the reaction reported from Kohala was "while some have been making history, others have been making sugar" (Hawaiian Gazette 1893).

The sugar mills and their associated plantations held a collective preeminence as major agents of change and development in the district. Kohala Sugar Company, Bond's model for economic security, was incorporated in 1863. After a decade of struggling, the company finally showed a credit balance in 1872, which coincided with the Reciprocity Treaty of 1876 between the United States and Hawaii. Although Bond maintained a paternal watch over the welfare of his congregation of laborers, his influence in the operation of the mill and plantation eventually waned before the demands of the profit-motive and his own increasing age.

By the time of Bond's death in 1896, the company was flourishing and competition had arisen in the form of five other sugar mills. Spurred on by the Reciprocity Treaty, sugar pioneers saw the potential of commercial development in Kohala. Dr. James Wight, one of the early haole residents of the district, started the first of the other mills in 1873, at Halawa. In 1874, Union

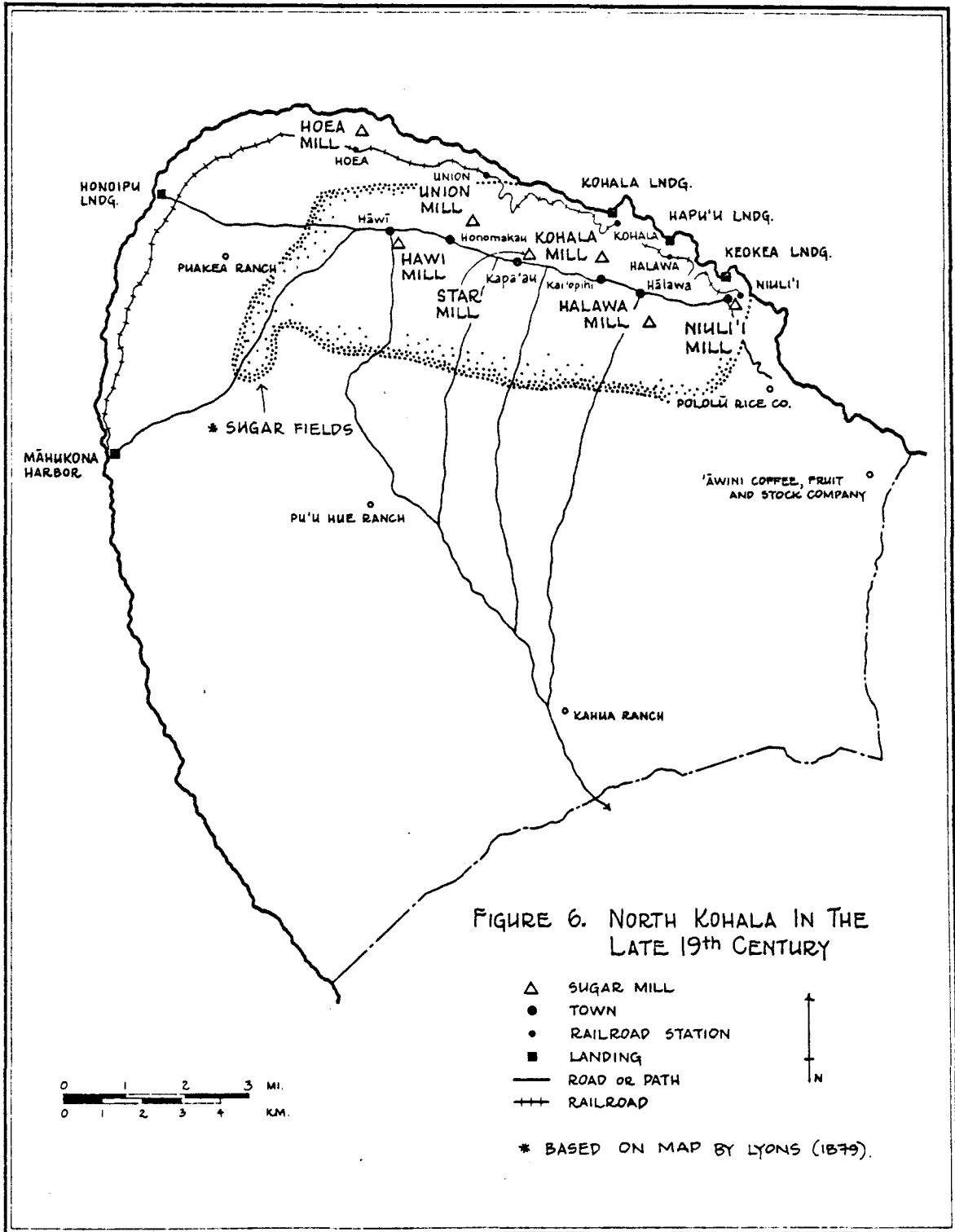


FIGURE 6. NORTH KOHALA IN THE LATE 19th CENTURY

Mill and Plantation Co., started by the Hinds of Maui and later headed by James Renton, was set up in Honomaka'u. Judge C. F. Hart, formerly of Kona, moved to Kohala to start Niuli'i Mill in 1877; originally milling native-grown cane, he soon expanded into a field operation as well. R. R. and John Hind moved to Hāwī after selling Union Mill and set up the Hāwī Mill and Plantation Co. and its two sugar-growing subsidiaries, Puakea and Homestead Plantations, in 1881. In an effort to improve operations, the Hāwī company constructed Hōea Mill in 1904. Star Mill, in Kapa'au, operated only briefly in the early 1880's (Kita et al 1977: 7-15; see Figure 6 for locations).

The demands of successful sugar production stimulated the formation of two supportive enterprises. To service the mills, the Hawaiian Railroad Company, started by S. G. Wilder in 1881 and completed in 1883, ran from Māhukona to Niuli'i over 17 trestles and almost 20 miles of rail. Previously dependent on ox-cart transport of cane to landings at Hapu'u, Kauhola Pt., and Honoipu, the mills, with one exception, now had efficient access to a landing at Māhukona on the sheltered lee side of the district. Hāwī Mill continued to use its landing at Honoipu. In 1884, the rail company carried 20,000 tons of freight and 6,000 passengers (Best 1978: 43), proving itself a viable and nearly indispensable means of transportation. At the end of the century, the line was purchased by a conglomerate of plantations; again Hāwī refused participation, although it eventually joined in 1912.

The Kohala Ditch, a major engineering feat, was begun in 1904 and completed two years later. Its construction marked the virtual end of the frontier period; it was the last major effort by the sugar pioneers in fully developing their industry in Kohala. Tapping the headwaters of the Kohala valleys, the ditch ran through miles of valley and ridge terrain through 44 tunnels, the longest 2,370 feet, which were blasted and carved by a handful of intrepid Japanese laborers under the direction of M. M. O'Shaughnessy (n.d.). From the beginning, it provided at least 20 million gallons of water a day, with a proposed 70 million a day as a maximum, delivering a rich and regular source of irrigation water for sugar fields at the north end of the district, which was susceptible to periodic drought.

Other agricultural enterprises, while miniscule compared with sugar, contributed to the economic diversity which characterized the frontier. Ranching produced the most impact, second only to sugar production. In the 1840's, herds of wild cattle, derived from the few head introduced by Vancouver in 1793, were creating havoc in the native gardens on the leeward slopes of Kohala and in Waimea. Cattle hunting, a lucrative profession in the mid-19th century, evolved into the

ranching business which required defined pasture lands and facilities (Wellman 1973). Large parcels on the leeward side of Kohala were purchased or leased for this purpose. Among significant cattle operations of this period were Kohala Ranch, part of the James Woods estate, Puakea Ranch, started in 1885 by James Wight but later leased to Kohala Ranch, the Waimea Grazing and Agricultural Company, and Parker Ranch of Waimea.

Rice was grown in the makai portion of Pololū Valley, starting sometime after 1870. The first workers came from China, although later employees were hired from the plantations. The 1890 tax records indicate 18 male laborers, working on 35 acres of land. Rice cultivation continued throughout this period and lasted until about 1930 when the whole Hawaiian rice market collapsed.

Coffee production centered in the kula area of 'Āwini. Although little is known of actual operations, it was started in 1895 as the Awini Ranch Company (B. Sproat, personal communication) and appears in the 1910 tax records as the Awini Coffee, Fruit, and Stock Company, with an aggregate value of \$800.00 and a physical layout consisting of 972 acres.

A brief effort at tobacco cultivation provides an interesting sidelight in Kohala's agricultural history. In 1863,

...an effort was made by one or two foreigners in Kohala in tobacco culture, the heiau of Mo'okini, at Puuepa, serving them for their nursery, but they found the poko's [cutworms] and high winds against them (Thrum 1909: 117).

The initial diversity evident in the number of companies attempting the various types of operations characterize the economically unrestrained nature of the frontier period. These efforts produced changes in networks of interaction which encompassed all aspects of community life. Agricultural industrialization introduced a foreign labor force and restructured the mental template of community organization through the acquisition and management of lands along corporate lines.

A Revolutionized Population

Those who control the plantation in a large measure control the welfare of the district. E. Bond 1870.

The numbers and ethnic diversity of immigrants for plantation labor and administration quickly stemmed the tide of depopulation in the district but intrinsically altered the character of the

Kohala community.

The first increase in population since Western Contact was recorded in 1872 (see Figure 4) and coincided with the major immigration of plantation laborers. In the 1870's, Chinese immigrants accounted for 77% of the increase of resident foreigners in the district. Between 1878 and 1884, a total increase of 1,394 individuals included 902 Chinese and 414 Portuguese. The 1890 tax records (Book III) show 405 Japanese residents; 346 of them are apparently so foreign that they are listed by number, rather than by name, under the headings of the various mills. Later Puerto Rican, Korean, and Filipino laborers added to the rise in population, unlike the Hawaiians who sustained a persistent decline after an initial surge in the early 1870's.

A greater diversity of ethnic groups and altered percentages of representation were engendered by the structure of plantation immigration needs (Table 2). In the mid-decades of the 19th century, few foreigners resided in Kohala: Hind (n.d.: 9) writes of the handful of Caucasian residents, most of whom were associated with Kohala Sugar Company, who lived in the district in the 1870's. In 1878, 76% of the total population (3,299) was Hawaiian; the remainder was divided among seven different ethnic groups, the largest being Chinese (Census 1878). By 1896, non-Hawaiians of ten different ethnic backgrounds comprised 60% of the total district population (Bureau of Public Instruction 1897). In 1910, of 500 births registered in the first six months of the year, 192 were Japanese, 83 were Hawaiian, 77 were Puerto Rican, 67 were Portuguese, 58 were Chinese, and 23 were unspecified (Midget, June 1910).

Thus, by the first decade of the 20th century, the population of Kohala was ethnically diverse and numerically rising. The Kohala frontier, geographically isolated and characterized by an ethnic amalgamation, generated a need for a sense of cultural identity in a foreign milieu. Each immigrant group retained an initial insularity which provided an identity based on a shared cultural background. It has been suggested that plantation camps tended to be ethnically-defined, not so much for intentional segregation as for the psychological support of a shared culture.

This was as true among Caucasian administrators as among multi-ethnic laborers. A British luna noted:

Some of the boys were from good homes in the Old Country and were used to comfort and companionship of their kin and life was not too lively in the country districts in those days (Hall 1896).

Table 2. POPULATION BY ETHNIC BACKGROUND: 1859-1896

<u>BY COUNT</u>	1859 (Tax)	1878 (Census)	1884 (Census)	1890 (Census)	1896 (Census)
Native Hawaiian	796	2514	2280	1670	1280
Haole Hawaiian		45	88	437	563
Mixed Hawaiian		188	167	268	370
Chinese		363	1265	803	698
Japanese			3	515	795
Portuguese		7	421	465	282
American		74	87	53	47
British		62	61	43	46
Polynesian			39	23	11
German		13	6	14	9
French		1	2	2	
Other Foreign	22	32	62	10	23
TOTAL NUMBER	818	3299	4481	4303	4125
 <u>BY PERCENTAGE</u>					
Native Hawaiian	97.0	76.0	50.9	38.8	31.0
Haole Hawaiian		1.1	1.9	10.2	13.6
Mixed Hawaiian		6.0	3.7	6.2	8.9
Chinese		11.0	28.2	18.7	16.9
Japanese			0.1	11.9	19.3
Portuguese		0.2	9.4	10.8	6.9
American		2.0	1.9	1.2	1.1
British		2.0	1.4	1.0	1.1
Polynesian			0.8	0.6	0.4
German		0.5	0.2	0.35	0.2
French		0.2	0.1	0.05	
Other Foreign	3.0	1.0	1.4	0.2	0.6
TOTAL PERCENT	100.0	100.0	100.0	100.0	100.0

The British, coming as skilled, supervisory, and managerial personnel for the plantations, were an example of the frontier colonists who came to Kohala. Although establishing themselves in the district, they still maintained ties with their homeland. The Kohala Club was originally set up on the concept of a British men's club, as a private area for smoking, playing cards and billiards, and drinking. A portrait of Queen Victoria hung in the smoking room and the Diamond Jubilee of her reign was celebrated, as was the capture of Pretoria by British forces in the Boer War (Hall 1896).

The Organization of Settlement

As employers the sugar companies provided another source of identity for newcomers to Kohala. Where formerly ahupua'a encompassed the diverse resources necessary for subsistence and were the basis of geo-political identification, the companies were the focus of a mono-crop resource and a contemporary sense of identity. In 1859, before the advent of sugar, tax records were organized by ahupua'a, of which 59 were identified as tax units. By 1890, more than 25 years after the start of Kohala Mill, only 21 of the native land units were used for tax purposes, and non-landholders or those owning property below the assessable limit of \$100.00 were listed by corporations.

The organization of land based on a commercial foundation diminished the emphasis on kin relationships and an inherent kindred identity with a particular piece of land, which was characteristic of the Hawaiian perception of property. This, as well as improved transportation, engendered a mobility among the native population. Individuals moved from their places of birth, owned land apart from their places of residence, or abandoned the district altogether. In 1859 and 1890, tax records show that more than 20% of native Hawaiian landholders owned parcels outside their ahupua'a of residence. In 1905, among 22 applicants for homestead leases in Pololū, 14 were born in that area. Three of the others were from elsewhere in Kohala, and five were from outside the district (Holstein 1905).

Among non-landowners and plantation laborers, settlements were structured by the needs of the sugar companies. Under the constraints of non-mechanized production, plantation camps were dispersed among the fields. In some cases, a cooperative growing system operated whereby the responsibility for a section of adjacent fields was contracted to a camp (Conde 1971: 12).

Larger settlements nucleated around commercial and social centers. This period saw the development of a number of small town centers organized primarily around the sugar mills. Defined

as the foci of commercial activity, these areas grew out of a demand for goods and services by people unable to produce the bulk of their subsistence needs, as well as a demand for imported commodities, especially among immigrant laborers. For example, among Chinese workers, a demand for Chinese foodstuffs sustained a market for such goods well into the 20th century; advertisements for Japanese kimono and hand-painted Satsuma vases in a 1913 issue of the Kohala newspaper attest to the persisting demand for such items.

In the early frontier years, the dispersal of goods and services was limited primarily to a few retail outlets and butchers. Up until 1873, the only stores were located at Kohala Sugar Company and on the Wight estate in Hālawā (Hind n.d.: 59). Kai'opihi, located near Hala'ula and the Kohala Mill, developed as a center of commercial activity, where people gathered for bartering and socializing (Midget 19 Feb 1913); the first drug store and social hall were located there (Hind n.d.: 37).

But with the development of the various mills, Kai'opihi lost its allure. The structured work hours of plantation labor precluded the casual organization of the social and business center. An increasing number of small shops throughout the district provided more accessible goods and services, if not less social activity (Hind n.d.: 70).

The number of enterprises evident in license applications to the Minister of the Interior exemplify the potential for opportunities available in the frontier situation. In 1885, 53 licenses for businesses were granted for nine different activities: retail, victualizing, retail spirits, salmon, pork and meat butcher, billiards, peddling, and auctioneering. Stores and other providers of goods and services aggregated around the mills, foci of settlements for plantation employees, i.e. in Niuli'i-Makapala, Hālawā, Hala'ula, Kapa'au, and Hāwī (Table 3).

During the last decades of the 19th century, nuclear Kohala maintained its preeminence through the supremacy of Niuli'i Mill in sugar production. In 1883, Niuli'i produced 1,600 tons of sugar; Hawi produced 1,500 tons, Kohala produced 1,200 tons, and Halawa, Star, and Union each produced 1,000 tons (Hansen 1963). Almost 50% of district retail outlets were situated in this area. In 1895, four out of a total of seven victualizing licenses were given to Hālawā-Makapala-Niuli'i entrepreneurs; all butchers were located in this area.

Stimulated by vigorous commercial development, new alternatives for transportation and communication altered the concept of distance and accessibility within and outside the district. The frontier was gradually settled with the construction

Table 3. DISTRIBUTION OF STORES IN NORTH KOHALA, 1885
 (Source: License Applications to the Minister of the Interior, Kingdom of Hawaii)

	A	B	C	D	E	F	G	H	I
Niuli'i Mill Area									
Niuli'i	3				1				
Makapala	6					1	1		
Hālawa	4				1	1	1		
TOTAL	14				2	2	2		
Kohala Mill Area									
Kaiopihi	5								
Kapaau	3	1		1	1				
TOTAL	8	1		1	1				
Union Mill Area									
Puehuehu				1					
Hāwī Mill Area									
Honomakau	1			1		1	2		
Hāwī	2	1				1	1		
TOTAL	3	1		1		2	3		
Pu'u Hue	1								
Māhukona	1								
Unspecified	2	2	1	1				2	1
DISTRICT TOTAL	28	4	1	4	3	5	5	2	1

KEY:

A = Retail
 B = Victualizing
 C = Retail Spirits
 D = Salmon
 E = Pork Butcher

F = Butcher
 G = Billiards
 H = Peddling
 I = Auctioneering

of more and better roads and the development of the railroad, which together cut across the grain of ridge and gulch on the windward side. Steamer service provided contact and commerce with other islands as well as with the United States. Telegraph and telephone services were installed in the late 1880's. Such developments enhanced the flow of goods and information which in turn expanded interaction networks between the commercial centers and outside Kohala itself.

The Organization of Land

The perception of land as an organizational unit was greatly redefined by the shift to a market economy and the changing networks of social and economic interaction. Although subsistence activities continued, an enhanced mobility and the increasing reliance on paid employment and purchased goods and services detracted from the mauka-makai, multiple resource access orientation of the indigenous period.

Land was acquired and organized around sugar as a primary economic resource, with other commercial crops and ranching as subsidiary foci. In 1890, 87% of 53,118 acres of taxable land was in some form of commercial agricultural development (Book III 1890: 74); only 81 acres were cultivated in taro (as compared with 184 acres in 1859).

Subsistence farming was practiced in various areas such as in nuclear Kohala, with irrigated kalo in the gulches and scattered kula lo'i amidst the cane fields, and with sweet potato and forest kalo in the leeward uplands (S. Hook, personal communication). The mountains remained a resource area for pigs, banana, hō'i'o (young fern fronds), and 'ōpae (B. Sproat, personal communication). In these areas, farming and miscellaneous collected resources were the primary sources of food, with only supplementary purchases of items such as crackers, bread, sugar, and soap.

But in other areas of the district, the growing emphasis on commercial land use adversely impacted subsistence activities. After the mid-1800's, property claims were structured by ownership rather than rights to use and the inflexible demands of profit-oriented endeavors infringed on native subsistence activities, which were based on access to a variety of environments. Documents testify to the encroachment on native use of diverse resources and to actual disenfranchisement from customarily used or fee-simple owned lands.

Construction of the Kohala Ditch and the railroad greatly impacted subsistence activities, not in an actual loss of land but in the ability to effectively utilize it. The Ditch tapped

the headwaters of the Kohala valleys and gulches and essentially cut the water supply to makai areas, thus ending irrigated kalo cultivation on a wide scale (H. Lum, personal communication). Construction of the Ditch coincided with the abandonment of Honokane Nui Valley.

The railroad crossed about 20 miles of Kohala lands from Māhukona to Niuli'i. An 1882 letter from a disgruntled Hawaiian farmer describes the impact on his subsistence farming; his property was being

...ruthlessly destroyed by the railroad overseers of S. G. Wilder. This act is equal to that of plain murder, because the livelihood of myself and my family is reduced to nothing, that is. My plants and that of my family are covered with dirt, the taro, banana, ti leaves, coffee, mango, orange, bamboo, and other plants. My property is filled with fruits, but these days it is reduced to naught. (Conde 1971: 40).

The chronology of disenfranchisement in Niuli'i and Makapala is an example of actual loss of native lands to commercial agriculture. The management of Niuli'i Mill approached Hawaiian owners of kuleana lands in Makapala to grow sugar cane for milling operations. Money was advanced by the plantation and natives were encouraged to initiate commercial cropping. However, for various reasons, the natives became indebted to the company and eventually were forced to surrender their holdings to meet their financial obligations (Akana 1920: 47).

In a similar situation in Pololū Valley in 1881, a dispute arose between the Chinese lessee of the valley and native tenants over the use of kalo patches and a fishpond near the mouth of the valley. The tenants argued that the pond and lo'i belonged to the ahupua'a "from time immemorial", and that "from since the days of Kamehameha IV...they have been held by the konohiki" (Hart 1881). The Chinese, however, argued possession through legal lease.

In 1895, a complaint was made by the management of Awini Ranch Co. to the Minister of the Interior concerning natives hunting and trapping pigs on Government forest land at 'Awini. H. L. Holstein (1895), writing on behalf of the company, called the natives "irresponsible" and suspected potential harm from continued access. He then requested a license to serve as Agent of Government lands to control entry to the 'Awini area.

Commercial agriculture as a permanent aspect of the Kohala community was confirmed by the end of this period and the difficulties of continuing primary subsistence activities were only exacerbated with time. While pockets of subsistence farms

existed, they were rapidly losing their significance in the community economy, in the same way that fishing and forest resource collection became secondary.

At the Edge of a New Century

Kohala as a frontier community was characterized by a diversity in population, settlements, and commercial ventures. Filling an economic void, pioneers brought agricultural industry and the accoutrements for economic success to an undeveloped area. The native Hawaiian subsistence-based culture was lost under the influence of a growing dependence on purchased goods and an exuberant development related to sugar production.

But frontiers are settled and the pioneer milieu of Kohala at the beginning of the 20th century gave way to an established and thriving community. A realization of its geographical limitations in the context of all of Hawaii, but a pride in its own worth, characterized the Kohala community in the interlude between frontier and establishment.

Section I.5

KOHALA 1910-1941: ECONOMIC FLORESCENCE

In the early decades of the 20th century, the frontier disappeared under the vast, cultivated fields of cane, still gilded, but no longer a newcomer, under maturing towns with the social amenities of theaters, social halls, restaurants, and varieties of stores, under a diminishing class consciousness and a growing and upwardly mobile labor group. The communities were established and identified around economic foci: the mills, the plantations, and ranches. Pockets of subsistence-oriented producers remained, but the majority of the populous relied largely on the goods and services readily available in the commercial areas.

This period saw the firm institution of sugar production as the major industry, and eventually the consolidation of the numerous pioneering efforts into the single Kohala Sugar Company. One after another, in a series of mergers, the five mills became one.

Kohala was established as a thriving district on the Big Island, unable to keep abreast of Hilo in size and growth, but significant in its own right and to its own residents. The population increased, the quality of life improved, and opportunities were available for personal advancement.

The growth reflected in a 30% increase in population between 1900 and 1920 showed itself in the prospering and diversifying communities in Kohala. Settlements were still largely organized by the sugar companies, who provided low-rent camp housing, recreation facilities, annual home maintenance, roads, and sewage facilities. In 1919, all the houses in the main Hāwī camp were rebuilt; most had four to six rooms designed for two families, although barracks were available for single men. Facilities within the camp provided movies, a club house, and tennis courts (Honolulu Star-Bulletin 1920).

Further, homesteading on government lands at Ka'auhuhu, Kahei, and Pu'uepa-Kokoiki in 1904 and 1914 created new communities north of Hāwī. The district newspaper notes the sale of 63 Kohala homestead lots on public lands (Midget, 2 July 1913) and later advertisements show stores serving these areas. The Pu'uepa-Kokoiki Homesteads, sold in five to eight acre parcels, were

awarded in 999 year leases to encourage diversified agriculture (Midget, August 1910). Attempts at pineapple cultivation in 1909 and again in 1919 on homestead lease land also resulted in settlement development, most notably in a camp similar to those on the sugar plantations.

Improvements in the sugar company facilities were exemplified by the Hawi hydro-electric plant installed in 1910 and the new, steel mill constructed in 1912 at Kohala Sugar. A hydro-electric plant was also constructed at Halaula in 1921. The plantations expanded their boundaries: Niuli'i grew from 390 acres in 1908 to 2,000 acres in 1929 and to 3,100 acres in 1931. Hawi expanded from its original 200 acres to more than 3,800 acres in 1929 (Kita et al 1977: 11-14).

Although short-lived, a manual training project, initiated in 1909 by the minister of Kalāhikiola Church, developed into the Kohala Midget, an eight page weekly newspaper with island-wide coverage and circulation, and carrying advertisements for businesses in Hilo and Honolulu, as well as for enterprises in Kohala.

By 1917 when the Midget ended its brief printing history, Kohala boasted three major settlements at Niuli'i-Makapala, Kapa'au, and Hawi, and numerous smaller communities at Māhukona, Honoipu, Hoesa, Hālawa, and Ka'auhuhu. Amenities ranged from Tom Nahiwa's travelling moving picture show ("He has a film of Wilbur Wright flying in his airship, life scenes in Australia--horsebreaking, rabbit-exterminating, a submarine trip to the bottom of the sea, and a number of comic subjects". Midget, Jan. 1911), to the Hawi Racquet Club (ibid., July 1909). The Kohala Club in Puehuehu held the offices of a dentist and an optician; three doctors, including B. D. Bond, son of the missionary, practiced in Kohala, where a new hospital was opened in 1917 (Hansen 1963). Schools operated at Honomakau, which was the largest with 254 students and seven teachers, at Hālawa and Makapala, each with five teachers and over 150 students, and at Māhukona, Honoipu, Kohala Homestead, and 'Āinakea (Bureau of Public Instruction 1913).

Although the condition of roads in Kohala was a constant source of editorial comment in the Midget, their state of maintenance detracted neither from the popularity of automobiles, nor from the surge in the autobus business. In an "Autonews" column in the paper (15 March 1916), 91 cars are listed by model and owner, including 41 Fords ("He who drives a Ford finds himself in the company of the elect."), eight Cadillacs, seven Buicks, three Hupmobiles, and 32 other vehicles of 17 different models. They were status symbols and their ubiquity implies a wealth and prosperity in the district. Many cars, already

THE KONA... HAWAII

Advertisement

Coming!

This week and next at PAALIAI, HONOKAA, ANIHALA, KAHOLENA, and KUHONIALE.

Tom Nahiwa's Moving Picture Show

Featuring the Following 16 Shows:

1. The Drummer Girl of Vicksburgh—A splendid War Drama.
2. The Battle of Crecy—Historical—About 5000 men at arms participating.
3. Cuban Industries—Educational.
4. The Doctor's Heroism—A fire Scene.
5. An Indian's Gratitude—Western.
6. Cowboy vs. Tenderfoot—Western.
7. Scenic Japan—This film ends with a volcano in full eruption.
8. Owancee's Great Love—Western Indian Drama.
9. Alkali Ike Plays The Devil—A very comical picture.
10. Western Hearts—Cowboy.
11. Bud's Triumph—
12. A String of Beads—Western.
13. A Japanese Comedy—comic.
14. How The Money Went.
15. As Princess Bess told It—Indian.
16. U. S. Revenue Detectives.

Splendid Show each Night

Tom Nahiwa, Manager

Kohala Auto-Buss Road Service.

Commencing **SATURDAY, NOV. 30, 1912**

TWO NINE-PASSENGER AUTO-BUSSES.

SERVICE.

Hawi to Niulii

WITH STOPPAGE STATIONS AT:-

Union Mill Camp,
Kapaau,
Kohala,
Halawa,
Makapala,
Niulii.

Busses will run on schedule time. Saturday nights extra service to connect with Hawi and Tom Nahiwa's Moving-picture Entertainments. Sundays Special service to connect with Sunday-school and Church.

FARES.

1. Ten cents between stoppage stations.
2. One Dollar full round trip Hawi to Niulii.
3. Special rate commute tickets for regular patrons.
4. Store parcel and mail delivery solicited.

JAMES A. REID, Proprietor.

being one or two years old, had been sold to enterprising plantation workers for use as autobuses, plying a much needed, though somewhat disorganized trade.

Enterprises such as the autobus business, were a mechanism for advancement for an upwardly mobile component of Kohala's population. As immigrant groups became more assimilated, the class stratification based on ethnic lines, which was apparent in the frontier period, deteriorated, and a multi-ethnic merchant group emerged which formed the commercial foundation of the district economy.

The initial part of this development had the flavor of experimentation, a carry-over from the frontier. Commercial enterprises were mobile, with entrepreneurs moving their businesses from place to place. Partnerships were formed and dissolved; businesses bought out neighboring businesses. As commercialization developed, however, the initial diversity gave way to a consolidation exemplified by the Sakai Stores and the Sakamoto Stores which dominated advertisements in the Midget and presumably retail life in the district.

Other advertisements in the Midget show a range of businesses, including studio photography, watchmakers, insurance sales, banks, drug stores, ice cream parlours, billiard halls, and innumerable retail stores. As the editor of the paper asserted (12 Nov. 1913):

What we recommend, and practice, is always try your Kohala dealer first. If he does not care to order for you---and he usually will---then try Honolulu.

Kohala was second to none on the Big Island, in the eyes of at least one resident.

This type of community pride underlined the economic isolation of the district from the rest of the island but emphasized its closer relationship with other areas. The rest of the island was a long, overland distance away by few and poorly maintained roads; of the 91 cars listed in the auto column of the paper, most "can never tour---the road between here and the belt road is too bad. Most of these trucks never 'truck', outside of narrow local limits---it would be too expensive to truck to Hilo. Most of these cars run only within a radius of from five to ten miles" (Midget, 15 March 1916).

But Māhukona provided a link with a broader world, separated from the island sphere, connecting Kohala with the rest of Hawaii and other parts of the world.

Advertisement Advertisement

Christmas Sale:
at
Sakai's Store

We have on display at our Store, the following goods:-

Fine Kanko Silk Lined Kimonos,
Beautifully Hand Embroidered Habutai
Silk Kimonos of all colors,
Silk Baby Jackets, Fancy hand Em-
broidered Cushions,
Ladies Knitted House Jackets,
Ladies Knitted Scarfs.

" Silk scarfs,
Fine knitted sacques, Children's and Ladies'
Aviation Caps,
Children's Plush Coats, etc.

Have you seen our Splendid line of stationery, Christmas Bon Bona, Glass-ware, Crackery, etc.
Our New stock of Beaver hats, just arrived. Come and see!

Remember the Date.

Dec. 7, Saturday, and be the first to
Pick your choice.

For \$10.00, Honolulu was a brief boat ride away (Midget, 10 Sept 1913), allowing an interaction with the more established and active social networks of Honolulu, the access to goods and services not available in the district.

Mrs. Guild, Mrs. Hugh Watt, and Mrs. Kennedy, of Kohala Planatation Row, have been letting their husbands "keep back" while they enjoyed Honolulu (Midget, 19 Sept 1909).

The Midget (24 Dec 1913) notes the return from Honolulu of K. Wataba of Niuli'i with goods for his store. The Schooner "Annie Johnson" provided a direct route between San Francisco and Māhukona (Midget, 1 Oct 1913).

Although sugar was the dominant agricultural crop, the access through Māhukona to outside markets allowed a modicum of diversified agriculture. Homestead lots at Pu'uepa-Kokoiki were intended for the cultivation of Irish potatoes, melons, and other miscellaneous crops. Farmers and dairymen at upland Kehena on the leeward side supplemented a subsistence existence with trade through the leeward harbor (S. Hook, personal communication).

Thus, Kohala in the first two decades of the 20th century was an exemplary community. Successful commercial agriculture, embodied in the sugar companies which were expanding their field areas and improving their mill facilities, was mirrored in commercial growth. Networks of economic interaction radiated from growing commercial centers, primarily in Hāwī, Kapa'au, and Niuli'i-Makapala. Roads, albeit poorly maintained, and the Hawaiian Railway Company linked Kohala to Māhukona Harbor and the outside world.

Consolidation and the Climax of the Frontier

However, as population peaked in the 1920's and began a long decline (see Figure 4), and as communication and transportation networks encouraged a mobile populous, goods and services centralized in Kapa'au and Hāwī. Their advantageous location relative to mills, ranches, homesteads, and to Māhukona Harbor, defined a central place in the district. Where Niuli'i and Makapala had formed the heart of the district in earlier decades Kapa'au and Hāwī developed as the contemporary nucleus of settlement and economic activity in the 1920's.

While the diversification of commercial efforts characterized the period up to 1920, consolidation and centralization characterized the following twenty years. Perhaps the most crucial element in this shift was the emergence of Kohala Sugar Company as the predominant operation in the district. By the

mid-1920's, annual sugar production from this mill was approximately 7,000 tons. Hansen (1963) writes that:

The increased production was largely realized without benefit of increased acreage. Except for small purchases and lease arrangements made to straighten boundaries and protect water rights, the plantation continued to operate on essentially the same lands originally purchased from Father Bond and Dr. Wight.

Between 1929 and 1937, however, Kohala Sugar Company underwent a rapid consolidation program, absorbing first Halawa Mill in 1929, then Hawi in 1931, and finally an already merged Union and Niuli'i Mill in 1937. In that year, Kohala Sugar Company took over the administration of 20,000 acres of land, virtually the entire windward side of the district (Hansen 1963) (Figure 7).

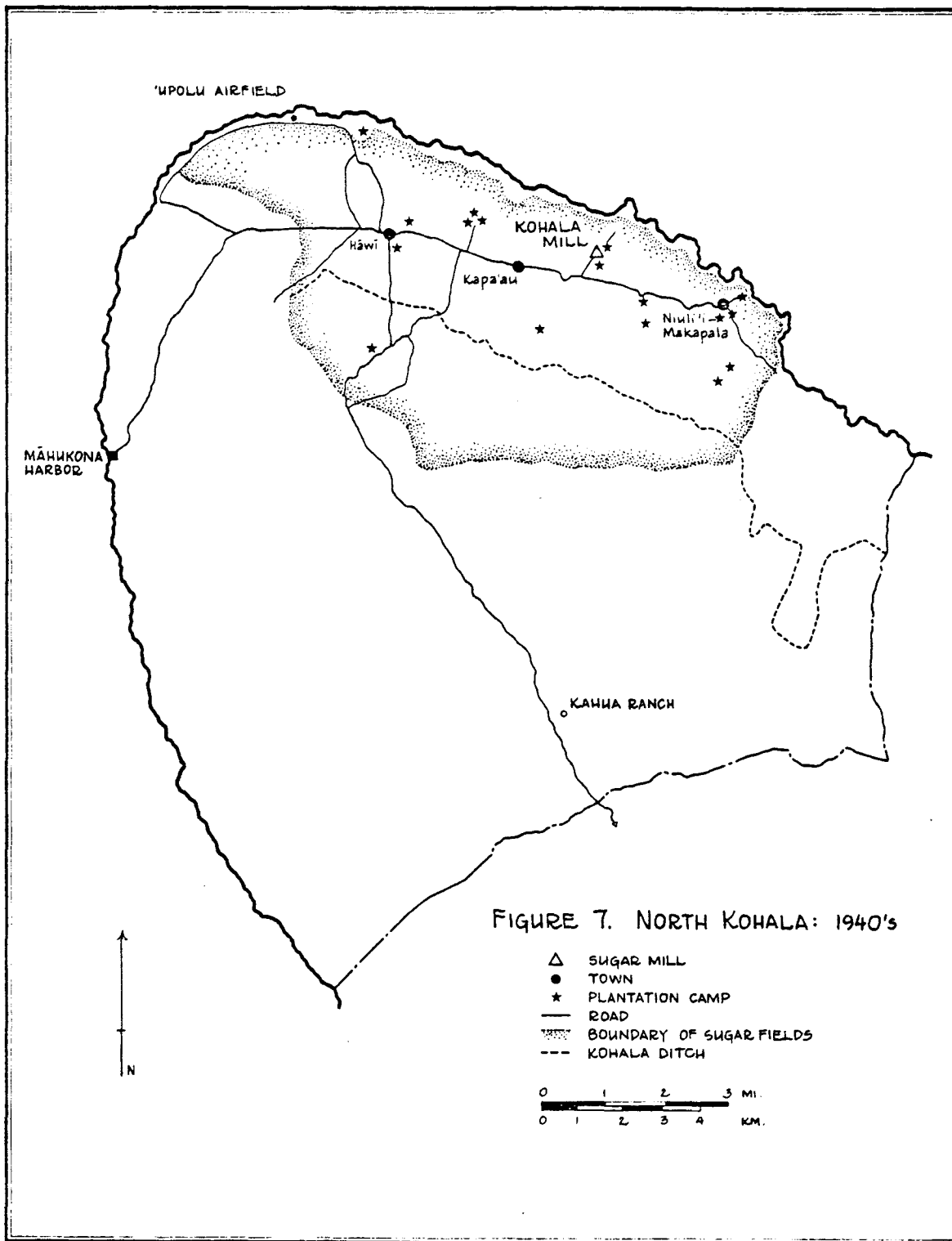
The consolidation focused administration in the Hāwī offices and milling at the Hala'ula mill, and centralized the provision of goods and services in the adjacent commercial areas of Kapa'au and Hāwī. While other areas, especially Niuli'i-Makapala, continued to provide a limited range of goods and services, an increasing reliance on the primary urban areas for specialized services became a necessity.

With complete merger of the sugar companies came improvements to the Hala'ula mill to accommodate cane from the entire district, a mechanization program to facilitate field operations, and refurbishment and reorganization of the plantation housing system.

Under a \$500,000 program, new milling equipment was acquired, and within one year of consolidation, the entire sugar crop was ground in the rebuilt and enlarged Kohala mill. The rail line was expanded by two spurs which ran directly to the mills, and cane transport was carried out primarily by self-loading trucks instead of the older tractor-pulled wagon train method. Field mechanization increased from 15% in 1939 to 50% in 1940 (Hansen 1963).

With consolidation, the housing systems of the diverse mills were brought under one management. Existing camps were refurbished or abandoned, and a new camp built at Hala'ula to bring workers from Union, Niuli'i, and Hoesa camps closer to the Kohala mill (Kawabata 1977: 35-36).

Thirty-five camps remained in the district after the consolidation, 29 of which were clustered around the former mills with which they were associated. In Hāwī, the village consisted of 136 houses in six camps, with a swimming pool, tennis courts, theater, boarding house, gymnasium, volleyball court, and



dispensary. The adjacent town of Hāwī provided additional goods and services. The three Hōea camps consisted of 56 houses, with their own power station and clubhouse. There were 102 houses in seven camps in the vicinity of Union Mill, which also had a theater and stores. Sixty-four houses in four camps were situated around the old Niuli'i Mill, which housed a store, office, pool room, and coffee shop. The commercial center of Niuli'i-Makapala was also in the vicinity.

Kohala Camp was by far the largest and most diverse of the plantation villages; seven camps contained a total of 190 houses. In the vicinity of the mill were located five stores, a coffee shop, post office, dispensary, playground, tennis courts, Japanese school, clubhouse, and theater.

Camps were no longer organized on ethnic lines, but rather by occupation. Kawabata (1977: 36) writes that Halaula New Mill Camp, which consisted of 30 units, "housed skilled and semi-skilled workers of different ethnic backgrounds who worked in the mill, garage or carpenter shop, warehouse and harvesting department".

Thus, by the beginning of the Second World War, Kohala was dominated by one company, the climax of the development from frontier diversity to establishment homogeneity. Sugar remained dominant, with continuing influence on all aspects of community life. Settlements were still controlled by plantation needs, most evident in this period by the shift to Hala'ula after the mergers. Kapa'au and Hāwī emerged as the commercial centers of the district

But World War II intervened in the development plans of Kohala Sugar Company. The dominance, and eventual decline, of the last mill and plantation marked the end of a momentous and fulfilling century of a community history.

SECTION I.6

KOHALA 1941-1975: DOMINANCE AND DEMISE OF A SUGAR COMPANY

World War II interrupted the development plans of Kohala Sugar Company, sole heir to the sugar legacy in the district. When normalcy returned at the war's conclusion, Kohala had changed. Through the closing of Māhukona Harbor for security reasons in 1941, the war had drawn the district into the island sphere of interaction, strengthening ties between Kohala and other areas of the Big Island. Kohala men, leaving the district to join the armed forces, returned with a different, broader outlook on the world.

In Hawaii, the war marked a watershed in political and economic development. Political party dominance changed in the late 1940's, with the ascendancy of the Democratic Party, viewed as the common man's opposition to corporate control of the government. The formation of labor unions, stimulated by the pro-union legislation of F. D. Roosevelt's New Deal program, created a power block for workers, which in the decade following the war, raised a strong voice in commercial and industrial life. While the major corporations, the "Big Five", continued to dominate through the 1950's, incorporation into multinational firms was in the imminent future.

In Kohala, sugar remained the dominant crop and a dominant controlling factor in settlement and land use, but the relationship between the company and its employees was altered by the formation of a labor union as the voice of the workers. The sugar company disengaged itself from its paternal image. In the early 1950's, it sold its remaining plantation stores in Hala'ula and Hāwī and in the next decade, initiated a home-ownership program which supplanted the camp system of low-rent housing and free maintenance. The employees, in turn, increasingly looked to the union rather than to the plantation management for leadership and guidance. In a sense, they became adversaries: the plantation striving for profits in an increasingly competitive marketplace and the union fighting for rights and benefits for its members.

This period in Kohala's history is characterized by the continuing decline in population and by the gradual deterioration of commercial life in the district. From 1930, population sharply declined with a nadir reached by 1960: between 1940 and 1950, population dropped 17% to 4,456 and by 1960 to 3,386 (Schmitt 1977: 12). This demographic trend is attributed primarily to out-migration, resulting primarily from attrition and the lure

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of better paying, post-war employment in Honolulu. During the 1950's, increasing mechanization of the mill and plantation allowed 297 jobs to remain unfilled after employees retired (Bush and Gerakas 1963: 65). With fewer available jobs, many qualified technicians, welders and electricians emigrated to O'ahu where job opportunities existed as a result of the construction boom of that period and opportunities for home ownership were not constrained by a plantations system as in Kohala.

However, in the early 1960's, Kohala Sugar Company changed its housing policy. Employees were given 15,000 square foot lots and the option to purchase their plantation camp houses. Subdivisions were created in Hala'ula, Kynnersley (near Union Mill), Alaalae (makai of Hāwī town), and Hāwī, oriented in a cruciform pattern along the major thoroughfares.

Although the general population stabilized in the 1960's and 1970's, the lack of employment and the continuing attraction of the larger cities continued to drain the district of younger residents. The increasing average age of the district population was reflected in the consolidation of the public schools into two facilities, Kohala High and Hala'ula Elementary.

The location of these two schools reemphasized the shift toward Hāwī and Kapa'au as central locales. Where in earlier decades, stores had thrived in numerous communities, only a handful remained by this time and they were situated primarily in these two urban areas.

However, at the same time, the pattern of consolidation which saw the growth of these towns as centers of district life in the early 1900's saw the development of Hilo and Kona as centers of an island community. Cut off from direct interaction with Honolulu with the closing of Māhukona, interaction with other parts of Hawai'i was inhibited by the one line of access over the narrow, mountain road between Kohala and Waimea. For a brief period in the early 1950's, air transportation through 'Upolu Airfield served the same communications function as the harbor in earlier years, but Kohala with its declining population could not support the airlines for long. Although partial relief came in 1968 with the completion of the coastal highway which linked the district with the port of Kawaihae, Kohala during this period became more isolated.

A new factor in the economy emerged in 1964 with the opening of Mauna Kea Beach Hotel in Kawaihae. As the only hotel on the South Kohala coast, it projected an image of exclusivity and affluence which, like Hotel Hana Ranch on Maui and the Kahala Hilton on O'ahu, drew an elite and regular clientele. By 1970,

it was the second major employer in Kohala, providing jobs for 250 residents (compared with 519 employed by Kohala Sugar Company).

At the same time that tourism was offering a viable economic alternative, Kohala Sugar Company was enduring a variable success, from a record crop of 50,253 tons in 1959, to a disappointing 38,072 tons and a loss of \$11,866 in 1962 (Bush and Gerakas 1963: 68). Harried by drought and labor strikes in the 1950's and early 1960's, and lured by cheap labor in Asia and Latin America, Kohala Sugar Company and its parent firm, Castle and Cooke, by now a multinational corporation, decided to terminate its operations. The announcement was made in 1971 and sugar production ceased in 1975.

Looking Back to Look Ahead: Kohala in the Future

The closing of Kohala Sugar Company in 1975 marked the end of a 113 year history of sugar dominance in the district. The industry had structured settlements, commercial growth, and community life for over a century, and in the brief four years between the announcement and the actuality of termination, the community of North Kohala had to adjust to a new reality.

But in retrospect, that reality had a familiar cast. The situation of a declining population, unable to compete successfully in a competitive market economy controlled largely from outside the community sphere, is reminiscent of a previous century. Like Kohala in the mid-1800's, the period preceding the closing of the sugar company was characterized by a declining population and an imbalance in the exchange of goods and services, which until 1975 was supported by Kohala Sugar Company. Without the company, the imbalance was exacerbated. Like the economic void which sugar pioneers saw in Kohala of the 1860's, a new void was created by the exit of the sugar company.

Tourism is seen by some as the most lucrative economic replacement for sugar. Even by 1970, Mauna Kea Beach Hotel was employing almost half as many Kohala residents as the sugar company. With proposals for more resort development on the leeward coast and south of Kawaihae, job opportunities appear favorable in construction, management, and service positions.

However, a shift in economic orientation to development such as tourism may precipitate fundamental changes in the nature of the Kohala community which could rival those of the late 19th century. The plantation system allowed the maintenance of a rural lifestyle and reinforced a sense of community through the primary employer, Kohala Sugar Company. Work was near at hand, and goods and services, although imported from larger commercial centers,

were dispersed through a variety of local outlets. The isolation defined by geographical boundaries was accentuated by an insularity, a security based on a perceived self-sufficiency.

Even in the brief period since the close of the sugar company, changes are apparent in the community. Employment has shifted to opportunities outside the district, at the same time that new faces are appearing in the district. However, without the unifying factor of the sugar company which served as a community identity for over a century, a potentially divisive situation exists.

And tourism as the economic successor to sugar may aggravate the differences. Tourism is as fundamentally different from agriculture as the market economy was to subsistence cultivation. It is dependent on the concept of promotion, of marketing an atmosphere and a place as commodities. It is possible to envision that resort development at Kawaihae, and possibly even closer, will draw on the district with its quiet and ageless atmosphere as an attractive visitor destination, as a place to retreat from a more hectic lifestyle.

If so, the changes in the community may be drastic as well as inevitable: more new residents, more visitors, and increasingly more development. But progress is not bad, development is not always destructive, and tourism may actually be the best alternative to sugar. However, it may be wise to look at the history of Kohala, to see the patterns of change, and to find a place in the past from which the imminent future can be built. Whether or not history repeats itself, it appears now as coming full circle.

At the peak of the sugar industry in the district, Kohala was a thriving and successful community. The population was almost twice what it is at present; stores and schools abounded. That past is as retrieveable as the economic void of the frontier which is mirrored in the present situation.

Kohala has an atmosphere and an ambiance, rich in a history which is the foundation of a community identity stronger than an association with an agricultural industry. The Kohala community owes much to its whole history, as much to its Hawaiian past and its missionary origins as to the development of sugar. It is with a holistic view of itself that Kohala can meet the challenge of a new frontier.

AN INVENTORY OF CULTURAL RESOURCES

Section II
of

NORTH KOHALA:
PERCEPTION OF A CHANGING COMMUNITY

A CULTURAL RESOURCES STUDY

INTRODUCTION

The identification of archaeological and historical resources in North Kohala was requested by the Department of Land and Natural Resources, through the Division of State Parks, Outdoor Recreation and Historic Sites, to facilitate its design of a management strategy for cultural, natural, and recreational resources in the district. Management requires an understanding of the nature and distribution of the resources; this inventory is intended as the preliminary data base from which a cultural resource management strategy can be formulated.

This section is the second of two in this study. Section I is an overview of the district's history which provides a context into which this inventory can be placed. Together, they are intended as an identification of cultural resources as the manifestations of community heritage; that is, the written documentation of the district's history and the cultural sites can together convey an idea of the changing and developing Kohala community.

Inventory Objectives and Methodology

The primary objective of the inventory is the identification of cultural resources in the district as a data base for the development of a management strategy. Implementation of the objective has been carried out in two discrete parts: first, through an initial review of the existing literature, including historical documents, journals, and recent archaeological reports; and second, through an archaeological reconnaissance survey of selected areas within the district.

The literature review, primarily accomplished in the preliminary phase of this study, culminated in an overview of the nature and extent of the resource base. A description of the resources landscape was modeled on a summary of archaeological and historical evidence for land use and settlement in areas which had been extensively documented; a projection of site distribution was produced for areas in which little or no data was available (Tomonari-Tuggle 1980: 71-90).

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As part of the literature search, archaeological and cultural resource reports were reviewed. Significant historical structures and archaeological sites were selected as resources requiring further investigation for planning and management purposes (ibid.)

From this base, and with State Parks staff considerations of other interests (recreational, natural, and scenic), areas within Kohala were preliminarily evaluated to be of high resource importance. The reconnaissance survey, carried out in the summer of 1981, was structured by these considerations. The areas selected for survey included the Kohala Ditch and trail system, 'Āko'ako'a Point and Neue Bay, the windward coast from Kapanāia Bay to Hāpu'u Bay, and the leeward coast from Upolu Airfield to Lapakahi State Historical Park. Individual sites of interest were Waiapuka Tunnel, the Bond complex, Hawi Mill, Kukuipahu heiau, and Lapakahi State Historical Park (Fletcher 1981: 8-9) (Figure 1).

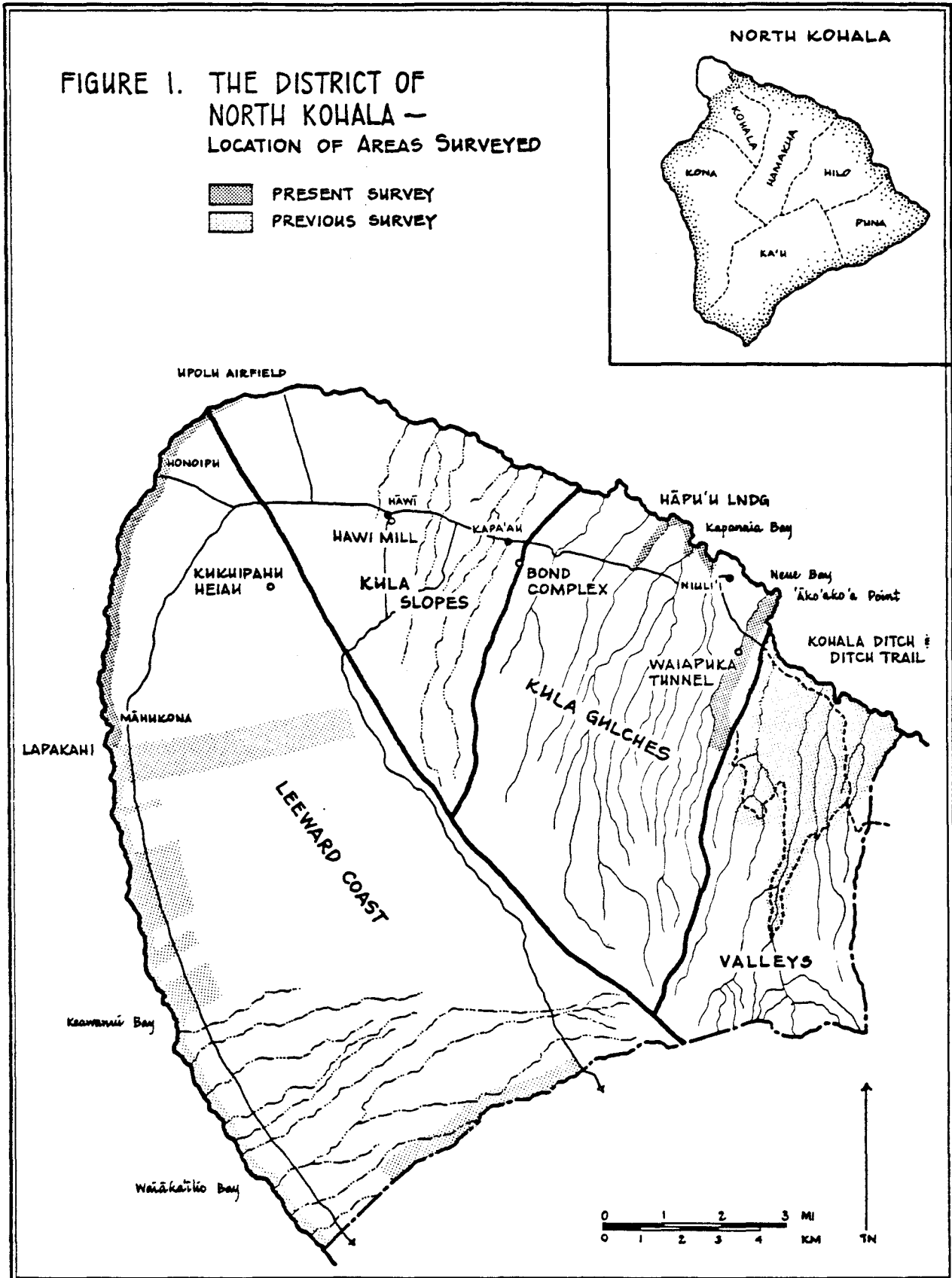
In the research strategy written prior to field work, the method suggested for reconnaissance survey was the location of site areas and the identification of varying densities of different feature types within the areas. The object was a compendium of verbal descriptions of site areas supplemented by sketch maps and photographs of selected features and isarithm maps of feature densities. Once in the field, however, this proved to be not feasible, especially in the complexity of the archaeological systems on the leeward coast and the paucity of remains in the windward kula zone.

Thus, survey methods varied in different areas, structured by specific conditions of the environment, including topography and the preservation and density of the sites. For most areas, U. S. Army Corps of Engineers aerial photographs for Hawaiian coastal areas (1" = 500') were used as base maps. As they were located, sites were plotted on an acetate overlay of the aerial photograph, and this information was later transferred to USGS topographic quad maps enlarged to the same scale. Verbal descriptions were made of all features; sketches were also done, using a Lietz pocket transit and pacing.

Detailed methodology for each of the areas surveyed is described in the following chapters.

Site Numbering

The present study utilizes a numbering system which is different from the State system of four-digit numbers. As inconvenient as this may be, it was felt justified in light of several problems with the State Inventory site numbers.



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First, there are three sets of numbers in the Historic Sites section files for North Kohala: a 2000 and a 4000 series for which there is no apparent significant distinction, and a 7000 series identifying historical sites. This definition however, is not used consistently, as there are historical sites in the 2000-4000 series also.

But the major problem with these numbers is not historic pigeon-holing, but inadequate site delineation. In some cases, sites with one number belong to different complexes. In other cases, sites belonging to the same complex have different numbers. Frequently, a described discrete site is actually part of a larger, unnumbered complex. There are also some numbers on the Historic Sites section base maps (USGS 7.5 minute series quad maps) for which there are no corresponding forms. Although this is due partly to the loss of some forms, it is more generally attributable to the numbered site having been absorbed into a larger complex, with no comparable modification to the base map.

Another numbering system (developed by the B. P. Bishop Museum) was applied to sites on the leeward coast by Bonk (1968) and Soehren (1969). While these numbers are referred to in the State Inventory forms, there are several instances of misidentification or mislocation of sites.

Furthermore, new site survey numbers are presently unavailable from the Historic Sites Section of the State.

For the present study, then, a separate numbering system was employed and, where possible, was correlated with the State Inventory numbers and those used by Bonk and Soehren (see Appendix 1 for concordance of 1981 numbers and other systems). This system consisted of an alpha prefix followed by a number. On the leeward coast, all sites were prefixed "K-" and numbered consecutively from "1". All sites in the windward kula area were designated "WK-" and again numbered consecutively from "1". (In the site descriptions, the four-digit numbers in parentheses following the alpha-prefix site designations are the State Inventory numbers).

Sites in the windward valleys were assigned four-digit State Inventory numbers (4000 series) at the time of research in the early 1970s. Because they were never incorporated into the State files, there is none of the confusion as in the situation on the leeward coast. Thus, these numbers were retained in the present study.

History of Survey in North Kohala

Scattered references to archaeological sites can be found in the journals of early visitors to Kohala. Father Bond noted several sites in his tours of his mission district. But it wasn't until the turn of the century when J. Stokes, an ethnologist from the Bishop Museum, came to Kohala that an organized effort to record sites was made. However, he was interested only in compiling a list of heiau on the island, and restricted his survey largely to the windward side.

In 1924, Kenneth Emory, an archaeologist with the Bishop Museum, visited the district as part of an ethnographic survey. He walked the leeward coast from the north point of the island to Kawaihae and noted housesites and agricultural features, most notably at Lapakahi.

More than 40 years later, following a long hiatus in archaeological interest in Kohala, two major research projects were begun. The first, from 1968 to 1970, was focused at Lapakahi on the leeward side. Primarily through the University of Hawaii-Manoa and in conjunction with the Division of State Parks, this project was a combined effort in research, student instruction, and planning for the proposed State historical park. In 1972, another three-year project was begun, this time on the windward side, focusing on the valleys of Pololū and Honokāne Nui. The orientation was research on prehistoric agricultural growth in windward valley environments.

During this same period, several cultural resource inventories were also made, one for the County of Hawaii, one for the Department of Land and Natural Resources and the third was part of the Statewide Inventory of Historic Places. All three were directed toward the description and discussion of known sites, i.e. previously located and/or historically referenced resources.

Since 1974, several contract-related projects have been carried out in North Kohala, all on the leeward side. With the exception of one, all were in the coastal zone. With the potential for development in this area, more such contract projects may be expected in the future.

The Distribution of Cultural Resources in North Kohala

The cultural resources landscape as it presently exists, is the result of human occupation, modification, and destruction. If areas of land use and settlement are superimposed on areas of use from earlier periods (see Section I for discussion of

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settlement patterns postulated for each historical period), the result is a cumulative settlement pattern, i.e. the distribution of sites at present, rather than the landscape as it existed during any one historical period. Before dealing with the landscape and the resource inventory as it is organized by environmental zones (Sections II.1 through II.4), a discussion of the district landscape is in order.

For ease of description, the resources are divided into two categories, archaeological sites and historical structures.

Archaeological sites, which include surface structures and subsurface deposits, represent the occupation of Kohala from initial settlement to some time during the mid-19th century. Surface features are characterized by the use of unmortared stonework in the construction of walls, platforms, terraces, alignments, cairns, and other features. Subsurface sites include dune midden deposits, buried agricultural soils, buried stone structures, and occupational trash.

Although surface structures overlie buried deposits, the absence of visible features does not preclude the occurrence of subsurface archaeological sites. Thus, an understanding of the nature of subsurface deposits is unclear except in specific locales where excavation has been carried out. Therefore, in spite of considerable archaeological investigations in the district, a complete understanding of the distribution of archaeological sites remains problematic.

The historical sites of North Kohala represent a time span which encompasses both the transitional and modern periods from approximately 1841 to the present. Although indigenous structures continued to be erected into the late 19th century, Western-style construction became predominant with the development of the plantations.

Although the terms, archaeological and historical, are used as descriptive labels, this use should not obscure the fact that historical sites can be archaeological in nature, i.e. as the physical remains of past activities. Thus, abandoned plantation mills of which only concrete foundations remain, are as inherently archaeological as the stone foundations of Hawaiian heiau and housesites. It should be emphasized that historical sites have a research potential at least equivalent to archaeological sites, i.e. through historical archaeological investigation, the collection of oral history and ethnographic data, and historical documentation.

The Distribution of Archaeological Sites

The distribution of known archaeological sites suggests a division of the district into windward and leeward zones, with the former sub-divided into windward valley and windward kula areas. The Hawaiian occupation prior to Western Contact probably extended uninterrupted from the hanging valley of 'Āwini on the windward coast to the southwestern district border at Waikā. Subsequent use, however, has altered that landscape, especially in the windward kula gulches and slopes where intensive historical settlement and agricultural use has greatly impacted the remains of indigenous occupation.

The most well-preserved areas are situated in zones of least development, such as the windward valleys and the leeward coast. However, even these have been impacted to some degree: the valleys by natural erosion and by the construction of the Kohala Ditch and Ditch trail and the leeward coast by ranching activities and by increased access via the recently completed (1968) coast highway from Māhukona to Kawaihae. The area of least preservation is the windward kula area, where sugar cultivation and commercial development were focused.

The distribution of archaeological areas is illustrated in Figure 2. Distinction is made between known and inferred areas of archaeological resources.

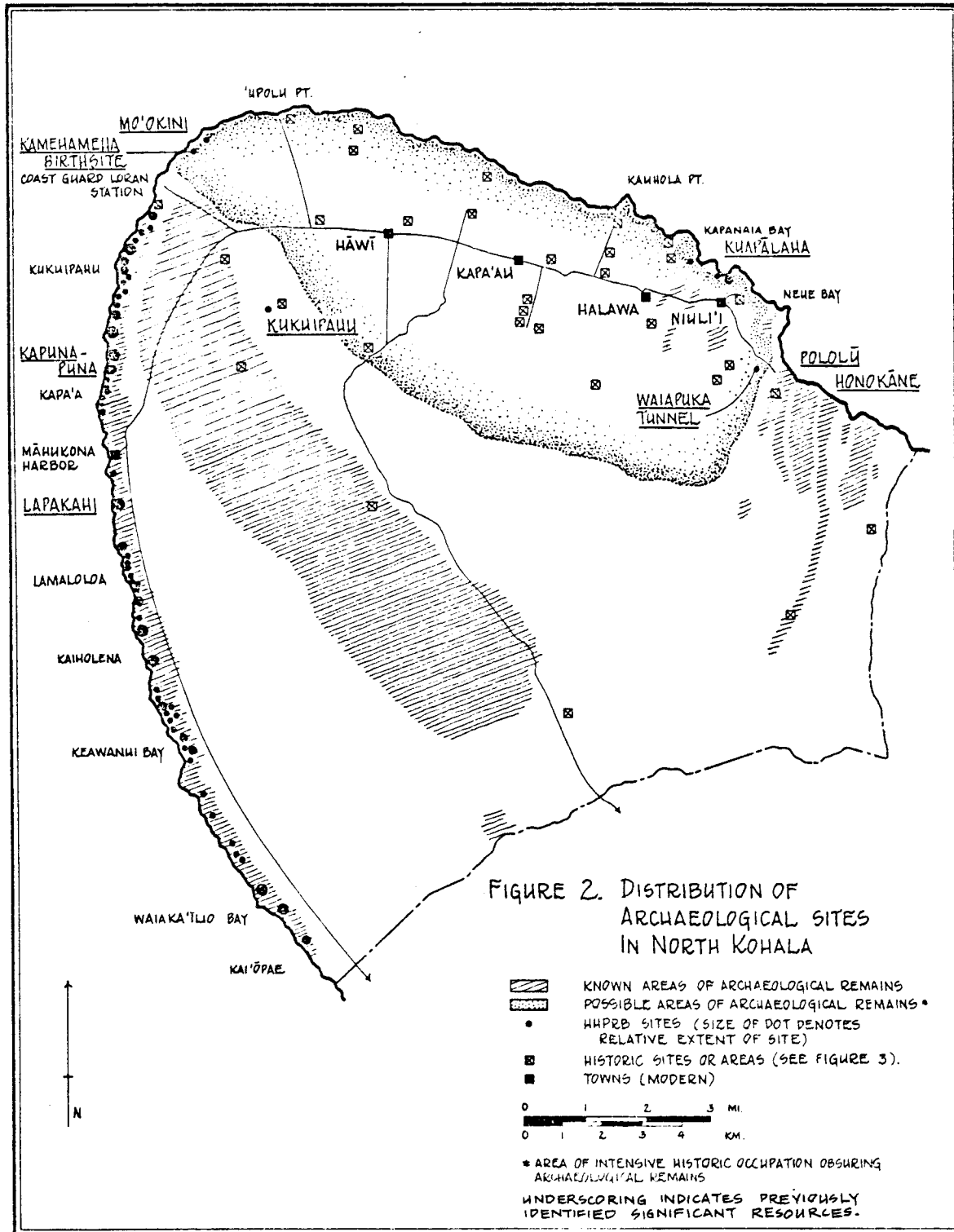
The Distribution of Historical Sites

Almost all historical buildings and sites are located on the windward side of the district (Figure 3). Probably the original focus of indigenous settlement, it appears to have been the logical location for the first Protestant mission and later, environmentally suited for the development of commercial sugar growing.

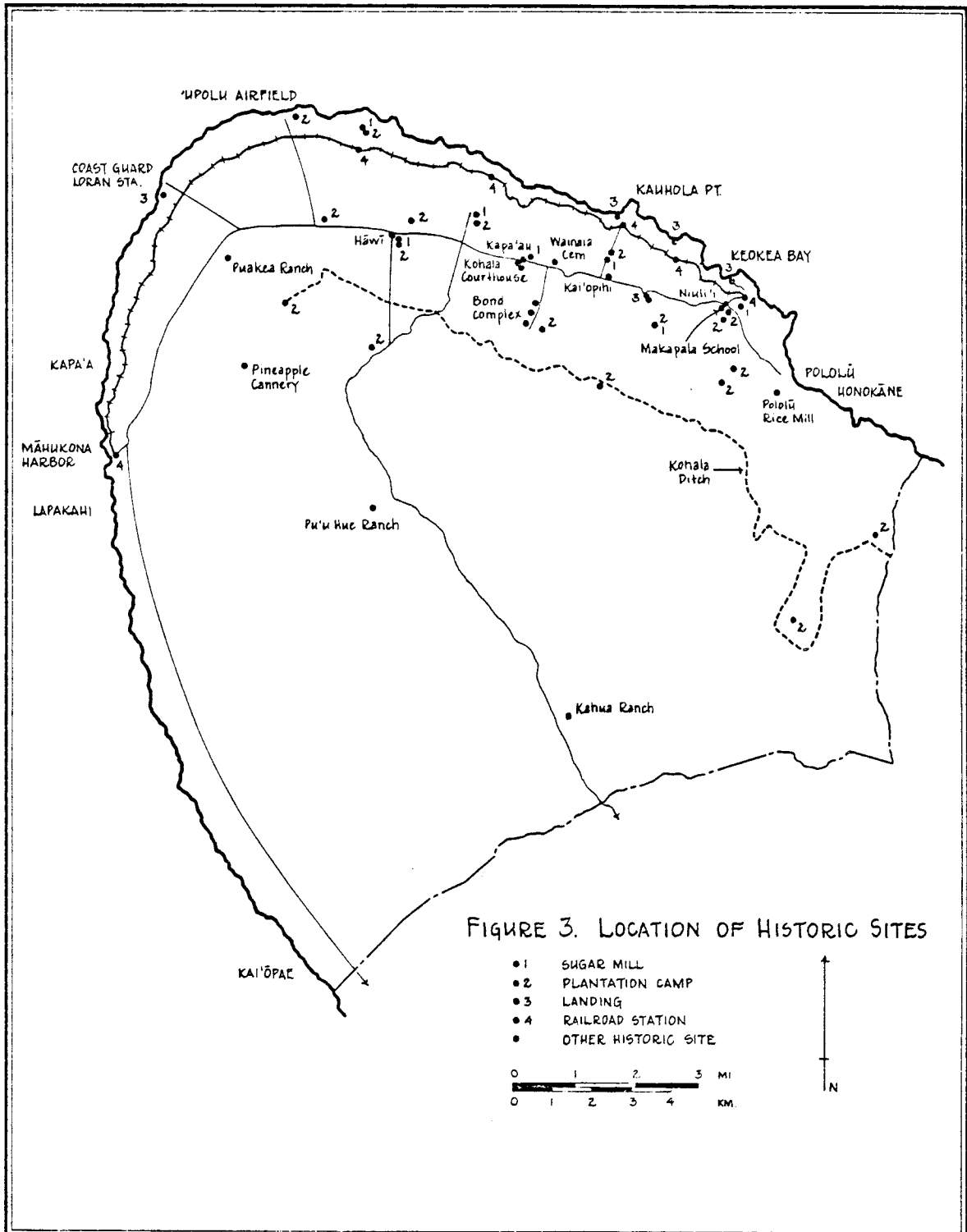
The description of historical site distribution is based on government documents, missionary journals, historical maps, and personal accounts of life in the district, which present a much less hypothetical description than the archaeological distribution. With the exception of areas of sugar cultivation, it is also more site specific, i.e. it is feasible to locate specific sites by functional categories.

Unlike the archaeological areas where subsequent work is directed toward the location and identification of particular sites, follow-up investigations of 19th and 20th century structures are oriented toward more intensive research on the architectural and historical background; in-field work is carried out to record structural details.

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General Summary of Survey Results

The distribution of archaeological and historical sites shows contrasting utilization of the diverse environmental zones in the district. The cultural resource landscape is a reflection of a history of human occupation, structured through a sequence of construction, use, and abandonment, and in many cases, destruction through a subsequent series of similar activities. The present landscape, then, can be interpreted as an expression of degree of preservation and intensity of subsequent use.

The present survey has sustained this idea. Over the course of 82 man-days, a total of 266 sites and site complexes were identified in the specific areas selected for survey; 48 sites are adjacent to or near the Kohala Ditch trail in the windward valleys, 25 were described and mapped in the windward kula gulches, and 193 were surveyed along the leeward coast.

Further, additional sites outside of the present survey areas were also defined. In the windward valleys exist a virtually undisturbed set of archaeological and historical remains, totalling 76 sites and two major complexes of 43 and seven discrete sites each (this includes the 48 sites on the trail). In the windward kula gulches and kula slopes, where modern intrusions have destroyed much of the archaeology, only eight sites outside of the survey areas were described; all are historical structures.

The leeward coast, like the windward valleys, has not yet been greatly impacted. In addition to the 193 surveyed sites are 370 archaeological and historical features in other areas of the coast, particularly south of Lapakahi. This tabulation does not take into account the resources in the State historical park.

Summary

This resource inventory is a consolidated summary of the work carried out during the past two summers: the spatial models of site distribution and the lists of known sites, which were generated by the 1980 literature review and historical research, have been incorporated with the findings of the 1981 archaeological reconnaissance survey. These are presented in Sections II.1 through II.4, which are discussions of the cultural resource inventory organized by environmental zones. These sections include a brief history of each area, a history of survey in each area, the basis for the present survey, a summary of survey results, site descriptions, and a statement of significance for the resources of each area. Although not surveyed, the windward kula slopes are included (Section II.3), as a brief discussion of historical structures in that zone was considered requisite. Section II.5 is a summary of the section.

Section II.1

THE WINDWARD VALLEYS: THE KOHALA DITCH TRAIL

The windward valleys are a sub-zone of the windward environmental zone of the district of North Kohala. The Kohala Ditch and trail system, the focus of the present survey, winds through the upper reaches of the valleys, the northern end of a series of deeply-dissected, flat-bottomed valleys stretching across the border between the districts of Hamakua and Kohala. The Kohala valleys include Pololū at the northern end, Honokāne Nui, Honokāne Iki, and the hanging valley and kula of 'Āwini. The district boundary follows the streambed of the valley of Honoke'ā (see Figure 1).

This sub-zone is characterized by the deep valleys, separated by narrow ridges which end at 300 m (1000 ft) high sea cliffs. Gentle down-valley slopes on the valley floors are cut by perennial streams, except in Pololū where intermittent stream flow is marked by alternating periods of drought and flood. Basalt sands appear periodically on the boulder beach at Pololū.

The purpose of the windward valleys survey is to provide site inventory information for the Kohala cultural resources data base and to specifically determine the range and extent of sites along the Kohala Ditch Trail, a system in which the Division of State Parks has shown interest in developing as part of a wildlands area.

The descriptions of sites along the Ditch trail were made during a three-summer research project in the early 1970s in which the consultant participated. They are taken from the survey report (Tuggle 1976) with the permission of the author and principal investigator, who also served as a consultant for this study.

Brief History of the Survey Region

The Kohala Ditch and trail system, the focus of the 1981 survey, was constructed over a period of three years between 1904 and 1906. Its concept began with John Hind of Hāwī, whose sugar plantation was restricted by a less than optimum rainfall for irrigation. He joined with Sam Parker and J. T. McCrosson in 1904 to form the Kohala Ditch Company, and in 1905, construction was begun under the engineering direction of M. M. O'Shaughnessy (Hansen 1963).

Starting in the headwaters of the Kohala valleys, the Kohala Ditch carried at least 20 million gallons of water a day, through miles of valley and ridge terrain, through 44 tunnels, the longest being 2,370 feet. It delivered a rich and regular source of irrigation water for sugar fields at the N end of the district.

The Kohala Ditch trail was used in the construction and maintenance of the Ditch and connects the cabins, flumes, and tunnels of the Ditch system with the sugar fields of the windward kula area and with the government road which runs along the coast to Honokāne Iki valley and into the 'Āwini uplands.

Before the Ditch

For at least three centuries before the construction of the Ditch and trail, people were living in the Kohala valleys.* Archaeological research has showed extensive utilization of the valley floors, and some evidence for selective use of the intervening ridges. The earliest dates come from occupation deposits in Pololū dune, dating to the late 1400s. However, agricultural development appears to have flourished later in the 1600s, in both Pololū and Honokāne, in what appears to have been a relatively late but rapid colonization and development sequence.

Agricultural intensification from swidden to permanent dry field to irrigation techniques, which has been observed in other areas, occurred only to a limited extent in the valleys. Rather, agricultural development, in Honokāne especially, appears to have reached its most intensive level without following the simple developmental progression.

Pololū and Honokāne offer sharp contrast in the adaptation to differing valley environments. A series of cultural events has been defined for Pololū (Tuggle 1976: 27-29) beginning in AD 1500 - 1600, with sporadic and temporary habitation of the coastal dune, probably oriented toward marine subsistence activities. Between AD 1600 and 1800, agricultural development, involving a mixture of swidden, dry field, and irrigation farming, alternated with periods of flooding and alluviation of cultivated areas.

The settlement of Honokāne appears to coincide with that of Pololū, with rapid settlement reflected in sites of more or less equal age located in both the upper and lower sections of the nine km long valley. But unlike Pololū, there has been no major alluvial build-up since the initial occupation. The irrigation systems appear to have been well-controlled, with no oversilting of pondfields and no flood alluviation which may have destroyed or damaged fields.

*For an important traditional chant about this area see Appendix 6.

By the time of Western Contact in the late 18th century, it appears that the valleys were developed to their fullest extent. The gradual abandonment of the agricultural systems coincided with depopulation of the valleys which began after 1778.

Post-Contact Impacts

The first recorded visit by a Westerner to any of the windward valleys was made by Ellis in 1823. He noted 50 houses in Honokāne, as well as the fact that goats were being raised to supply foreign ships (Ellis 1969: 379). In the 1835 missionary census (Kumu Hawaii), Pololū was listed with 84 residents, Honokāne had 66, and 'Āwini had 31; all considerably less than the 849 total for the area between Makanikahio and Hālawa in the windward kula gulch region.

In the mid-1800s, at the time of the Mahele, Pololū became Crown land, Honokāne was claimed by Victoria Kamamalu, and 'Āwini became Government land. Only seven Land Commission awards (out of ten claims) were made, three in Pololū (totalling 4.4 acres) and four in Honokāne (totalling 15.44 acres); all were located in the lower valleys, i.e. within 1400 m (4500 ft) of the coast (Section I.3, Table 1).

There is some question concerning the acreage and boundaries of an award to Keohokalole (LCA 8452) for the 'ili of Pa'u in Pololū. The 'ili was surveyed three times: by Monsarrat in 1880 (Survey Document 1503), by Loebenstein in 1899 (Boundary Certificate 174), and by Kakanui in 1904 (Govt. Reg. Map 2247). Monsarrat's description of the parcel, encompassing 39.5 acres, corresponds closely with Kakanui's map, on which it is noted that his survey was based on "kamaaina testimony and other evidences of record." It was Loebenstein's map, however, which resulted in the official boundaries as described in Boundary Certificate 174; these boundaries expand the area of the 'ili to 58.5 acres and incorporates the named land units of Kapuna, Lania, Opiopio, Kikau, Puhiale, as well as portion of the ahupua'a. It is interesting to note that in the certificate of boundaries judgement (13 April 1899), Loebenstein is noted as the attorney as well as surveyor for the owner, A. S. Cleghorn (related to Keohokalole through marriage to her daughter Likelike).

The 'ili of Pa'u was the most important property in Pololū: it was the only land with adequate water supply (from springs) and it had the original rights to offshore fishing. It had, in fact, been an 'ili kupono.

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Testimonies for the LCA claims describe irrigation taro farming and dry field cultivation in both Pololū and Honokāne. The Pololū parcels show a distinct separation between field areas and houselots with houses located on the beach on the west side of the valley mouth and fields in the swampy area behind the dune. In Honokāne, there is less of a distinction, with only one claim showing a house separated from the fields.

Within the next 50 years, however, changes occurred in settlement and land use. While Hawaiian farmers continued to live and work in Honokāne, the settlement in Pololū altered. Starting sometime after 1870, rice cultivation was begun in the area behind Pololū dune, and conflicts arose between the rice farmers and native tenants. In 1881, an argument ensued between the Chinese lessee of the valley and native farmers concerning the use of taro patches and the fishpond near the valley mouth. The rice farmers were using, and possibly modifying, the old taro terraces; they eventually expanded their field area to reclaim the fishpond.

A Chinese settlement was constructed mauka of the fields and although it is identified as a rice mill on a 1911 map (Govt. Reg. Map 2247), it probably functioned as workers' quarters and as an office building. During this period, there were probably five or six native families living in the valley, principally on the dune and on the Kohala side on the beach, and approximately 20 Chinese laborers (Tuggle 1976: 24). (The rice market in Hawai'i collapsed between 1920 and 1930; the rice fields in Pololū were probably abandoned in 1926.)

In 1906, the Kohala Ditch was completed. It created major problems for the residents in Honokāne by essentially cutting off the available water flow from the headwaters to the farms of the lower valley; it thus precipitated an emigration of residents from the valley.

The construction and maintenance of the Ditch necessitated resident labor. Between 1904 and 1906, camps were set up for the laborers who dug the tunnels and flumes of the extensive system. Later in the mid-20th century, residences were established in the upper reaches of Pololū and Honokāne for Ditch workers; couples were hired to man the cabins, and they sometimes stayed in the valleys for weeks at a time, coming out by mule for supplies at Niuli'i and Makapala. A telephone system linked the workers to the outside.

Thus, from the late 19th century into the 20th century, the demographic composition of the valleys' residents changed. In Honokāne, with the viability of irrigation agriculture diminished, native farmers abandoned their farms, but they were replaced by

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Ditch workers and their families in the upper valley. In Pololū, an apparently uneasy relationship between native farmers and the Chinese lessees existed until 1926 when the valley was abandoned.

Little is known of the settlement in 'Āwini. The record book for Kohala Union Church lists the date of last conversion in 1843, the last baptism of a child in 1875, and the last death in 1881. The ahupua'a became Government land in the mid-1800s; no LCA's were claimed. Eight grants were awarded in 1897 as part of the Awini Homesteads. The Awini Ranch Co. was formed in 1895 and the Awini Coffee, Fruit, and Stock Co. in 1907. The 1910 tax records show the latter with an aggregate value of \$800.00 and a physical layout consisting of 972 acres.

With the exception of the Ditch crews, who gave up permanent residence in the 1950s, the windward valleys have been essentially uninhabited for the last 50 years. The land has generally been used for cattle and pig raising.

History of Windward Valleys Survey and the 1981 Focus

Until the 1970s, virtually no archaeological research was carried out in the windward valleys. In the mid-1800s, Father Bond recorded several sites within the area (in Thrum 1907), some of which were later visited by Stokes (n.d.) around the turn of the century. Handy (1940) mentions sites in the area but with no reference to his sources.

In 1969, a survey of known sites for the County of Hawaii (Loo and Bonk 1970) involved an unsuccessful search for the remains of Ho'olonopahu Heiau in Pololū. In 1970, a preliminary reconnaissance of Pololū was carried out by three students from the University of Hawaii field school operating at Lapakahi. This formed the background for a three-year research project on prehistoric agricultural systems in windward valley environments (Tuggle 1976; Tuggle and Tomonari-Tuggle 1980). The results of the research project are the basis of the site descriptions which follow.

The focus of the 1981 survey is the Kohala Ditch trail and the management problems related to site conservation along the trail. Thus, sites located in the 1972 - 1974 survey which are within 330 m (1000 ft) of the trail were selected for examination. The numbering system for this survey is taken from the State four-digit system.

Site Inventory

The windward valleys of Kohala's northeastern coast form an impressive backdrop for aboriginal settlement and later historical modification. While certainly not representative of the temporal and structural range of archaeological and historical sites in the district, sites in the valleys offer contrast in Hawaiian adaptation to different valley environments and between subsistence and commercial use in one valley.

The pattern of prehistoric and early historic occupation is primarily of dispersed settlements and extensive irrigated and dry agricultural fields. Habitation sites are generally dispersed, with small occupation aggregations occurring at the mouth of Pololū, on the east side of lower Honokāne Nui Stream, and on the 'Āwini flat to the NW of the present Kohala Ditch cabin. The dispersed sites are generally associated with agricultural features and are scattered across the valley floors.

Agricultural sites include examples of irrigated and non-irrigated fields. Method of cultivation appears to have been primarily governed by the availability and reliability of water. Therefore, non-irrigated fields predominate in Pololū, where ephemeral streamflow varies from dry to flood conditions; and irrigated terrace plots cover almost the entire valley of Honokāne Nui, where perennial streamflow was supplemented by numerous dike springs. Irrigated fields are also found in Honokāne Iki and 'Āwini gulch, as well as in three isolated locales in Pololū, which are associated with small springs or spring-fed waterfalls. Dry agricultural features occur on the flat ridges of Kupehau and 'Āwini and on the slopes of upper Pololū Valley.

Special function sites unique to the valleys include forts and a fishpond*. Forts, or sanctuaries, are found on the knife-edge ridges separating Pololū, Honokāne Nui, and Honokāne Iki Valleys. The features consist of notches excavated across the narrow ridges; the forts are the easily defensible area between the notches. The fishpond was constructed in the swamp area behind the dune, and integrated into an irrigated terrace system.

In addition to these two types of sites are heiau and shrines, of which Ho'olonopahu on Pololū dune is the only known named one. Another possible heiau was located in the Kalawao branch of Pololū Valley. Shrines were found in both Honokāne and Pololū Valleys in association with agricultural fields.

The archaeological remains of the valleys have been largely saved from the destructive aspects of modern commercial,

*Such structures do occur in many areas of Hawaii outside Kohala and there is a possibility that a fishpond was also located at Kauhola Point in North Kohala (see Section II.2, page 31).

agricultural, and residential development. The major events which impacted sites in the valleys were the rice industry and the 1946 tsunami, in Pololū, and the construction of the Kohala Ditch, in Honokāne Nui.*

The development of rice cultivation in the late 19th century overlaid a Chinese veneer to the Hawaiian structural remains. The greatest area of impact is restricted to the makai section of the main valley, in the area behind the dune. Modifications include the foundation of the rice "mill", dome-shaped concrete ovens, charcoal pits, and habitation structures located along the sides of the valley. Taro terraces and the fishpond were reconstructed for rice cultivation.*

The tsunami of 1946 brought a wave measuring up to 15 m (50 ft) high crashing into the Pololū dune. It removed a portion of the dune and destroyed the lower remnants of the rice terraces, creating a swamp in their place. Because of its configuration, Honokāne was little affected by the disaster.

The construction and maintenance of the Kohala Ditch affected Pololū only minimally. The Pololū portion of the Ditch largely serves to transmit water from other valleys to the kula lands of Kohala; it did not disturb the agricultural activities of the lower valley, which relied on spring water unrelated to the modern system. In the upper valley, however, where actual construction was taking place, the remains of these activities, e.g. a quarry, construction camps, and a mule pen, are evident.*

In Honokāne, where the Ditch tapped the major source of water for the lower valley, the impact was much greater, initially in causing the abandonment of the valley, and later in the gradual destruction of the abandoned fields. With water flowing in the stream bed only during periods of heavy rainfall (thus, in flood conditions), erosion became, and continues, as a major destructive element in site preservation. Downcutting and lateral cutting are eating away large sections of the irrigation systems.

In general, however, the preservation of sites in the windward valleys is good. It is still possible in most areas to walk from terrace to terrace and to follow irrigation canals for long distances. In cases where subsequent activities have affected Hawaiian remains, they have generally added an additional and intriguing component to the archaeological totality.*

Summary of Survey Results

A total of 48 sites are located on or near the Kohala Ditch trail (Figure 4). In Pololū Valley, two major complexes are

*It needs to be emphasized that although these historical activities affected Hawaiian sites, they created important archaeological sites in their own right.

situated in the lower valley. Site 4930 consists of Pololū dune and the adjacent eastern pali at the valley mouth. Within this complex are seven discrete site areas, defined by exposed deposits and/or surface fragments of structures, and the areas surrounding them. Site 4800 is the remains of the Chinese occupation of the lower valley. Although not within the area of probable impact, this site complex is included because of its significance in the historical settlement of the valley, in the transition from subsistence to commercial agriculture, and in the overlay of one cultural component (Chinese) over another (Hawaiian).

Twelve sites are located in the upper valley along the Ditch trail. With the exception of one (4870), they are strung along Pololū Stream, primarily mauka of the Ditch trail. Five of these sites are associated with the construction of the Ditch. Except for 4854, the others are amorphous complexes on stream terraces. They are postulated as agricultural but their function is not clearly defined by their surface configurations. Site 4870 is an irrigation agricultural complex located above the Ditch trail on the ridge separating Kalawao Gulch and Pololū.

Seven sites are located on Kupehau ridge which separates Pololū and Honokāne Nui Valleys. Five of them are indistinct features, some of which are associated with deposits of volcanic glass. The other two are located mauka of the junction of the Pololū, Honokāne, and Kupehau portions of the Ditch trail. These two sites (4945 and 4946) may be features of a Hawaiian fort or sanctuary, described in legends as Pohakuomane'o.

Two major irrigation and habitation complexes are situated in lower Honokāne Nui Valley. Site 4809 is the western side of the valley and site 4810 is the eastern side. Ten sites were found along the Ditch trail in upper Honokāne Nui from the point at which it reaches the valley floor from Kupehau to where it ends at the upper valley cabins. Each of the sites is located on a stream terrace formed by the meandering stream and the sheer valley walls.

Above the Ditch cabins, to the point where the trail ascends the E valley wall to Honokāne Iki, are located ten more sites, of which six are either of, or show modifications by, Kohala Ditch construction.

Four sites were located in the lower portion of Honokāne Iki Valley within 1000 ft of the coastal trail. There were none found along the Ditch trail in the upper reaches of the valley.

Only two site complexes were located in the upland 'Āwini area. The remains of Ditch-related activities are visible along the trail between 'Āwini and the main intake at Waikaloa Stream.

Site Descriptions

Pololū Valley: Coastal Section

4930: The Pololū dune and the adjacent eastern pali side at the mouth of the valley are included within this site (Figure 5). The large, stabilized dune, about 430 x 130 m and 27 m high, is composed of basaltic (non-calcareous) sand. The stream mouth lies on the W side of the dune; the E side of the dune abuts the pali. A sand and boulder beach fronts the dune, which has been eroded by tsunami and high surf action producing various exposures of cultural material. Presently covered in mature ironwood trees, it was largely barren of vegetation (except for grass) before the mid-20th century.

The dune contains buried habitation deposits marked primarily by natural exposures, boulder pavings, and artifact scatters. The limited test excavations carried out in the early 1970s precluded defining the nature and extent of the dune occupation. However, in nearly every excavation pit, stratified habitation deposits were located. These deposits contained very small quantities of organic material (marine shell, mammal and fishbone, kukui shells), but large quantities of stone debris (volcanic glass and basalt flakes) and stone artifacts, predominantly cobble choppers and fragments of adzes. There were no artifacts relating to fishhook manufacture or marine collection which were found, except for one hook fragment. While food remains indicated that some resources were collected from the ocean, the artifactual material suggests that agriculture and animal husbandry provided the main subsistence. Features located in excavations included fireplaces, trashpits, stone pavings, and packed-sand floors.

Pololū Dune Site Areas:

- 4801: Eroded face and surrounding area at W end of dune near the stream mouth; approximate location of a historical housesite and a portion of LCA 10581; excavation revealed a trash accumulation of about 2 m in depth with prehistoric and historic deposits, and two or three occupation floors.
- 4802: Historically identified as "Pu'u Ali'i" and a housesite. A few possible paving stones were located on the westernmost knoll of the area and an excavation into the knoll produced cultural deposits 3 m below the surface; prehistoric and historic occupation; all other pits in the area yielded cultural deposits.
- 4803: Portion of waterworn-stone paving with some pieces of old concrete. Historical artifacts, stone artifacts, and marine shell are on the surface and eroding down the side of the sand ridge on which the site is located. The site is the probable remains of a historical house site which was reported in Loo and Bonk (1970) as the remains of Ho'olonopahu Heiau (see Site 4804); this is a misidentification.
- 4804: Ho'olonopahu Heiau. Survey of the recorded area of the heiau produced no remains of any kind; however no excavations were conducted. The site was described by Bond in 1885, as paraphrased by Thrum in 1907 (p. 62):

"Hoolonopahu, a small heiau, said to have been built long before Kamehameha's time, and located on the most prominent sand hill in Pololū valley..."

The sound of the drum was continually heard during the nights of Ku, proceeding from the locality of this heiau, hence its name. But when search was made the following morning, no drummer could be found. Finally direction was given by the chiefs to search the premises and on failure to find the cause to demolish the heiau, which was done. All that now remains is an inconspicuous pile of stones but a foot or two above the sand..."

In his listing of heiau from Kohala, Thrum (1907: 30) refers to this as an agricultural heiau, but he provides no source for this information.

- 4916: Portion of area referred to historically as "Puu Ko-a". Although not full exposed, a stratified deposit appears to extend at least 70 m across the face of the dune. Excavations yielded important habitation material, including complex stratified deposits with compacted sand floors, firepits, and cultural debris, with basaltic-glass dates (the earliest for the dune) of late 1400s AD; one deposit contained a large oval stone with a fish skeleton petroglyph.

This major deposit is an extremely important site, representing not only an extensive horizontal and vertical occupation, but also one with comparatively old dates and material which tends to substantiate the historical identification of part of the area as a fishing shrine.

- 4917: Waterworn cobble paving and cultural deposit. This site is exposed by erosion on the E side of the valley. It is not on the dune itself, but in slumping soil of the pali face, some 14 m above the beach. Although it is difficult to estimate how much of the site remains, it is certainly of some importance because of its unusual location.
- 4919: Series of small terrace facings and associated platforms. This site is located in a gully on the E side of the valley between the dune and the pali. The terraces are probably agricultural features.

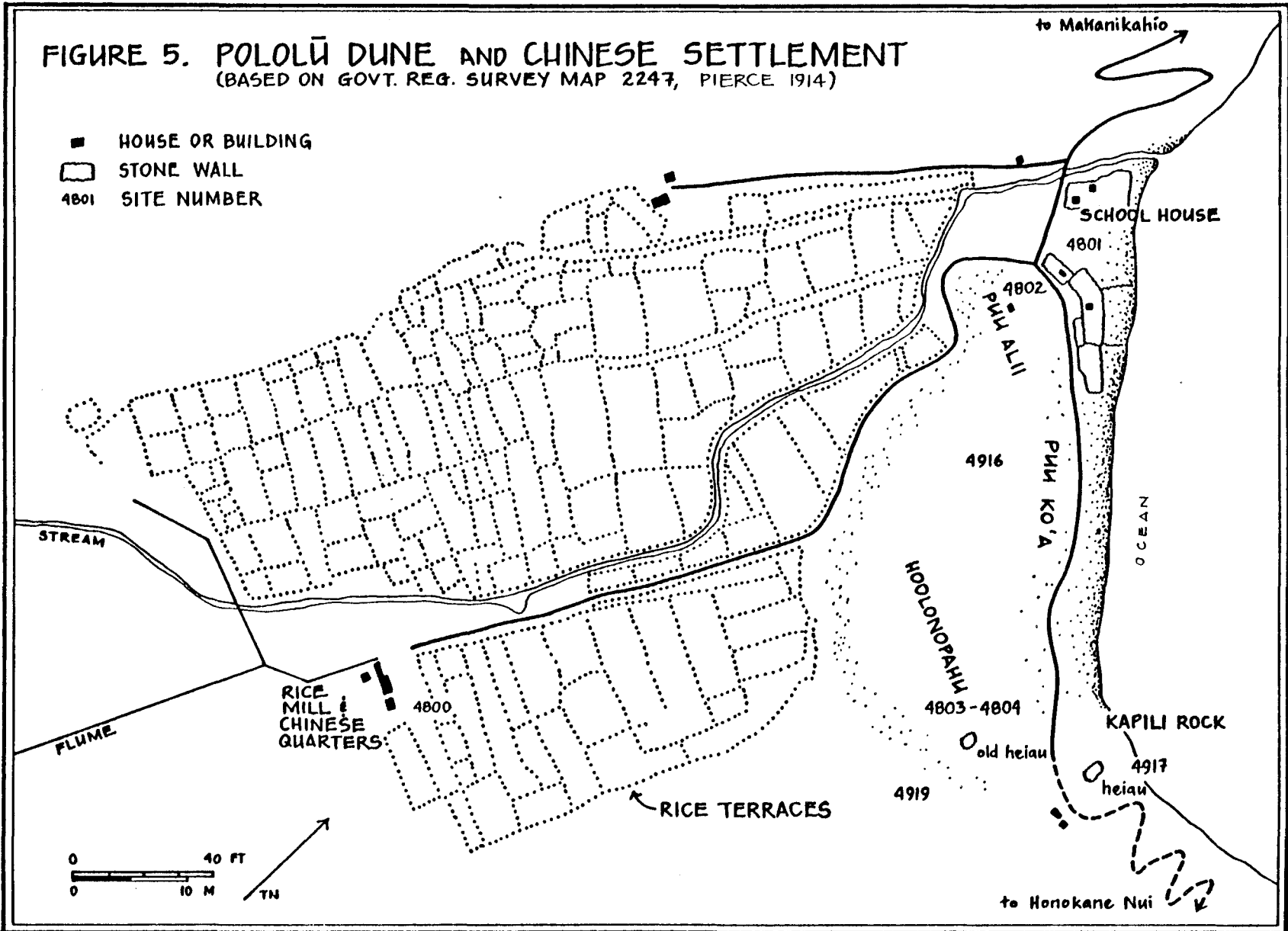


Fig. 5 of Sec. II.1 is a historical map (1914) with site numbers showing portions located in survey.

- 4800: Remnants of Chinese settlement and rice terraces (see Figure 5). The settlement area, located in the center of Pololū Valley inland of the present swamp, includes the concrete and stone foundations of several structures, which are probably the remains of workers' quarters and an office. Associated features include scattered bottle glass, machinery fragments, and several possible trash drums. There are also a number of stone-filled depressions, which may have been used in charcoal manufacture, and two dome-shaped, concrete ovens.

The second portion of this site is the complex of rice terraces located primarily in what is now the swamp behind the dune. These terraces are probably modifications of earlier Hawaiian taro fields which were fed primarily from springs located on the Kohala side of the valley. This water supply was supplemented after the construction of the Kohala Ditch by a flume (site 4979) which extended from one of the waterfalls in the side gulch of Kalawao into the rice fields.

This area is privately leased and these sites are protected by the restricted access. However, large, carved stone bowls used in pounding rice were noted at one time. Of six, only two remain in the district; none remain in the valley (most were removed illegally).

The juxtaposition of Chinese activity over Hawaiian utilization offers research potential not found elsewhere in the district. The contrast between subsistence and commercial use of irrigation agriculture and between Hawaiian and Chinese adaptation to the Pololū environment could be examined with further research. In addition, there is potential for further study through a wealth of oral history, supplemented by historical documentation.

Pololū Section of Kohala Ditch Trail:

- 4856: Stone quarry. This site, used during the construction of the Kohala Ditch, 1904 - 1905, is located at the base of a large basalt outcrop and consists of piles of stone flakes and quarried basalt blocks. The total area is about 10 x 25 m.
- 4849: Construction camp. This historic site, identified by informants as a camp used by construction workers during the building of the Kohala Ditch, dates around 1904 - 1905. It is about 10 x 15 m and has several low walls and one possible burial in the form of a slab mound. Many pieces of historic bottle glass cover the site. There is no evidence on this or adjacent benches of prehistoric occupation. Frequent rockfall and flood make them poor areas for use.
- 4850: Possible terrace system and construction camp. This site is located on a narrow stream bench which perhaps has the greatest attendant risk of any aboriginally used site in the upper valley. Numerous craters from falling rock were seen in almost every terrace. Eight terraces were identified with reasonable assurance.

The remains of an abandoned Ditch construction camp were also found in Site 4850. This includes a feature of cut stone, possibly a stoop leading up to a dismantled shack, or perhaps a burial. There are also abundant quantities of Honolulu Brewing Company saké bottles and beer bottles from the Buffalo Brewery of Sacramento.

- 4851: Possible terrace system. This site consists of a number of terraces, probably irrigated, on a large bench (30 x 100 m). Some terrace facings can be recognized but much of the area is badly damaged by flood and talus. A long, narrow terrace seems to have been paved with cobbles and could have been a company mule trail to the back valley camps.
- 4852: Habitation/agricultural complex. This site is located on a stream bench measuring 35 x 70 m. The lower portion of the site consists of some 25 small agricultural terraces, whether irrigated or dry was not determined. Another section of the site contains nine stone-free circles within a boulder area which apparently served for cultivation. The upper portion of the site consists of terraces which are at least in part habitation platforms. Historic artifacts were found in the topsoil.
- 4853: Terrace system. This site is located on a stream bench about 60 m long and less than 15 m wide, part of which is covered by substantial rock fall. It consists of 15 terraces which may have been irrigated by diverting water from Pololū Stream. To the downstream was a possible agricultural shrine along with several more small terraces. A broken monochrome, stoneware jar was the only portable artifact found.
- 4854: Hillside complex of boundary walls, terrace facings, numerous rock mounds, and dispersed platforms. This site is located below the Kohala Ditch trail; it extends 70 m downhill to an old trail and then continues for another 30 m before disappearing under the dense vegetation near the cliff's edge high above Pololū Stream. Between the two trails, an area some 60 m in width is divided into eleven fields of various sizes, bounded by walls oriented parallel to the slope. There is one quite substantial faced terrace (2 m high) at the upper end of this area. Directly below the terrace is the largest of the 11 fields; it contains 15 piled rock mounds. The lower limit of this field is defined by a remnant wall, only one corner of which remains intact.

Local informants indicated that some cultivation occurred in this rear area of Pololū, but no specific areas were pointed out. The presence of feral pineapple, historical artifacts, and subsurface features (uncovered in excavation) suggest that this may be the locale.

This site is significant as the only clearly defined dry field agricultural system in upper Pololū Valley. Its proximity to the historical activities associated with the Kohala Ditch also lends to its importance.

- 4855: Terrace system. This site lies immediately above and to the side of 4852. It is a complex of six small terraces, one of which appears to have been a platform for habitation. However, there are some indications of intermittent running water over the surface of the terraces.
- 4857: Terrace system. This site is a possible agricultural complex located under an almost impenetrable cover of staghorn fern.
- 4858: Small terrace dams. This site is constructed in a small, apparently perennial stream, which is overgrown with Hawaiian ginger; taro is well-represented on these terraces.
- 4859: Terrace system. This site consists of large, free-standing boundary wall, well-constructed retaining walls, and platforms; no mounds were observed. Below the site is the only local concentration of hala in the upper valley.
- 4860: Mule pens. This site is located on a stream bench measuring about 20 x 70 m. The bench is divided in half by a platform and two free-standing walls, one of which is core-filled. The downstream half may have been an irrigated planting area, although the core-filled wall and the quantity of historic material in and around the platform suggest recent activity. The upper half of the site is dominated by a large, well-defined terrace upon which are two well-constructed enclosures. These are Ditch Company mule pens dating from the construction of the Kohala Ditch (D. Sproat, personal communication, 1973).
- 4870: Agricultural and habitation complex. This site was found about 400 m (1300 ft) above the valley floor, in the unusual location of the brow of the ridge which separates the two main branches of lower Pololū. It is thus out of the valley proper, but located within both the Pololū drainage system and the ahupua'a, as defined in the mid-19th century by Hawaiian informants (surveys and Boundary Certificate hearings). The present Kohala Ditch trail passes along the ridge below the site.

This site consists of some 46 terraces, a combination of wet and dry, and at least one platform living area. Irrigation water came primarily from a spring, with possible supplement from the stream (Kalawao Iki).

Some of the terrace facings are crude in construction (and these are presumably dry) while others are very well formed, and include facings over two m high.

Excavations into a platform area at the head of the site produced evidence of habitation, including fireplaces and earth ovens. Carbon-14 dating of material from the ovens indicate that the site was occupied at least by AD 1650. It is an important site by virtue of both location and construction and deserves more investigation.

Kupehau Section of the Kohala Ditch Trail:

- 4940: Roughly rectangular pebble pavement or facing, partially exposed; approximately 40-50 cm wide by 150 cm long.
- 4941: Possible boulder facing, 3 x 0.5 m.
- 4942: Cobble facing, approximately 2 x 1.5 m, with a 15 to 20 cm face height.
- 4943: Facing of piled cobbles between two large boulders, 3 m long, and approximately 60 cm high.
- 4944: Possible pebble paving, 2 x 1 m, and 10 cm high.
- 4945: Terraces. This site is located in a triangular area approximately 500 m (1650 ft) on a side, on the rear knoll of Kupehau ridge, mauka of the junction of the Honokāne, Pololū, and Kupehau sections of the Ditch trail. The area is characterized by numerous, distinct earthen terraces perpendicular to the slope of the ridge. There is no evidence of running water except for a few small rain gullies.

The terraces have two possible functions. The first is that of dry agriculture. The second is habitation, with some possibly historic association, as there are two charcoal pits in the northwest area. The hill may have served as a "fort" or sanctuary in association with site 4946.

Surface artifacts include a bifaced "chopper" of close-grain basalt found in a concentration of cobbles of similar composition, and a hand-blown, seamless liquor bottle found near one of the two charcoal pits.

- 4946: Artificial "notch" in the narrow saddle between the hill of 4945 and the termination of the ridge at the inland Kohala plateau.

The notch (4 x 8 m and ca. 3 m deep) is a feature characteristic of Hawaiian fortified ridges. It is possible that this is the fort referred to in the traditional histories as Pohakuomane'o, although there are no corroborating sources in surveys or boundary descriptions containing such a name for this location. Kamakau records the following (1961: 82):

On Hawaii Ke'e-au-moku had set up a fort on a hill between Pololū and Honokāne. Ka-lani-'opu'u had climbed the mountain and attacked him, but he got the sea by being let down by rope over the cliff, and escaped by boat. This battle was called "Itching rock" (Pohaku-o-mane'o) and "Tearing Crab" (Papa'i-hae-hae).

Kamakau also refers to this as the "fort of Pohakuomane'o" (1961: 111).

This revolt of Ke'eaumoku (the father of Ka'ahumanu and a later champion of Kamehameha) against Kalaniopu'u occurred sometime between AD 1759 and 1765, according to Fornander's chronology (1969: 147-148). Fornander's version is that Ke'eaumoku (1969: 148):

entrenched himself at the fort of Pohakuomane'o, between Pololu and Honokane, in North Kohala. When informed of the revolt...Kalaniopu'u crossed the mountains with an adequate force, took the fort by assault...but missed the arch-rebel; for Keeaumoku escaped over the Pali, reached the shore, and obtaining a canoe, was safely landed on Maui... (emphasis original).

This feature and 4945 are significant and deserve further investigation.

Honokāne Nui Valley: Coastal Section

4809: Irrigation and habitation complex. This site is located on the W side of lower Honokāne, in an area measuring 47,379 square m; the area of irrigated terraces is 41,805 square m.

The site terrain is a stream bench, with a slope of 2-3 degrees; the irrigation complex covers most of the bench. There is one major canal, stonelined and about 1 x 1 m in width and depth, which probably ran off the stream (the entrance into the system has been destroyed by erosion and there is no evidence of a dam). There are several distributary canals. The pond fields (approximately 145 total) begin at the makai edge of the bench and extend inland in gradual steps, each terrace facing generally no more than 30 to 90 cm high, constructed of stacked waterworn cobbles.

There are four small habitation areas (prehistoric and historic) within the overall complex. However, in excavation, there was evidence for habitation before the construction of terraces in the lower third of the system. Dates from two habitation areas indicated that occupation of the valley began within the first part of the 17th century AD.

Erosion has destroyed portions of the stream side of the system. A map of the area (McDougal; Bishop Estate) indicates that the total area under cultivation in 1890 was approximately 55,000 square m.

4810: Irrigation and habitation complex. This site is located on the E side of lower Honokāne, in an area measuring 32,700 square m; the irrigation complex area is 5,200 square m.

The inland portion of this site is an irrigation complex of some 53 terraces, fed by one main canal, with water distributed by additional branches within the system. The head of the site is destroyed so the actual intake area cannot be defined. It is possible that the source was a spring rather than the stream.

The slope of the system is gradual (2 to 3 degrees) and the terrace facings are generally low (30 to 60 cm), constructed of stacked waterworn cobbles.

The lower segment of 4810 is a very complicated intermixing of habitation structures and wet fields. The habitation includes large numbers of pavings and platforms (probably prehistoric) and many walls and walled enclosures (many of which are probably historic). There are many historic artifacts on the surface.

Honokāne Nui: Upper Section along Kohala Ditch Trail

4824: Terrace system. This site is a long, narrow terrace system, measuring 200 x 35 m, with large, deep terraces in the central area. This system extends for about 200 m, and is stepped down from the pali in two and three tiers of terraces, totalling around 70. The water intake is uncertain.

4825: Stream terrace, 20 x 50 m.

4826: Wall fragments.

4827: Possible terrace system, with historical modification. This site is on a land bench with suggestions of agricultural terraces, but with historical modifications probably from construction of the Kohala Ditch and Ditch trail. It measures 120 x 30 m. The Kohala Ditch trail runs across the upper end of this bench. Structures on the bench include fragments of a trail, stone mounds, rough pavings, and fragments of double-faced, core-filled walls. In addition, historical artifacts, bottles, and metal occur on the surface.

4828: Terraces. This site is on a small bench, measuring 25 x 100 m, with heavily eroded terraces; an estimated five to eight terraces.

4829: Irrigation agricultural system. This site is an irrigation agricultural system partially obscured by heavy vegetation and by Kohala Ditch trail construction. It measures 40 x 170 m. Approximately 25 irrigation plots are definable at present. The original number was probably around 35. The Kohala Ditch trail runs along the stream edge of the fields and construction of the trail included stones taken from the terraces.

4830: Terrace remnants. This site is on a small bench measuring 30 x 60 m. The terraces are greatly disturbed and it is not possible to estimate the number of original terraces.

- 4831: Terrace remnants. This site is on a small bench with remnants of terraces in highly fragmentary state. It is not possible to estimate the number of original terraces.
- 4832: Possible terraces. This site is on a long bench measuring 55 x 30 m under extremely dense vegetation. There are some suggestions of terraces, but clearing is required before this can be verified.
- 4833: Platform. This site, measuring 2.5 x 4 m, is located at the edge of a small terrace. It is paved with small stones, about 10 cm high, and is level on top. Its function is unknown.

Honokāne Nui: Above the Cabins

- 4939: A land shelf which contains the cabins of the Kohala Ditch Company and two sets of agricultural terraces. This is one of the widest land areas in all of Honokāne and is thus a relatively safe location for habitation. It measures 300 x 80 m. The Kohala Ditch Co. originally maintained work crews and their families in these cabins, but this practice was abandoned over 20 years ago. Two cabins still stand and a third has been allowed to collapse. There are a number of small sheds, stone walls, and fences. A set of irrigation terraces in the rear of the cabins may be prehistoric terraces, but they show signs of having been historically reconstructed.

Additional terraces are located in dense fern growth at the N end of the bench.

- 4874: Irrigation terrace system (with historical modification). This site is located on the E side of upper Honokāne Nui, slightly upslope of the cable bridge crossing next to the KDC cabins. It measures 65 x 174 m. A total of 70 terraces was counted. Planting areas averaged 4.5 x 4.5 m and ranged from 15 x 14 m to 3 x 2 m. Facing heights averaged 40 cm and ranged from 1 to 0.3 m.

At the southern (upstream) end of the site, high up the talus, is an erosion channel which feeds into a canal that runs for 126+ m (3/4 of the length of the site) parallel to the talus and stream. The water source has been hypothesized to be a spring originating some where up the talus face to the SE of the site. This hypothesis is supported by the fact that the river is an average of 8 m below the level of the wet terraced area.

The KDC trail bisects the site on a N-S orientation. It is curbed and raised (25 to 30 cm) above ground level, paved in places and also "ramped" in areas close to terrace faces.

No evidence for prehistoric habitation was found.

- 4875: Irrigation terrace system. This site, measuring 80 x 45 m, is bounded by the talus on the E and a 7 m dropoff on the W. A canal runs along the talus border. Segments of this feature are well defined by curbing but the larger part remains uncurbed and a canal-like depression is all that is evident. It averages 80 cm in width and 40 cm in depth. Length of this feature is estimated at 50 m; its water source was not evident but is speculated to be from spring or waterfall activity on the E pali. The stream as a water source is improbable due to the bench height above stream level, plus the upstream topography of this site does not look conducive for water diversion.

Twelve terraces were located and are in fair to poor condition. Wall heights average 50 cm and planting areas average 5 by 5 m. Stones are missing from terrace faces, perhaps for construction of the Ditch Company trail which bisects the site. All features are of multiple stack construction.

- 4876: Terrace system. This site, measuring 25 x 45 m, is bounded on the N by a small concrete ditch (auxiliary to the Kohala Ditch) and on the E by a steep slope. The system terminates on the S where a vertical facing marks the base of the pali.

Fifteen terraces were noted, all of which are in a fair to poor condition. Wall heights are between 1 and 0.4 m. Construction is fairly crude. Lengths vary between 3 and 12 m and generally conform to the topography.

A waterfall exists upslope and 30 to 40 m SE but no water diversion features were evident. The only flowing water source to this site, if any, must have come from the pali area to the S. The site is 15 to 19 m above the stream with no possible means of diverting water to the area.

- 4877: Irrigation terrace system. This site, measuring 35 x 15 m, is bounded on the S by the 3 to 4 m trail embankment and on the N by a 3 to 4 m dropoff to the stream. Terraces range in size from 1 x 2 m to 10 x 7.5 m. Two large continuous terraces incorporate the SW end of the complex and it is downslope of these that the terraces become variable in orientation and smaller in size. Erosion of the bench facing along the drop-off border has caused the partial destruction of the border terraces. Terrace facings are generally between 75 and 35 cm in height but a few reach 1.7 m.

No water source is evident for this system.

- 4878: Wall. This feature is a free-standing wall found in the vicinity of other Kohala Ditch Co. construction (dam, storage shed and pumphouse). Average height is 60 cm. Because of its excellent condition and association with other historic features, it is assumed to be of KDC construction.
- 4879: Terrace system. A shallow depression measuring 8 x 40 m lies between the trail and pali. Terraces within this depression were not well delineated, partially due to crude construction but mostly as a result of rockfall damage. Nine terraces of differing sizes and orientation were found. Terrace heights, configurations and wall thicknesses vary widely. The highest terrace is 1 m.

At the N end of the depression is a large stone buttress of Kohala Ditch Co. construction which runs perpendicular to and connects the trail and pali. Iron cables are incorporated in its construction. This was part of the hydropowered pump system, using water from the uplands.

At the S end of the site is a 4 x 6 m platform of excellent construction and preservation that stands 1 m high. Its function is unknown. There is a lower, stepped-down platform, measuring 2 x 4 m, abutting the main one on the W side. Both are roughly paved. Construction expertise and preservation differ widely between this and the terrace features. It can only be speculated as to whether these platforms are a historical intrusion over the original site.

No water sources or diversional and control features were observed.

- 4880: House site with adjoining wall. This site, measuring 10 x 15 m, is situated on a slight rise with a 15 meter drop-off to the stream on the W and a long 2 m depression bordering it on the E. The trail runs parallel to the depression. A fork from the Kohala Ditch Co. main trail to the cable bridge cuts across the northern extreme of the site.

The main features of this site are a 1.5 m high "L" shaped retaining wall which borders the depression and the bridge trail on its two sides, and a low walled, square-shaped enclosure which abuts against the trail side segment of the retaining wall. This enclosure is 4 by 4 m and averages 50 cm in height. Immediately to the S are hints of two more enclosures.

- 4881: Irrigation terrace system. This site, measuring 10 x 10 m, is situated on a stream bench 7 m above stream level and close to the pali which is nearly vertical in this area. The Kohala Ditch Co. flume flows into this pali facing and a trail leads to a flume portal located approximately 10 to 15 m to the SE. Recent rockfall is strewn along the bench and one slide area exists 20 m to the W at the base of the pali. An artificial embankment was constructed up to the portal and supports the trail. This feature is the SE boundary of the site.

Eight small terraces were located. These were crudely constructed and are 45 cm at the highest. Irregular piles of boulders are associated with and are presumably the results of clearing for the planting areas. All terraces are in poor condition.

Water from a small spring to the SE meanders through the site area.

- 4882: Historical house site. The site is situated between the trail and stream on a bench area measuring 30 x 70 m, which is 15 m above stream level. Several lower and smaller benches step-off below the main bench. Recent rockfall is found throughout the site area.

The main features of this site are the house foundations, 10 terraces, a possible pen and two boundary walls.

The house site is located midway between the boundary walls. No superstructure is presently standing nor can the foundations be easily traced. Adjoining walls are evident, one of which is up to 2 m in height and width. It runs a distance of 12 m and each end tappers off into rubble. The function of this feature is unknown. On its east end is a grinding stone, a masonry fireplace with metal grate, and a trash dump.

Most of the terraces are located between the house site and the W boundary wall; they are randomly dispersed, conforming to the terrain and have different wall heights and lengths. Construction is generally crude. Associated with the terraces is an irregular jumble of large boulders which appear to have been piled when the terrace areas were cleared.

West of the house site is a pen. This enclosure is situated at the base of a slight rise where boulders of 1 to 1.5 m in height have been pushed against the embankment in a horseshoe shape. At the open end of the horseshoe is constructed a 50 cm high wall which closes off the structure. The inside area of this feature is 5 by 6 m.

Fifteen m east of the W boundary wall and W of the terraces and pen, a small open-ended enclosure is situated on the top of a rise. Dimensions of this feature are 5 by 2.5 m and construction is of single alignment boulders up to 1 m in diameter. The interior is flat and clear of partitions. The bench drop-off on the S and an area of large scattered boulders on the N border this feature.

From a conversation with Dale Sproat (summer 1973) the following information was obtained concerning this site. It was the second of two Kohala Ditch Co. cabins which have been destroyed by rockfall from the cliffs above. A Japanese farmer was the last to occupy it and abandoned it during 1936. The grinding stone was what he used to pound his mochi.

Honokāne Iki: Coastal Section

- 4920: Subsurface deposit and historical house platform. This site, measuring 10 x 15 m, is located on the W bank of Honokāne Iki Stream near the mouth of the valley. The stream lies approximately 10 m E of the site; the eroded beach face is 10 m to the N. The site is bordered on the W by the talus slope and a stacked stone wall of sub-angular basalt, which extends up to a cabin immediately N of the coastal trail.

The historical site is in poor condition with only three concrete corner pieces and small fragments of scattered concrete remaining. Surface artifacts include manufactured and volcanic glass fragments, bottle fragments, porcelain fragments, basalt fragments, rusted metal, and pots

and pans. Coral and marine shells are found on the surface.

The subsurface deposit exposed at the beach is about 20 cm thick and contains marine shell and glass flakes, some of the latter yielding volcanic dates of late 1700s and early 1800s.

- 4921: Structures. This site is located on a triangular-shaped bench, bordered on the W by talus, on the E by the stream, and on the N by the coastal trail. The land bench, measuring 120 x 100 x 70 m, is divided into two shelves. They are separated by a double-stacked, core-filled wall, approximately 90 m long, which terminates at its S end in a 10 x 20 x 20 m triangular enclosure. The wall is 90 cm high on the upper shelf and 2 m high on the lower shelf. Below the wall is a terrace measuring 30 x 20 m.

The stream appears to be faced for 50 m mauka of the trail where it intersects the NE corner of the terrace on the lower shelf.

The upper shelf has an enclosure and several walls. The enclosure is located on the NW side adjacent to the talus. It measures approximately 10 x 10 m, with wall heights ranging from 70 cm on the talus side to 175 cm on the S side. Interior wall heights range from 95 to 109 cm. The enclosure is constructed of sub-angular basalt reinforced with concrete, with a concrete floor. There is a two m wide entrance on the eastern side. A double-stacked, core-filled wall segment runs 10 m to E from the SE corner of the enclosure.

Another bifaced, core-filled wall about 20 m long, runs in a N-S direction between the two enclosures, but does not join either of them.

The main wall and both enclosures are in good condition.

Surface artifacts include metal water pitchers, pumps, record players, nails, glass fragments and bottles, lumber and remnant building material, especially near the N enclosure. Opihi shells were found on the surface about 5 m S of the S enclosure.

The site appears to be of historical construction over the remnants of prehistoric agricultural features.

- 4922: Walls and enclosures. This site is located on the first land bench mauka of the trail, on the E side of Honokāne Iki Stream. It measures 180 x 190 x 50 m. A rectangular enclosure of bifaced, core-filled construction, about 50 x 30 m, is found on the S part of the shelf. Interior wall heights measure from 50 to 120 cm high. A 30 m long collapsed remnant of a bifaced, core-filled wall and about six rock mounds are contained within it.

To the N, a small enclosure of similar construction connects with the larger enclosure. It is roughly square-shaped and measures approximately 10 x 10 m. Interior wall heights average about 1 m. Connected to this enclosure are two platforms which step down to the N.

In the NE corner of the enclosure is an upright, phallic-shaped stone about 85 cm high and 35 cm in circumference. A depression about 10 cm in diameter is pecked into the top, with a pecked motif on the NW side possibly representing a face. In the NW corner of the same enclosure is a rusted pick ax head.

The phallic-shaped rock is mentioned by various informants and this site is said by local people to be a shrine.

The site has historical structures over agricultural features.

- 4923: Mound, walls, and facings. This site is located on the S section of the second land bench on the W side of Honokāne Iki Stream, mauka of the trail. It measures 230 x 200 x 70 m.

Upland 'Āwini:

- 4896: Irrigation terrace system. This site is located in one of the branches of Waipahi Stream at an elevation of approximately 400 m (1300 ft) above sea level. The terraces are constructed within the narrow streambed itself.

- 4897: "'Āwini Village". The location of this site is approximately due NW of the Kohala Ditch cabin at 'Āwini. A few historical artifacts, glass fragments, and pieces of metal are the only surface evidence of the village.

'Āwini to Waikaloa Stream:

The cultural resources of this area along the Kohala Ditch trail are all related to Ditch construction and maintenance. These include the flumes, 'Āwini and Kaukini cabins, cabin foundations, and the trail itself, as well as some isolated features. The trail, the primary cultural feature, ranges from poor to excellent condition; for the most part, it is thickly overgrown and is badly eroded in steeper sections. Gardenia bushes mark the trail on many of the inter-gulch ridges and flats; they were planted by Ditch crew workers in the 1930s and 1940s. Wooden log bridges cross several of the deeper gulches.

The Ditch itself is visible only intermittently along the trail. In several places are access tunnels from the trail cut through bedrock to the Ditch; there are also shallow caves dug into the cliff along the

the trail where it is said construction workers stored their belongings. At Waikalua Stream are an intake and dam similar to the one below 'Āwini weir.

The existing cabins at 'Āwini and Kaukini appear to be suffering from neglect, but some recent efforts are being made to refurbish the 'Āwini one. On the E side of Waipahi gulch, across from the 'Āwini cabin are the remains of an earlier Ditch cabin (sometimes called the Sproat homestead); remains include fragments of a concrete and stone foundation, situated in a pasture, spotted with gardenia and strawberry plants. William Sproat, Ditch crew supervisor for 40 years, said there was also an earlier Kaukini cabin, on the E side of the same flat on which the present cabin sits.

This section of the trail is very interesting in the preservation of Ditch-related material, particularly the old Sproat homestead.

Additional Sites in the Environmental Zone:

There were a total of 78 sites mapped and described during the research project in the early 1970s. Of those, 48 are located adjacent to or near the trail. For descriptions of the other 30 sites, and for more detailed information on the above described sites, refer to Tuggle 1976. A report of the excavations which were carried out is in preparation.

Significance of the Windward Valley Cultural Resources

Although the focus of this study is the Kohala Ditch trail, it is impossible to discuss the significance of that narrow corridor through the upper reaches of the windward valleys without considering the importance of the valleys as an environmental and archaeological entity; the geographical definition of a valley and the concept of the ahupua'a demand the consideration of the significance of the entire unit.

Thus, the following is a discussion of windward valley archaeology in general.

Although the valleys have been bypassed by the major events of the district's, as well as Hawai'i's, history, the area has outstanding archaeological sites which represent a range of adaptations to the local Hawaiian environment and which have been little damaged by modern activities. Within the context of human occupation in an environment which is unique on the island of Hawai'i, the archaeology of this area has much to offer to

the understanding of Hawaiian culture.

The sites include major agricultural systems, extensive habitation areas, ridge forts, an adz quarry, heiau, and shrines. Many are excellent examples of specific types of sites and the total set represents a significant totality of Hawaiian life.

Given this diversity, research potential exists for several problem areas, including studies of Hawaiian adaptation to windward valley environments, of the nature of historical Hawaiian and immigrant settlements, and of specialized anthropological and historical questions. Adaptation to windward valley environments, especially concerning habitation patterns, is a poorly known subject in Hawaiian studies. Invaluable information about habitation may be yielded by the extensive deposits in the Pololū dune, by the buried habitation features noted in lower Pololū, and by the complexly integrated and tightly clustered habitation and agricultural features on the east side of Honokāne Nui Valley.

Although the study of agricultural intensification was the topic of research carried out in the early 1970s in this area, many problems remain unsolved, including the nature of initial settlement in the valleys and the potential effects of cultivation on the natural environment.

Historical archaeology has been a much neglected field in Hawaiian studies, yet it is one of the most important for understanding the background of the Hawaiians today and the transition from prehistory to history. In addition, it can add to the understanding of the impact of immigrant settlers on native farmers; the Chinese settlement in Pololū provides an excellent example of a specialized settlement for such a study. Further, the remains of Ditch-related activities are also invaluable resources in this regard.

There is also a high potential for public interpretation in the form of the extensive surface sites along the Ditch trail. Although vegetation patterns and water supply have been somewhat altered by recent activities, the general environment and the absence of intrusive and conspicuous modern features help create an atmosphere for the appreciation of the demands of the environment and the complexity of the Hawaiian use and modification of it. Further, the hazards and difficulties involved in the Kohala Ditch construction are all too apparent in the steep, narrow valleys, and the monumental task faced by engineers and laborers in the early 1900s is easily appreciated.

Section II.2

THE WINDWARD KULA GULCHES: NUCLEAR KOHALA

The windward kula gulches are a sub-zone of the windward environmental zone of the district of North Kohala. It extends from the ahupua'a of Mekanikahio at the southern end to the ahupua'a of 'Iole at the northern end (see Figure 1). It is characterized by narrow, shallow, and geologically immature gulches carved by perennial streams. The gulches are separated by broad kula areas with moderate, mauka-makai slopes and undulating topography. Small bays have formed at the mouths of the gulches; cliffs over 30 m (100 ft) high mark the seaward termination of the kula slopes.

The kula gulches have been postulated as the heart of the district, as the locus of traditional political power in Kohala and as having played a central role in the historical occupation, first with Christian missionization and later in the development of the sugar industry.

The archaeology of the windward kula, which includes both the kula gulches and the kula slopes to the north, is the least known of any of the environmental zones. Virtually no archaeological investigations have been carried out and much of the resource base reflecting aboriginal use has been destroyed or obscured by historical modifications. In contrast, the central place of this area in the historical occupation of Kohala has allowed for extensive documentation of settlement and land use which is reflected in the buildings and structures of the 19th and 20th centuries. The continued use of original buildings, supplemented with the written records, has helped to preserve the historical resources.

The survey carried out during the summer of 1981 was focused on the southern portion of the windward kula gulch sub-zone, encompassing the ahupua'a from Mekanikahio to Hālawā. Actual site survey was carried out in specific areas within the region.

Brief History of the Survey Region

Little is known of the prehistory of the windward kula gulches, but extrapolations from archaeological data from other areas and based on models of settlement and settlement expansion (see Section I, Figure 2) suggest an early role for

for this area in the general district prehistory.

The windward kula gulches may have been an environmentally attractive area to a founder population. The region is characterized by optimum rainfall (up to 100" per year), permanent streams, bays which could afford landings for canoes, and the expansive inter-gulch kula slopes, which were probably covered in forest and offered a range of non-cultivated resources. Although the NE tradewind swell system would preclude a large marine biomass such as on the more sheltered leeward coast, the windward coast could have provided major exploitation zones for shellfish, particularly 'opihi, and herbivores, such as surgeonfish and parrotfish (Newman 1970: 12-15).

The central role of the windward kula gulches is emphasized in the legendary account of Kapunohu, which is genealogically calculated (7 generations, 25 years per generation) to have occurred in approximately AD 1600. A battle was waged between the chiefs of Kukuipahu and Niulii, the former's domain extending from Wainaia Gulch (adjacent to 'Iole ahupua'a) to Kahuā, and the latter's from Wainaia south to 'Āwini. Meeting on the battlefield of Hinakahua at Kapa'au, the forces of Kukuipahu were vanquished and the "whole of Kohala thus came under the charge of Niulii" (Formander 1916: 215-220).

When Ellis travelled through Kohala during his 1823 trip around the Big Island, he stopped at Hālawā, which he described as "a large district on the northeast coast of the island, and, if not the birthplace of Kamehameha, was the land which he inherited from his parents, and with the exception of a small district in the division of Kona, the only land he possessed in Hawaii prior to the death of Taraiopu (Kalaniopu'u)" (Ellis 1969: 383). Ellis further described Kamehameha's farms as "fields of considerable size, containing several acres each, which he used to keep in good order, and well stocked with potatoes and other vegetables". Kamakau (1961: 126) noted that Kamehameha would often retire to Hāpu'u and Kauhola in Hala'ula when things were going badly for him. The area immediately mauka of the present lighthouse at Kauhola Point is identified as Kamehameha's fishpond and taro fields*on a 19th Century map (Gov. Register 1705).

A missionary census was taken in 1835, which showed a total district population (including the ahupua'a of Kawaihae in what is now South Kohala) of 6,175. Only nine of the 49 land units had a population of more than 200; three were in the kula gulch zone, Hālawā, Makapala, and Niuli'i. In addition, 'A'amakāō had 196 residents, and Waiapuka had 160 residents. Makanikahio was not listed. The total for the five ahupua'a was 849.

Just as the census suggests the primacy of this nuclear area, so do government records and historical accounts of the

*It is not known if there are any remains; this area was not field checked in the present survey.

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mid-19th century. Of the 131 Land Commission awards granted in North Kohala, 51 were located between Hālawā and Makanikahio (see Section I, Table 1). Only 29 were awarded on the entire leeward coast. Testimonies for the LCA claims describe irrigated fields for taro cultivation on the wide, inter-gulch kula slopes and in the gulches and dry fields for sweet and Irish potatoes, taro, and fruit trees. Pasture use is also noted.

By the second half of the 19th century, population was concentrating in the windward zone. Tax records show that this nuclear area was the residence of the largest number of taxpayers in the district: 65 resided in Niuli'i and 60 in Makapala. The next highest number was 32 and this was in Waiapuka. Of 314 houses valued at more than \$100.00, 98 were located in this area.

The impact of development during the frontier period in the latter half of the 1800s, however, greatly impacted the Hawaiian lifestyle. In 1873, James Wight started Halawa Mill; four years later, C. F. Hart started Niulii Mill. Although Hart's operation began as a mill for the processing of native-grown cane, he soon expanded into a plantation operation as well, and land acquisition became a vital activity. Entries in Hart's diary (n.d.) relate the acquisition of kuleana parcels as payment for overdue loans:

Maikai deeded 4½ acre lot of the Lunalilo land and 1½ Kaili piece to C. F. Hart for the tune of \$407.00 that being the amount of his indebtedness on the Lunalilo lands mortgages. The two above pieces taken at a valuation of \$350.00 and he paying into office \$57.00 in cash and receiving his mortgage cancelled.

By 1904, Hart had acquired 43 parcels, or 54% of the total, of the lands granted in the subdivision of the estate of William Lunalilo (who had claimed the ahupua'a of Makapala in the Mahele).

In 1883, the railroad between Niuli'i and Māhukona was completed. It crossed over 20 miles of Kohala lands and as one Hawaiian farmer described it:

My plants and that of my family are covered with dirt, the taro, banana, ti leaves, coffee, mango, orange, bamboo, and other plants. My property is filled with fruits, but these days it is reduced to naught (in Conde 1971: 40).

Thus, by the turn of the century, the character of nuclear Kohala had altered considerably, from a subsistence-oriented community of family farmers to a market-oriented community centered

around the two mills. Commercial centers consisting of stores, schools, and churches grew in Hālawa, Makapala, and Niuli'i along the government road. As the plantations imported laborers, camps were established throughout the area. Most were oriented along a diversity of ethnic lines, which reflected the changing population.

As the 20th century progressed, however, Kohala Mill became preeminent and the focus of the district shifted toward Kapa'au and Hāwī. Halawa Mill was absorbed by the Kohala Sugar Company in 1929 and Niulii Mill, which had merged with Union Mill, was incorporated in KSC in 1937. While the towns of Niuli'i and Makapala continued to provide a limited range of goods and services, an increasing reliance on the primary urban areas for specialized services became a necessity.

The 1960s marked the closing of the last school and the last stores in the area. All that now remain of the mills are the concrete foundations. With the closing of the Kohala Sugar Company in 1975, the once lush and extensive sugar fields have been turned to pasture. The multi-ethnic community has survived the emigration of business and industry and remains a concerned and vital group.

History of Windward Survey and the 1981 Survey

With the exception of the Stokes' survey in the early 1900s, the windward kula gulches have not been the subject of any archaeological survey. In the 1970s, several cultural resource inventories (Loo and Bonk 1970; DLNR 1972; Beggerly 1978; and Statewide Inventory of Historic Sites) were carried out to relocate and describe previously located and/or historically referenced sites. They were not intended as extensive or systematic surveys of the windward kula region.

The present survey, carried out as part of a cultural resources management study, combined aspects of the earlier inventories with survey of specified areas. These areas include the coastal strip between Kēōkea Park and Hālawa Gulch, the access routes to and the area around 'Āko'ako'a Point, and the access routes to and the areas around Waiapuka Tunnel and the beginning of the Kohala Ditch trail. Known sites, such as Waiapuka Tunnel, Kuapālaha Heiau, and Hale o Kaili Heiau, were also visited.

A total of 10.5 man-days was spent in surveying this area. Survey along the coastal strips entailed walking transects of no more than 10 m (30 ft) spacing, between the sea cliffs and the existing cane haul roads. For areas away from the coast, the

1904 Loebenstein map of Niulii Plantation was checked for areas of possible extant archaeological sites within the bounds of the specified survey areas, e.g. the kula slopes between Akoni Pule Highway and Waiapuka Tunnel and the beginning of the Kohala Ditch trail. A field check of the potential site areas was then made.

The areas in which this strategy was used have been greatly altered in the decades of use as sugar fields. The areas which have not been affected by such activity, primarily narrow gullies and bluffs, are conspicuously defined by thick vegetation in the present expanse of pasture.

All sites located and described in this survey are identified by the prefix "WK-" and numbered consecutively from one. Sites which already have been numbered during the Statewide Inventory of Historic Places are also numbered under this system but their State numbers follow in parentheses, e.g. the number "WK-1 (2454)" indicates the first site described for the windward kula gulch area, which is also a site designated under the State system as Site 2454.

Site Inventory

The windward kula gulches have been the locale of almost continuous and intensive occupation throughout the history of North Kohala. Although little is known of the archaeology of this area, a description of aboriginal site distribution can be postulated on the basis of ethnohistorical accounts and on analytical models projected from archaeological work carried out elsewhere. In contrast, the historical utilization of this area is well-documented, and is reflected in numerous structures constructed and maintained since the 19th century.

The pattern of aboriginal occupation is generally one of nucleated settlements and extensive fields. Habitation sites were aggregated within a coastal strip on the kula between the gulches. Scattered habitation sites were also found on the upland kula and occasionally in the gulches near the ocean. Village aggregations were located at Niuli'i and on the coast between Kapanai Bay and Hapu'u Bay.

Extensive irrigation and dry fields covered much of the kula area. Perennial water sources between 'Āinakea and Mekanikahio allowed the development of irrigated fields both on the kula and in the gulches. Dry fields also were developed on the kula.

Heiau were located along the coast overlooking the mouths of each of the gulches between Kauhola Point and Pololū. Others may have been associated with inland agricultural fields.

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The concentration of historical settlement and the development of the sugar mills, plantations, and commercial centers in the windward kula gulch area have essentially obscured the archaeological remains of the Hawaiian occupation. Present site distribution is limited to these areas which have not been affected by modern activities. Thus, what remains are not representative of the full range of Hawaiian aboriginal sites; they are primarily limited to agricultural features and possible habitation sites in the gulches and to disturbed sites along the coastal fringe between the lower edge of the former sugar fields and the sea cliffs.

Although the cultivation of sugar has laid waste to much of the kula gulch archaeology, there is a probability, albeit low, of the occurrence of subsurface remains beneath the plow zone of the sugar fields. Such a possibility should not be disregarded without first testing in areas of known use, such as those identified in historical land documents.

If aboriginal sites have been largely obliterated, historical sites representing periods of Kohala's history from the first half of the 19th century remain. Not immune to the destructive potential of subsequent activities, however, these sites, like the aboriginal ones, are limited in their distribution and range of representation.

During the transitional period, 'Iole was the center of missionary activities and the buildings situated around Kalāhikiola Church, including the Kohala Female Seminary (Girls' School), the Bond family complex, and Wainaia Cemetery are the primary historical remains representing this period. (Although the Tong See sugar masters also operated in 'Iole, structural evidence of their activities have since been destroyed.) Missionization is also represented by the remains of St. Louis Church in Waiapuka. It was the first Catholic church in the district and was constructed sometime before 1860.

Most residences continued to be constructed on a foundation in the traditional style of unmortared stone work. The pattern of settlement probably continued in the same manner as in the previous period, with the possibility that depopulation was affecting the density of occupation and the amount of land actually being cultivated.

The distribution of sites for the sugar period is oriented much more to the demands and strictures of modern commerce and communication. The primary settlement aggregations were located around the major mills, at Niuli'i, Makapala, Hālawā, and Hala'ula. Smaller habitation clusters occurred with the plantations camps, again identified with the mills and plantations,

but situated in a dispersed pattern among the cane fields. Of importance during this period were the railroad and the landings, of which some evidence remain.

Summary of Survey Results

A total of 25 sites, including the known sites of Waiapuka Tunnel, Kuapālahā Heiau, and Hale o Kaili Heiau, were located and mapped (Figure 6). Unlike the situation on the leeward coast, however, very few of these form contiguous complexes which could adequately support or substantiate the postulated pattern of settlement during the early period of Kohala's history.

Of the 25 sites, only two are of clearly historical origin, and another is of historical origin in association with an aboriginal-type complex. Site WK-5 is a concrete and stone foundation probably associated with a plantation camp and site WK-7 is the foundation of St. Louis Church. Site WK-24 is a concrete and stone house foundation within an irrigation terrace complex; it is probable that the agricultural system is of aboriginal origin.

With the exception of Waiapuka Tunnel (Site WK-4, 2336), the origin of which is ambiguous, and the two known heiau, the other sites were probably used from prehistoric through historic times. This is especially true of the irrigation terrace systems in the gulches, many of which are indisputably associated with Land Commission awards and grants from the mid-1800s.

Four areas within the windward gulches were surveyed: 'Āko'ako'a Point, the area mauka of Akoni Pule highway in the ahupua'a of Mākanikahio, 'Au'au, and Waiapuka, the coastal strip from Kēōkea Park to Hāpu'u, and the makai portions of the gulches. Three sites (WK-1 through WK-3) were located at 'Āko'ako'a Point, in the kula area between Waikama Stream and the Kohala Ditch Co. mule station, makai of Akoni Pule highway. Six sites (WK-4 through WK-9), including Waiapuka Tunnel, were located in the area mauka of Akoni Pule highway, between Waikama Stream and the ridge over Pololū Valley. Six sites (WK-10 through WK-15), including Kuapālahā Heiau and Hale o Kaili Heiau, were found in the coastal strip between the cane haul road and the sea cliffs. Ten sites (WK-16 through WK-25) were found in the gulches of this area; all except one (WK-21) are irrigation terrace systems.

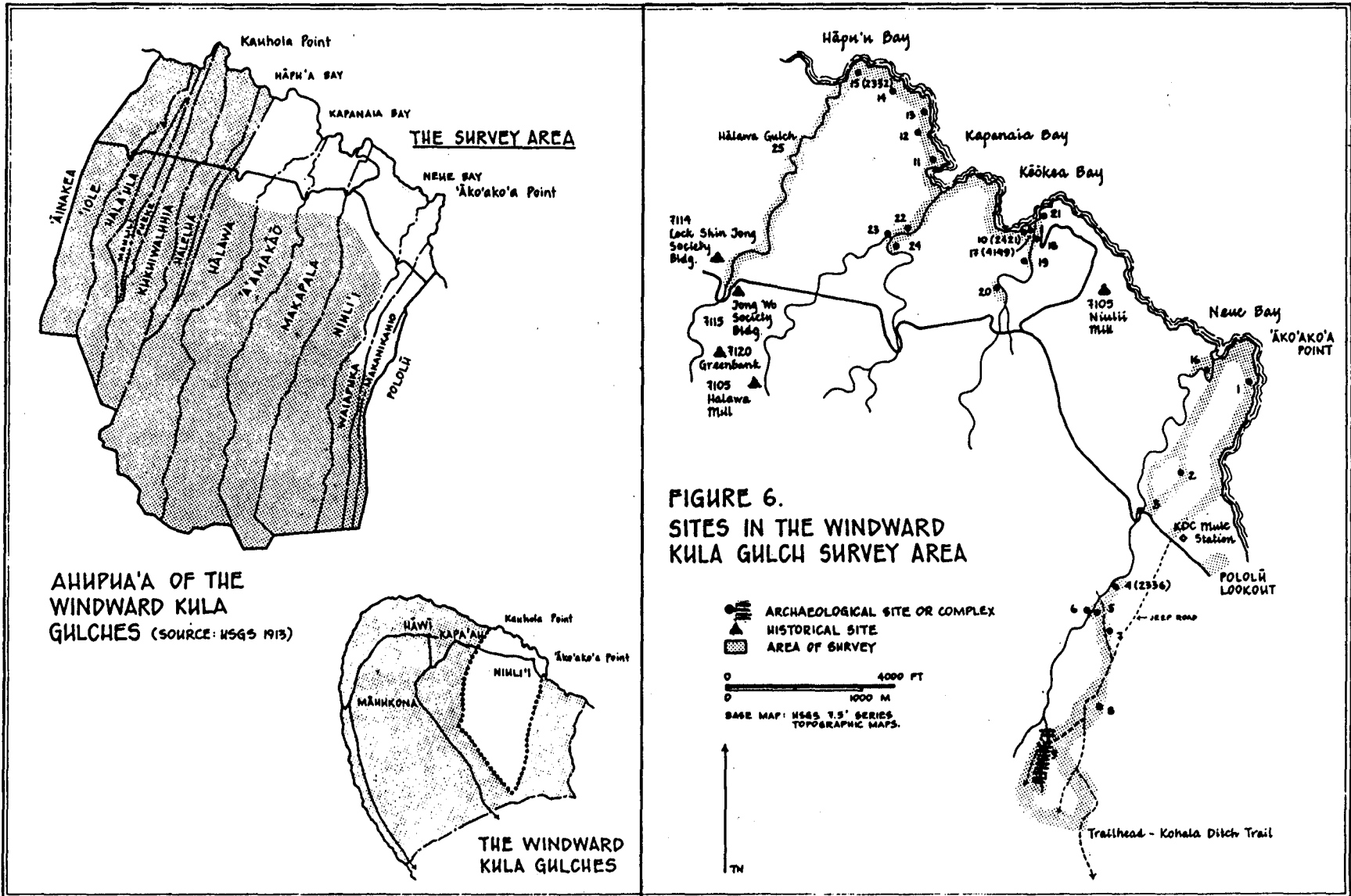


FIGURE 6.
 SITES IN THE WINDWARD
 KULA GULCH SURVEY AREA

Site Descriptions

'Āko'ako'a Point Survey:

- WK-1: Eroded shelf of sea cliff on SE side of 'Āko'ako'a Point. The shelf measures approximately 15 m across. No cultural deposit was observed in the eroded face but a basalt flake, basalt core, and a beach cobble were found on the shelf.
- WK-2: Terrace. This feature is 26 m long, 2.5 m wide, and has an approximately 75 cm high retaining wall. Located in a gully in the middle of former cane field (Niulii 1), under a java plum and Christmas berry vegetation cover, the terrace runs parallel to the orientation of the gully along the E slope. The upper part of the slope forms the upper boundary of the terrace. The facing is of subangular field cobbles and boulders.

This site is located in the vicinity of LCA 8713 to Kaluahi, in the 'ili of Inaihakue, ahupua'a of Waiapuka. Testimony for the claim describes the parcel as including dry land, pasture, and five taro lo'i.

- WK-3: Platform, probably a house site. Located makai of the junction of Akoni Pule Highway and Waikama Stream, this large platform, measuring approximately 5 by 5 m, is built up to three m high on three sides. The fourth side abuts the gulch wall. The platform facings are of large, waterworn boulders and cobbles. This site is on the E side of the gulch under a canopy of mature mango trees. A house is noted at this location on the USGS 1913 topographic map.

This site is located in the vicinity of LCA 10856 to Paku, in the 'ili of Kiei, ahupua'a of Waiapuka. Testimony for the claim describes 17 taro lo'i.

Makanikahio-Waiapuka Mauka:

- WK-4: (2336) Waiapuka Tunnel. Located mauka of the Kohala Ditch Company mule station and along the E side of Waikama Stream, this site consists of 19 vertical shafts dug through bedrock to the level of the stream and connected by a horizontal tunnel (Figure 7). It carried water from Waikama Stream to a complex of taro fields situated in a low area of the kula slope. It is located in LCA 511 to Parker, in the 'ili of Makanaka, in the ahupua'a of Waiapuka.

Its construction has been attributed in traditions and legends to the ali'i nui, 'Umi (AD 1650-1668), to menehunes, and to Kamehameha; it has also been credited to J. P. Parker, founder of Parker Ranch and claimant of LCA 511.

People in Kohala today say that it was constructed by Kamehameha and the fields which were watered by the tunnel are referred to as Kamehameha's taro patches (William Sproat, personal communication). However, Williams (1919) argued that modern technology was needed for construction through bedrock and dated the tunnel to between 1823 and 1849, when Parker occupied the land. Handy (1940: 121) disagrees, saying that knowledge of cutting stone was available in prehistoric times.

At present, the tunnel is in relatively good condition although sections of it, and the taro fields which it fed, have been destroyed by cane haul road construction and cultivation. The extant portion of the site may need basic maintenance and stabilization as the root systems of the vegetation overgrowth are rapidly eroding the tunnel shafts.

- WK-5: Concrete and stone foundation. This structure is situated in a bamboo grove on the E side of Waikama Stream, just mauka of the upper cane road crossing of the stream. It has two components: one is a 2.25 m square slab of concrete and stone; abutting the SW corner of the slab is a U-shaped, concrete feature measuring 1 x 1 m. In the report *Kohala Keia*, this area was noted as a Korean camp, consisting of five houses, and that "one can see the remains of the house foundations and also the outhouses" (Ah Sam et al 1977: 30). In the present survey, however, nothing was found as described. However, the area around the structure is under a bamboo and Christmas berry vegetation cover extending approximately 70 x 30 m along the E side of Waikama Stream; the camp may be within this area.
- WK-6: Remnant terraces. Located on the W side of Waikama Stream, in the area below WK-6, these terraces are obscured by a dense hau thicket. They appear to be eroded by stream action. They are situated in the vicinity of LCA 8898 to Kupanapanau, in the 'ili kupono of Haoi, ahupua'a of Niuli'i. There was no testimony given in support of the claim.
- WK-7: Catholic Church. This complex consists of the stone foundations of St. Louis Church, the first Catholic Church in Kohala (built sometime shortly before 1860), as well as three graves and a wall enclosing the compound (Figure 8). The church foundation is of field rock, low, rubbly, and slightly terraced to the makai. It measures approximately 6 x 13 m; 10 to 25 cm high on the upper side and 25 to 50 cm high on the lower side. The graves are concrete slabs with concrete headstones, which have been broken. There is some coral around the graves. The church and graves are situated on a terrace marked now by a 50 to 100 cm high embankment along the makai side. A few pieces of glass and crockery, and a piece of galvanized tin, were found along the E side of the church foundation.

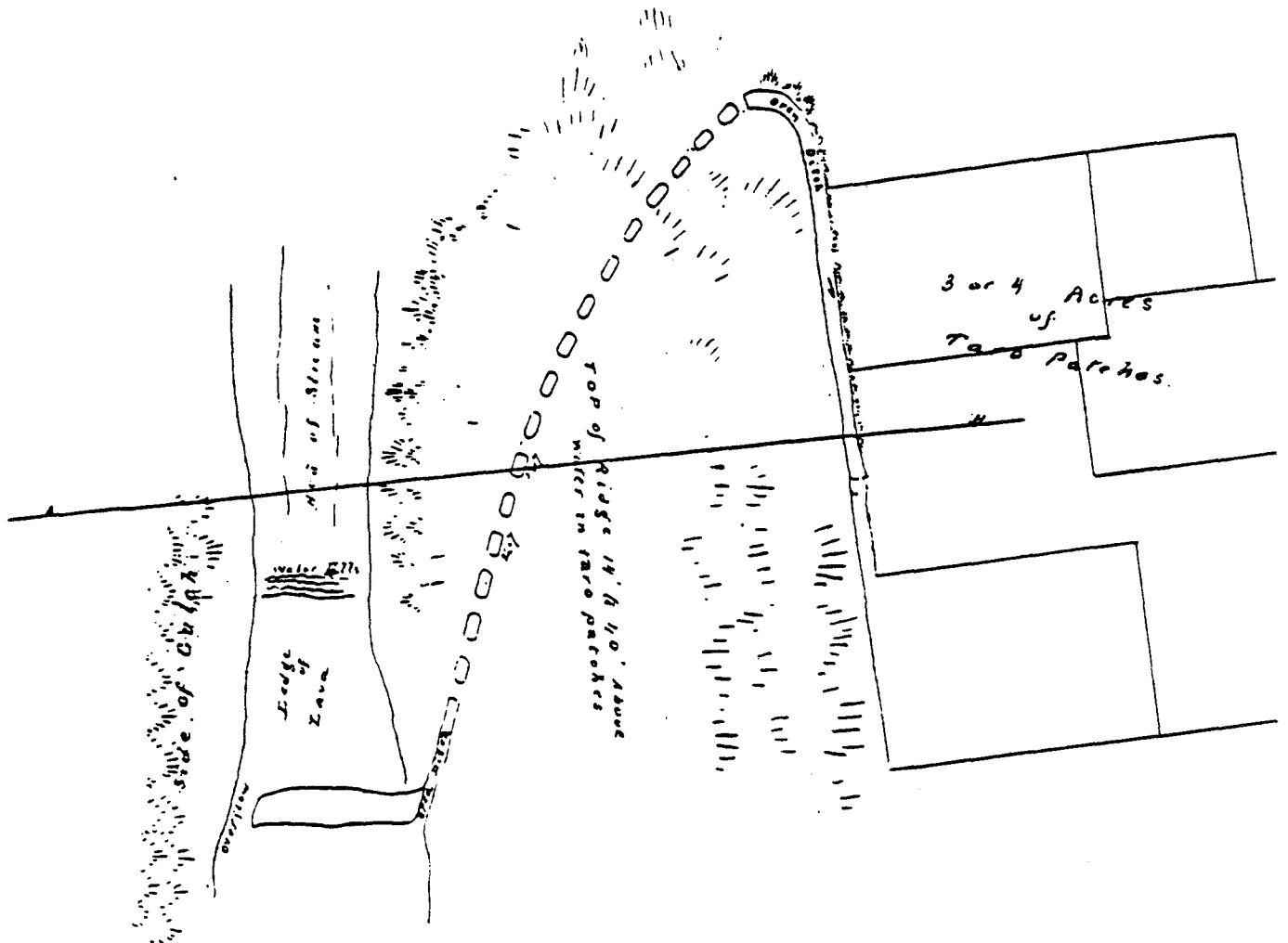
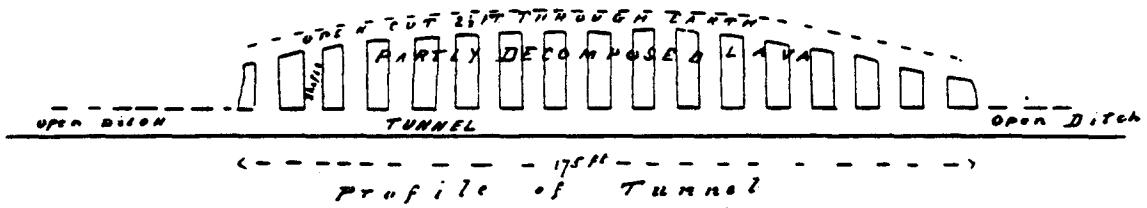
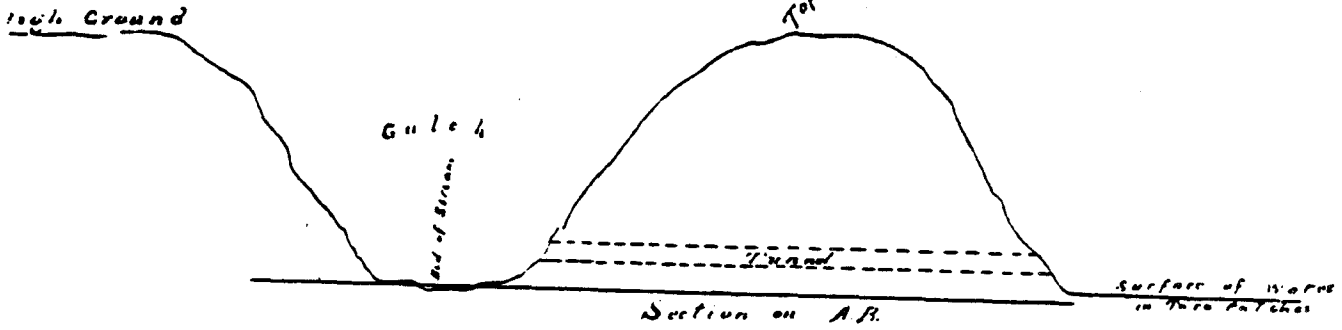
The 1904 Loebenstein map of Niulii Plantation shows taro fields in the area around the Church, within the compound wall. Although there is no sign of them now, the area having been bulldozed, sections of the compound wall remain in excellent condition. It is constructed of field rocks, 50-100 cm wide, and up to 100 cm high.

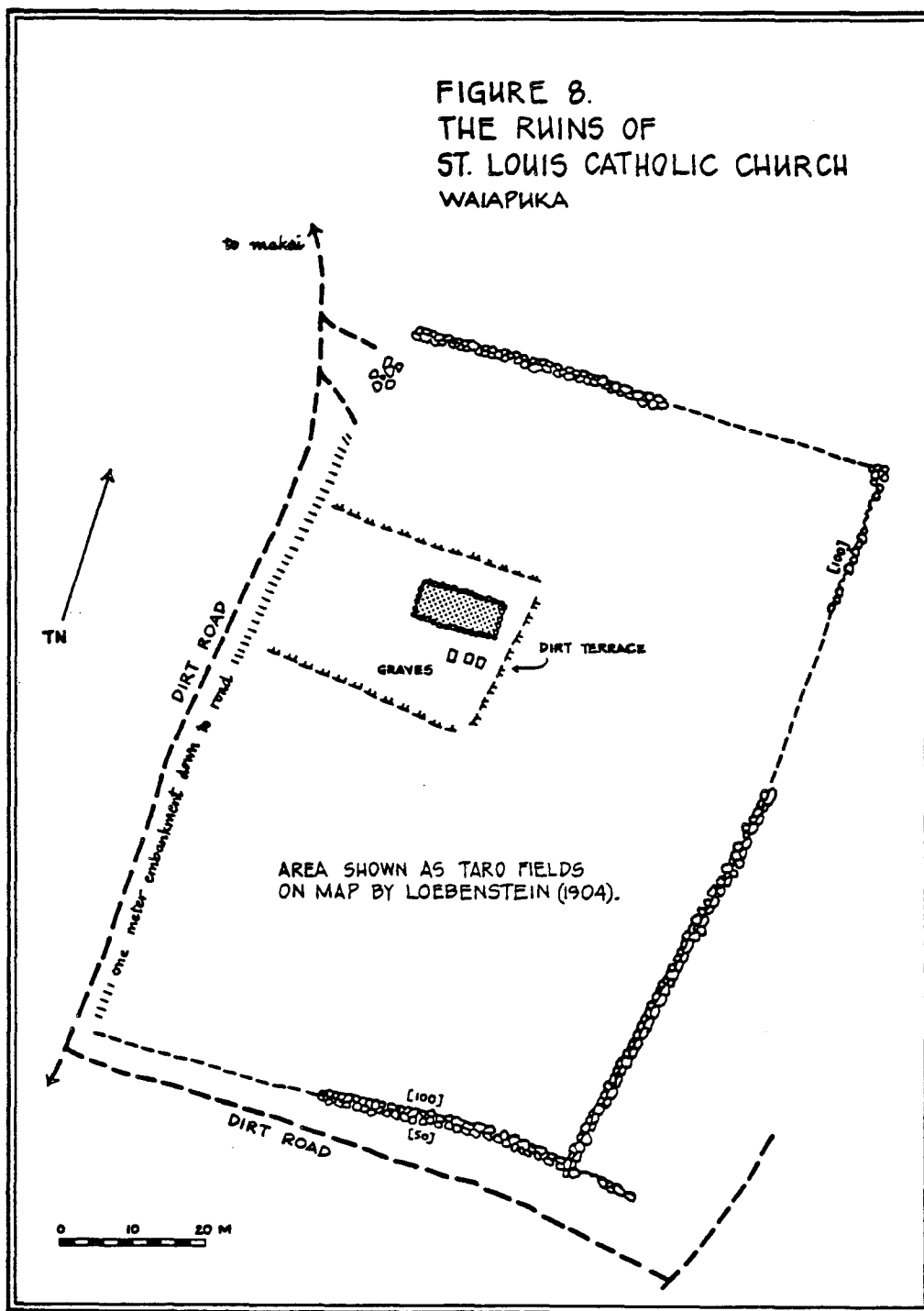
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FIGURE 7.
 WAIAPIKA TUNNEL

MAP BY CABOT 1888





- WK-8: Enclosure. This large enclosure, measuring 40 x 30 m, is located at the top of a bluff in the middle of a former canefield (Niulii 2) and is conspicuous in the thick Christmas berry-lantana-guava vegetation cover which also obscures most of its interior features. The enclosure wall is roughly constructed, measures up to 100 cm high and 70 cm wide, and tends to be bifaced and core-filled. The makai section follows the slope (20°) of the bluff. A platform facing, indicating a possible house foundation, was located at the highest point of the bluff, within the enclosure. No artifacts were found.

The site falls within the boundaries of Grant 1101 to Kepau, in the ahupua'a of Makanikahio 2 and 'Au'au. It appears on the 1904 Loebenstein map of Niulii Plantation as an unidentified, uncultivated square area.

- WK-9: Irrigation terrace system. This site is located in a shallow gulch feeding into Waikama Stream from the E. It consists of a single row of more than 30 impressive terraces descending the narrow (12-15 m wide) gulch floor; most have side walls along the base of the gulch walls. They are distinctive in the use of small cobbles in construction. The retaining walls range in height from 40 to 200 cm.

Preservation is best at the upper end of the system. The middle section is more disturbed; although the side walls are in generally good condition, some cross walls have been destroyed completely. Along the E side, at the lower end of this section are small piles of rocks which may be remnants from subsequent activities. Below the cane road which separates the mid-section from the lower end of the system, the terrace retaining walls are gone and the side walls are in poor condition. This area appears to have sustained flood damage; it extends approximately 50 m from the cane road to the junction with Waikama Stream.

Kula Gulches Coastal Strip:

- WK-10:* Kuapālahā Heiau. This platform heiau is located on the bluff to the W of Waikane Gulch, across (2421) from Kōōkea Park. Measuring approximately 40 by 40 m, it is densely overgrown with vegetation. Partially visible walls, pavings, and interior platforms indicate a complex structure (Figure 9). A sea cave cutting into the ridge beneath the heiau is undermining the structure and a large portion of the main platform has collapsed into the cave. Loo and Bonk (1970) measured the hole as "30 to 40 deep and approximately 20 feet in diameter". Human bones were observed (during the present survey) beneath the paving exposed by the collapse.

Kuapālahā is one of several heiau along the windward coast which were identified by Thrum (1908: 62). He described it as "crowned by a stone wall of from six to ten feet or more in thickness; and at the present time about four feet high, inclosing a leveled square space. Upon subsequent visit its dimensions showed 127 feet on the north or sea side, 135 feet wide on the west and south sides, and 112 feet on the east side".

Silverman (DLNR 1972: 37) interviewed A. Pule who related how Kamehameha's warriors eluded pursuing enemy warriors from the Hamakua area by leaving their canoes as decoys and swimming underwater to the cave where they concealed themselves.

Kuapālahā Heiau is situated in the ahupua'a of Makapala, as is the coastal section of Waikane Gulch. There are several irrigated agricultural systems (WK-17, WK-18, WK-19) in this section; the relationship of the heiau to these systems and their proximity to the dominant ahupua'a of Niulii'i offer potential for research on a variety of political, religious, and economic questions relating to Hawaiian culture.

There is a Portuguese oven at the S edge of the platform. Informants said that there was once a Portuguese plantation camp located in the area immediately mauka of the heiau.

The site is mislocated on the Historic Sites section base maps. It is placed on the Hawi quadrangle, when it should be on the Honokane Quadrangle.

- WK-11: Boulder area. Located makai of the junction of a cane haul road and the Kapanāia Bay access road, this site is an area of waterworn boulders and a possible remnant structure. The boulders suggest a modification of the area, possibly by Hawaiian occupation. The remnant structure is a 1.5 m wide pile of field and waterworn boulders and cobbles which roughly forms an L-shape, 5 m along the longer leg and 3 m along the shorter leg. There are no apparent facings.

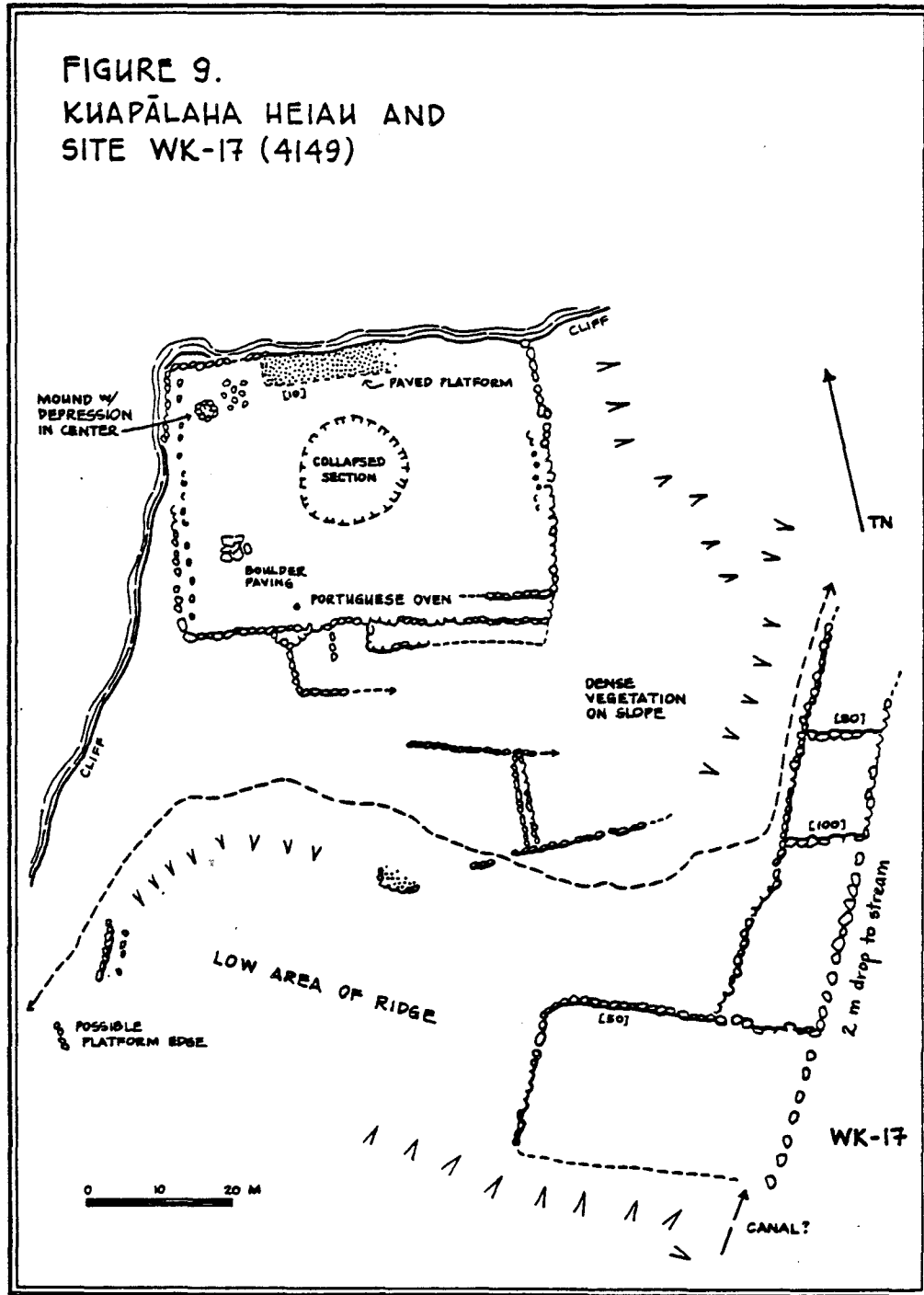
Approximately 30 m to the N of this specific site area, extending approximately 180 m further N, in the area between the cane road and the sea cliff, is a large field of waterworn boulders and cobbles, too numerous to be of natural occurrence. The ground surface in this area is slightly furrowed, giving the suggestion of plowing. Historical debris such as broken bottles, metal, and crockery were observed along the cane road. A plantation camp was mentioned as having been in this area but no corroboration can be found on any maps or records. The primary vegetation is ironwood, with some Christmas berry in the area between WK-12 and the boulder field area.

A missionary visiting Kohala in 1832 described the heiau of Kapalāma as an immense stone pavement overlaid with pebbles. It was situated approximately 500 ft from the sea cliffs E of Kapanāia Bay (in DLNR 1972: 36). That would be in the approximate vicinity of this large boulder field.

- WK-12: Stone foundation. This site is located at the N end of the large boulder field (see WK-11) on the embankment which marks the mauka edge of that area. It is 5 m by 5 m and consists of two low retaining walls on the embankment, and a parallel row of boulders, about 25 cm apart, at the base

*See Figure 10.

FIGURE 9.
KŪAPĀLAHA HEIAH AND
SITE WK-17 (4149)



of the embankment. Some of the boulders are in upright positions. A similar parallel row of boulders marks the W side of the structure. The upper retaining wall extends W of the site for another 12 m, along the top edge of the embankment. The interior of the site is a slope with an approximate 1.25 m drop. Two ornamental palms were observed on the top of the embankment; a large banyan tree is located 18 m away on the edge of the cane road.

- WK-13: Exposed deposit in eroded section of sea cliff. This deposit, approximately 1 m below the present ground surface, occurs intermittently along a 210 m (700 ft) length of eroded shelf of sea cliff. A basalt flake and a beach cobble were found in situ in the deposit; there was also a basalt core found on the eroded shelf, presumably from this deposit. The ground surface dips back from the exposed face, thus making it difficult to determine how deep the cultural deposit may be away from the cliff edge.
- WK-14: Boulder alignment. This feature, approximately 3.75 m long, is a suggestion of a platform edge. It is located in a hala grove; there are scattered rocks and boulders in the vicinity.
- WK-15: Hale o Kaili Heiau. This site is a heiau associated with the Kamehameha family. It is presently difficult to clearly define the extent of the site as it is in extremely poor condition, largely being a dirt/rubble mound, through which runs an access road to the point of the sea cliff over Hapu'u Bay. Historical debris was noted in the area to the south.

Ellis was shown the heiau by Miomioi, the chief of Hālawā. He described it as "an insignificant pile of stones, on a jutting point of volcanic rock" (Ellis 1969: 385). The chief, however, informed him that the kapu were strictly observed and that "many people...had been burnt on the adjoining hills, for having broken the tabu enjoined by the priests of Tairi".

Kula Gulches:

- WK-16: Terrace complex, including probable housesite and adjacent features. The housesite is a pebble and cobble paved terrace, located at the upper end of the first stream flat at the mouth of Waikama Stream. The complex is bounded on the W side by the gulch wall and on the E side by a 3 m high retaining wall which drops down to the stream flat (which appears subject to periodic heavy flooding). Around the paved terrace are four other small terraces (function unknown) and other indistinct features.

This housesite is located on the 1904 Loebenstein map of Niulii Plantation. In the testimony for LCA 8747 to Kauhane (in the 'ili of Waiahole, ahupua'a of Niuli'i), this parcel is identified as belonging to the konohiki.

Approximately 30 m upstream from the housesite are four large terraces, fed by an 'auwai off of Waikama Stream, which, in this area, appears to be cutting laterally into the streambank. The terraces are presently under pasture. Across Waikama Stream at the mouth of the gulch is a remnant retaining wall, approximately 6 m long, at the base of the gulch wall. The trail into the gulch from 'Ako'ako'a Point crosses over the wall.

- WK-17: Irrigation terrace system. This system consists of five terraces in a single row (see Figure 11) descending the stream flat on the N side of Waikane Stream at Kēōkea Bay. The retaining walls are distinctive in the incorporation of large in situ boulders in the construction; the walls range up to 125 cm high, and the boulders vary from 75 to 100 cm across. The high retaining wall along the stream edge of the terraces drops to an eroded stream flat which appears subject to flood conditions. A possible 'auwai, feeding into the uppermost terrace, follows the base of the gulch wall, mauka to Site WK-19.
- WK-18: Irrigation terrace system. This system is located on the S side of Waikane Stream, on the stream flat behind the Kēōkea Park pavilion. The retaining walls of the terraces are oriented parallel to the stream and descend the slope of the gulch wall; thus the terraces are generally long and narrow. The system is one to four terraces wide at different sections. The water intake was not located.
- The site is situated in the Lunailo Estate parcel to Kekipi which has been described as one acre of taro.
- WK-19: Irrigation terrace system. This system is located on the N side of Waikane Stream, on the second stream flat from the coast. It consists of a single row of large terraces, with boulder retaining walls up to 60 cm high. It is presently partially in pasture. An 'auwai was located along the base of the gulch wall; it is noticeable as a boulder alignment and a narrow level area; there are no apparent facings. At the lower end of this site, the 'auwai appears to continue downstream, approximately 2 m above the level of the lowest terrace.
- WK-20: Irrigation terrace system. This site is located on the N side of Waikane Stream, just mauka of the confluence of Waikane and Niuli'i Streams. Fourteen terraces were mapped, but it appears that the stream has been cutting laterally into the site area, as the stream bank shows a good profile of the agricultural soil. The 'auwai originates approximately 50 m upstream from a concrete and stone dam, and flows along the edge of the gulch wall before it terminates in a terrace near the middle of the system.

This site corresponds with LCA 8683 to Kimo, in the 'ili of Kahonuiki, ahupua'a of Makapala. Testimony for this claim describes 30 taro patches, of which two were for the konohiki.

- WK-21: Platform. This site is a high boulder mound which appears to be partially faced. A park pavilion has been constructed on its surface. It falls within the boundaries of the Lunalilo Estate parcel to Kekipi, and corresponds with the site of the Keokea Landing, noted on the 1904 Loebenstein map of Niulii Plantation (see Figure 10, which also shows the historical locations of sites WK22 through 24).
- WK-22: Irrigation terrace system. This site is a remnant terrace system located mauka of the concrete road crossing in 'A'amakāō Gulch. It appears to have been bulldozed and is presently used for cattle pasture. One terrace remains at the upper end of the stream flat.
- WK-23: Irrigation terrace system. This complex system is located on the W side of 'A'amakāō Gulch at the confluence of Waia'ohia and 'A'amakāō Streams. It is approximately 100 m long, and consists of 15 to 18 terraces in multiple levels. It appears to occupy the upper 3/4s of the stream flat. The terraces range in size from 5 to 10 m across, with the smaller ones at the upper end of the system. Retaining wall heights vary from 25 to 70 cm (one to four courses). A walled 'auwai feeds into the uppermost terrace but branches in the upper section of the system. There are several, low, bifaced, dirt-filled walls which may be alluvially filled canals.
- WK-24: Irrigation terrace system and historical housesite. This site is located on the E side of 'A'amakāō Gulch, at the confluence of the Waia'ohia and 'A'amakāō Streams. A concrete and stone house platform is located on the high point (and upper end) of the stream flat terraces descend from this area.

The house platform consists of ten concrete steps leading to a level dirt and boulder area measuring approximately 5 by 7 m. A large banyan tree stands at the back of the platform; the slope of the gulch wall rises behind the tree. Cut wood, bottles, and enamel pots were observed around the base of the platform; there were also many saké bottles with Japanese inscriptions along the base, one was imprinted with "Dainippon Brewery Co., Ltd." A large boulder measuring 1 m across, located at the base of the concrete steps, has a bowl with vertical sides and a flat bottom carved into it. This feature measures 35 cm across, and 15 cm deep; there is a small, trough-like cut through the side of the boulder, somewhat resembling a drain. It has been mentioned that a family named Iyomasa lived here until perhaps the early 1920s.

The terrace system consists of 7 to 10 long and narrow terraces (ranging in size from 5 x 15 to 10 x 10 m), descending the slope from the housesite, with a 1 m high retaining wall built along the stream face. Makai of this section are larger terraces, with lower retaining walls (less than 50 cm high). There are also small, steep terraces (at least four tiers of them) along the gulch wall.

At the makai end of the system are the concrete and stone foundations of the Hawaiian Railroad Company trestle. In addition to the large features which supported pylons in the stream itself, five small foundation platforms (about 1 m across) were found ascending the steep E slope of the gulch.

- WK-25: Hālawā Gulch. Only a brief walk-through of the gulch was carried out; thus, all features found within the gulch are described briefly under this site number. Evidence in the way of extant irrigation systems and exposed buried soils in stream banks suggest extensive use of the gulch for irrigation agriculture. At the same time, the archaeological remains have been greatly impacted by pasture and the development of macadamia nut orchards.

There appear to be at least four clearly defined and largely intact systems, the largest and most impressive were located approximately 50 m makai of the old highway, one on each side of the stream. Both are in excellent condition, with multiple levels of terraces, with facings up to 100 to 150 cm high constructed of boulders and cobbles. The system on the W side of the stream is under a bamboo grove.

Immediately makai of the lower, old concrete road crossing is a small system of terraces with low retaining walls, located on the E side of the gulch. Makai of this and approximately midway between the road crossing and the bay is a system of terraces in a double row, with a clearly defined 'auwai feeding from the stream into the upper row of terraces.

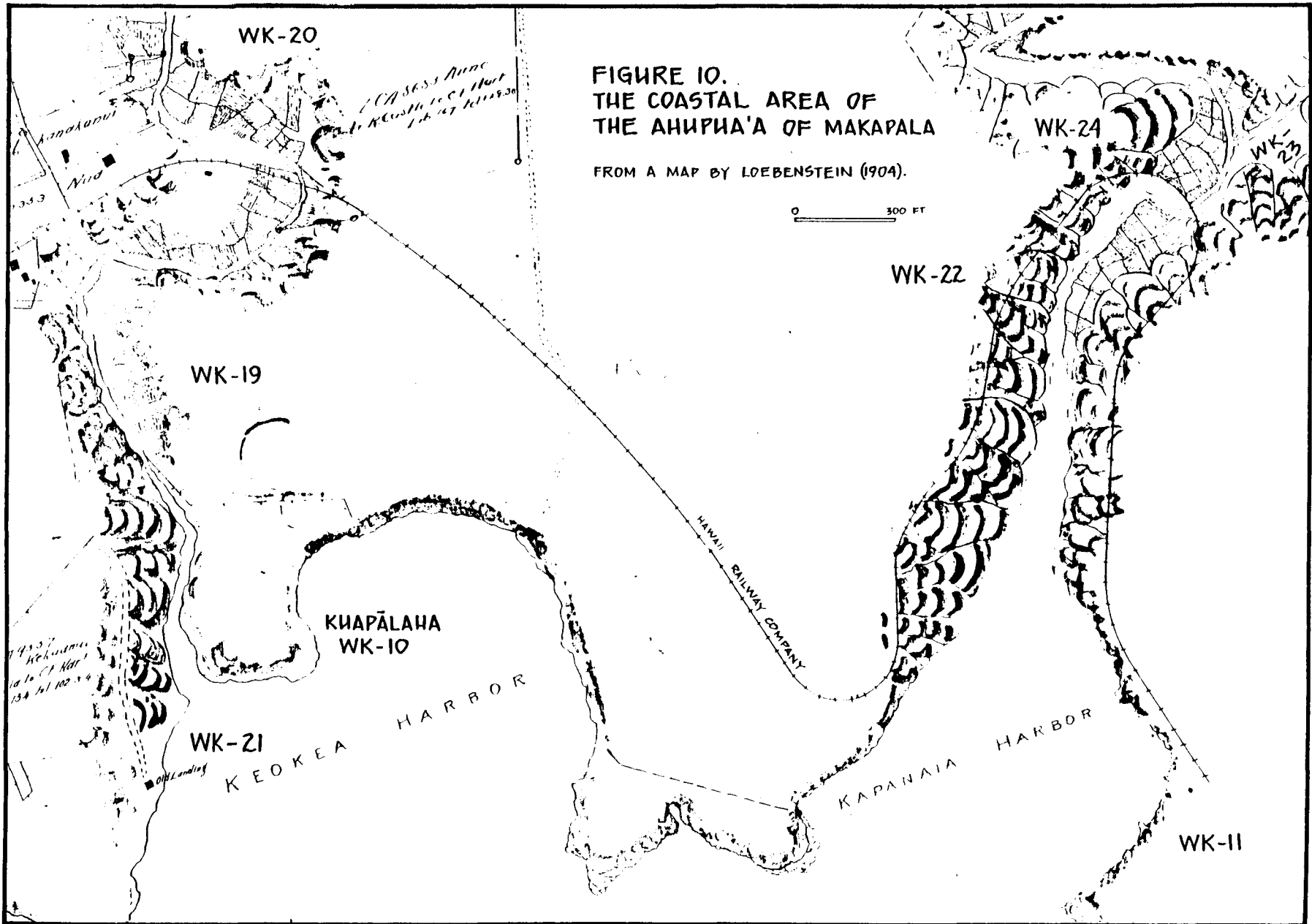
There is no clear archaeological evidence for the historical use of Hāpu'u as a landing, except for an old road on the E side of the gulch which presently terminates approximately 7 m above the gulch floor at its mouth.

The area at the mouth of the gulch was awarded to Naukana as LCA 10486, of Hāpu'u, in the ahupua'a of Hālawā. Testimony for the claim described 13 patches (presumably taro), three potato gardens, and five houses, two for storage, one for the konohiki, and three for other people.

Additional Sites in the Environmental Zone:

- 7114/ Chinese Fraternal Society buildings. The restored Chinese fraternal society building located on the kula to the E of Hālawā gulch is the last of six buildings used by Hakka-speaking Chinese laborers. The Tong Wo, loosely translated as "together in harmony", was a fraternal society organized in Kohala in 1886, which provided a means of companionship for single men; membership was restricted to those over 16 and under 60. One of its primary functions was to provide a place to die and be buried; bones were later exhumed and returned to home villages in China. In 1973, only 102 of 600 burial plots remained filled (NHPRB file).

Fig. 10 of Sec. II.2 is a portion of a historical map (1904) with site numbers showing sections remaining today located in the present survey.



On the opposite side of Hālawā gulch are the buildings used by the Lock Shin fraternal society of Punti-speaking Chinese, who, disapproving of the male-oriented Tong Wo Society, set up a family-oriented organization. Unlike the Tong Wo building, the Lock Shin structures have not been maintained and are in extremely poor condition.

The main Tong Wo building was restored, following a research project carried out by the University of Hawaii-Hilo (Bonk 1974). It is presently maintained by the Kohala Chinese Community Association.

Both society buildings represent the activities of a significant component of the Kohala community, the Chinese, and reflect a manifestation of continuing but evolving ties with cultural origins.

- 7120: * Greenbank. This site consists of a complex of New England-style wooden structures, built sometime between 1875 and 1880, by Dr. J. Wight, one of the early haole settlers in the district and one of the founders of the sugar industry. Although the grounds of the estate are maintained, the buildings are virtually destroyed. They are mentioned here only as an excellent example of a significant historical and architectural resource which has deteriorated beyond repair by neglect, vandalism, and looting. Parts of the structures, e.g. doors, floorboards, can be found in numerous houses around the district. During the present survey, the roof of the kitchen building collapsed in a windstorm.

For historical and architectural details, see Inventory form 7120.

- 7105: Niulii Mill. This site is part of the Kohala Sugar District (see Section II.3). It consists of the concrete foundations of the mill developed by C. F. Hart in 1877. In the vicinity were the railroad station (the end of the Māhukona-Niulii'i line), a coffee shop, carpentry and blacksmithing facilities, stores, and workers' quarters. The area is under pasture at present; the mill foundations are the only remains which are visible from the road.

*This is one of the many excellent examples in Kohala where historical archaeology needs to be carried out; another is Kai'opihi (see Section I discussion and Section 1.4 Figure 6), which was not surveyed but which almost certainly has subsurface material which could contribute significantly to the understanding of Kohala's history.

Significance of the Windward Kula Gulches Cultural Resources

The windward kula gulches are postulated as the historical central place in the district; the sites of this area reflect its long, continuous, and culturally mixed history. In the context of the central place idea, the sites are significant for numerous reasons.

Although the fragmented nature of the area's archaeology would appear to detract from its research potential, it is this very quality, in conjunction with the historical importance of the kula gulches, which adds to its research value. That is, the archaeology that remains at present are the last remnants of an archaeological totality, it is all that is left and, as such, should be preserved for future research.

Research problems which can be approached include studies of early settlement and population expansion. The small bays and gulches along the windward coastline offered attractive sites for initial settlement: access for canoes, permanent water, and relatively easy avenues to forest resources on the inter-gulch slopes. The gulches are some of the few places in this environmental sub-zone which have been little affected by modern developments, and the potential for exploring questions of settlement are still possible.

In addition, they offer an opportunity to examine the transition from Hawaiian to foreign (Western or Asian) patterns of lifestyles. Site WK-24 is ideal for this in that it contains the remnants of what is probably an aboriginal irrigation system, a housesite identified with an early 20th century Japanese family (and their modifications to the irrigation system), and remnants of the Hawaiian Railroad Company trestle across the gulch.

Historical archaeology has great potential in this area. The operations of Niulii Mill, and later Kohala Sugar Company, left a legacy of sites, including the mill itself at Niuli'i, numerous plantation camps, and the railroad trestle foundations in the gulches. The camps, especially, have much to offer from a research standpoint; they were constructed from a basic plantation-directed design, but most were occupied along ethnic lines. Investigation of variations in ethnic adaptations and modifications to plantation camps would be intriguing and a first of its kind in Hawaiian archaeology.

In terms of cultural significance, this area, as a historical central place, is important. Kohala residents use the concept of "in and out" to define their perception of the district's boundaries; this definition also appears as a footnote in Fornander (1916: 218): "residents of Kohala speak of the divisions

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of their district as inside, the eastern, and outside, the western portion". The northern extent of "in" varies from Hāwī to Niuli'i; in all perceptions, the windward kula gulches are "in". Thus, this area is critical as a representation of Kohala as a district, and the remains, from remnant terrace facings to the foundations of Niulii Mill, are significant as an integral part of the district's history.

Within the relatively compact area of seven ahupua'a are the residue from centuries of human occupation, from the Hawaiian subsistence-oriented settlements to multi-ethnic, plantation-oriented communities. The potential for public use of this diversity of archaeological material ranges from educational to exhibit and display, as well as multiple use such as incorporation into recreational parks. Especially notable is the possibility for combining oral history with the preservation of sites of high significance within the area, such as WK-24 and St. Louis Catholic Church (WK-7).

Section II.3

THE WINDWARD KULA SLOPES: UNSURVEYED

The windward kula slopes are a sub-zone of the windward environmental zone. It stretches from the ahupua'a of 'Āinakea at the S to Pu'uepa ahupua'a at the N end of the district (see Figure 1). This environmental transition zone is characterized by smooth to undulating topography dissected by small gulches with intermittent to dry streams. Its boundaries with adjacent environmental zones are indistinct; the transition from the distinctively wet windward kula gulches to the dry leeward slopes is gradual through this area. The sea cliffs in this zone decrease in height to approximately 10 m (30 ft) high at the N point.

Although the role of this area in the prehistory of the district is not clear, the kula slopes figured significantly in the 19th century development of the sugar industry and the area became the center of the district's commercial and social life in the 20th century.

No archaeological work has been carried out in this zone. During the summer of 1981, survey was focused on the other areas of the district. However, the significance of the towns of Hāwī and Kapa'au in the modern period warrants an examination of the historical resources of this zone.

Brief History of the Windward Kula Slopes

Little is known of the archaeology or prehistory of this area. Based on models of settlement expansion (See Section I, Fig. 2), however, it is postulated that the area figured as a zone of secondary settlement following initial colonization within the primary resource zone of the windward kula gulches.

In the legendary history, Hinakahua, at Kapa'au, is mentioned as a battlefield and as a sporting ground. In the Kapunohu legend, it is the site of the defeat of Kukuipahu and the success of Niuli'i in uniting the district under one ruler (Fornander 1916: 215-220). In the battles waged by Lono-i-ka-makahiki against rebel forces, Hinakahua is the setting where rebels prepared to fight again after two significant losses on the leeward side (ibid: 328).

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By the time of Kamehameha, Hinakahua is described as a place selected by Kalaniopu'u for games and sports, including hula, kilu spinning, maika rolling, and sliding sticks (Kamakau 1962: 106).

In 1823, Ellis described Kapa'au as "an inland village, where, with some difficulty, we collected a congregation of about fifty, principally women" (Ellis 1969: 392). In the 1835 missionary census (Kumu Hawaii 1835), a total of 1109 were counted in 11 named land units in this zone; only one land unit had a population over 200 (266 in Kahei).

In the Mahele of 1848, the land was divided among the Crown, the government, and the ali'i. Of 18 ahupua'a, ten were deemed government lands, one was claimed by the Crown and seven were claimed by ali'i. However, of these last seven, three were surrendered later in commutation for other claimed lands. In that way, the government received 13 of the ahupua'a in this area. Thirty-six Land Commission awards to commoners were granted. (For summary, see Section I, Table 1).

From the mid-1800s, the kula slopes were destined for growth, as the sugar industry developed and commercial centers sprung up around the processing mills, especially in Kapa'au and Hāwī. Tax records for this period show clusters of houses valued at \$100.00 or more occurring at Kahei, Kapa'au, and Honopueo.

These centers grew out of a demand for goods and services by people unable to produce the bulk of their subsistence needs, especially among immigrant laborers imported for plantation work. Homesteading on government lands at Ka'auhuhu, Kahei, and Pu'uepa-Kokoiki in 1904 and 1914 created new communities N of Hāwī. The construction of the railroad and the Kohala Ditch acted to encourage the further development of these more centrally-located communities.

As communication and transportation networks encouraged a mobile populous, goods and services centralized in Kapa'au and Hāwī. Their advantageous location, relative to mills, ranches, homesteads and Māhukona Harbor, defined a central place in the district. Where Niuli'i and Makapala had formed the heart of the district in earlier decades, Kapa'au and Hāwī developed as the contemporary nucleus of settlement and economic activity in the 1920s.

With the consolidation of the mills into Kohala Sugar Company in the 1930s, the preeminence of the two town centers was ensured. The consolidation focused administration in the Hāwī offices and milling at the Hala'ula mill, and centralized provision of goods and services in the adjacent commercial areas.

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This focus has continued to the present, in spite of the decline of the sugar industry and the gradual emigration from the district. The mill may be closed, and many store fronts only facades to empty shelves, but Kapa'au and Hāwī remain central places in the district.

Site Inventory

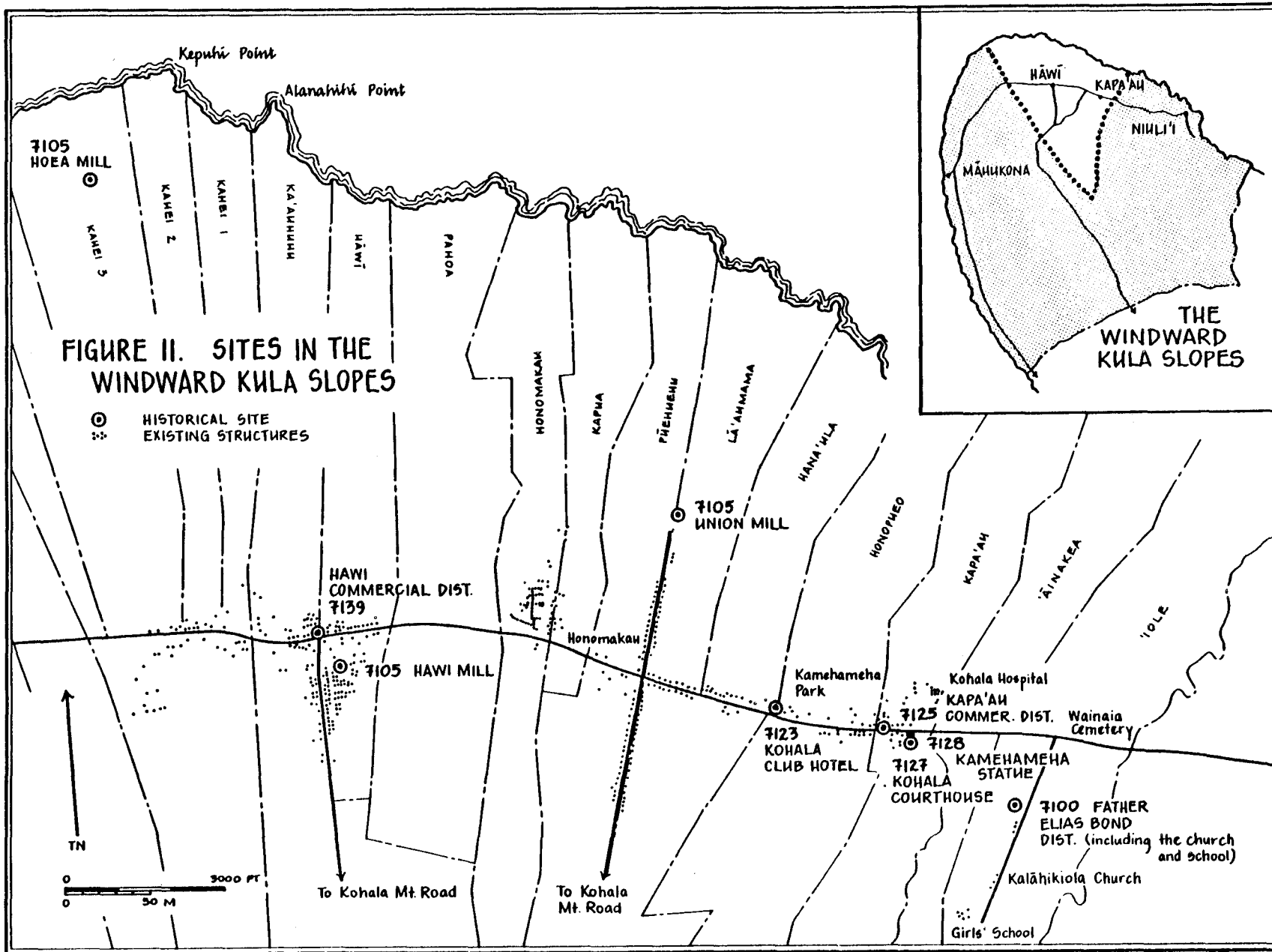
Although there are no significant archaeological sites known in this area, there are several historical structures that are worthy of discussion (for detailed descriptions of these resources, refer to State Inventory site forms in the Historic Sites Section, DLNR) (Figure 11).

7100: The Bond Complex. This historical area is situated in the ahupua'a of 'Iole, between the town of Kapa'au and the Kohala Sugar mill. The center of missionary activities in the 1800's, 'Iole is the site of Kalāhikiola Church, the Female Seminary (Girls' School), and the home of Elias Bond, the first long-term Protestant missionary in Kohala and an influential figure in the transitional period. Located makai of this complex is Wainaia Cemetery where Father Bond and his family are buried, along with other notable individuals from Kohala's history.

This complex of New England style stone and wood buildings was constructed over a span of decades in the 19th century. It is significant in its association with Bond and later, in the central place it played in the social life of Kohala during the sugar period. 'Iole was a social center of the district in the early decades of the 20th century. The long, palm-lined drive from the government road passed taro fields and a poi factory on the way to Bond Estate. Helen Achilles operated Sunnyslawn, a family style hostelry, in the former Cornelius Bond house (L. Bond, pers. comm.). Young Hawaiian women attended the Seminary, an opportunity for women's education on the Big Island.

The school buildings and Kalāhikiola Church are still being utilized, although the former is in deteriorated condition. The Bond home is in good state of preservation with many of the original furnishings intact; its condition can be attributed to the care administered by the Bond family and to restricted access and use. In contrast, the school, built in 1874 and presently used as a hostel, is in poor repair.

The mission station compound is a National Register Historic District.



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7105: Kohala Sugar District. This district includes the mill sites, the plantation houses, and the offices of the companies which participated in the sugar industry in Kohala. Although the district, as defined on the State site form, extends into the windward kula gulches sub-zone, it is discussed here because of the central role Kapa'au and Hawi played in the history of the industry.

Seven sugar mills operated in Kohala, following the construction of the original Kohala Sugar Mill in the 1860s: Kohala, Union, Niuli'i, Hawi, Halawa, Hoesa, and Star. With the exception of Star, which existed for only a brief period of time, each was the nucleus of a community of plantation managers, supervisors, and laborers. People identified with the mill for which they worked; "district" was a concept defined by plantation and mill boundaries (S. Rodenhurst, pers. comm.).

With some exceptions, the mills no longer exist except as concrete foundations overgrown with brush or as groves of trees marking locales in former fields. Kohala Mill, which ended processing in 1975, was partially dismantled in the late 1970s. An abandoned and deteriorating warehouse, sheds, and concrete platforms mark the site of Hoesa Mill; coconut trees spot the locations of plantation houses. The Hawi Mill stack stands behind the present Kohala Corporation offices in Hawi town.

These remains, the history relating to the development of the mills, their impact on the indigenous population, and their role in the development of the present community is rich. It offers an opportunity to integrate historical research, archaeological investigation, and oral history and ethnography in defining community relationships. The community identification with the mills persists and therein lies the cultural value of these resources.

Also associated with each sugar operation were plantation camps which were the housing for sugar company employees. Until the 1950s when Kohala Sugar initiated its home ownership program, the camps provided housing for employees, from managers to laborers. Like the mills, the camps were a source of identity to the residents. But their distribution and resident composition changed over time. Formerly dispersed among cane fields to facilitate access to work areas, housing was consolidated into more central locations as a result of increased mechanization. Early camps were ethnically oriented, providing a sense of cultural commonality in the diversity of frontier Kohala. Later camps, especially after the consolidation of the mills in the 1930s, were more ethnically mixed.

Many of the plantation houses remain either in situ or transplanted to subdivision lots as part of the home ownership

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program. They add much to the historical atmosphere of the district. The abandoned campsites are significant archaeologically (see discussion in Chapter II.2, page 47) and culturally. They were home to many Kohala residents and the memories of growing up amid camp life are very much alive.

7123: Kohala Club Hotel. In the early days of the sugar frontier, the Kohala Club served as a gathering place for Caucasian residents of the district, especially British workers on the plantations. Structured after British tradition, it offered a private area for smoking, playing cards and billiards, and drinking. It was in operation from at least 1885, when it was noted that King Kalākaua was made an honorary member.

By the turn of the century, it was billed as a "first class hotel" in the Hawaii Islands directory, and operated as the Kohala Club and Transportation Co., Ltd. from 1903 to 1929. In 1937, it appeared as the Kohala Club Hotel under the ownership of N. Yahiku (HHPRB files). It operates on a limited basis at present.

The hotel is a landmark of the frontier period of Kohala's history and the history of its operation reflects the changes in the district's commercial and social life.

7125/7139: Kapa'au and Hāwī Commercial Districts. With the development of the sugar industry, urban areas grew around the primary mills. Providing goods and services, stores, schools, restaurants, and hotels aggregated primarily in Hawi and Kapa'au (as well as Niuli'i-Makapala). These commercial centers are characterized by rows of wooden, Western frontier style building with false fronts.

Few of the buildings now house commercial ventures. Some are abandoned, others serve as homes. Many are in disrepair. One, in Kapa'au, was being offered for firewood (seen during the present survey). Like the plantation houses, these buildings add to the historic atmosphere of the district and efforts for the adaptive reuse of these structures should be encouraged.

7127/7128: Kohala Courthouse and the Kamehameha Statue. These two historic features are located at the east end of the town of Kapa'au. Although the date of construction is unknown, the Kohala Courthouse was used from the turn of the century to the late 1970's as a government building. Since the construction of the new Kohala Civic Center behind the Courthouse, the historic structure has been renovated, occupied, and maintained by the Senior Citizens Club and the Office of the Aging.

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The Courthouse is significant as a representative structure from a period when Kapa'au was a thriving community. It represents a political component of the district's history, from a time when politicians stepped up on the lanai and rallied support for their causes and candidacies.

The statue of Kamahameha which stands in front of the Courthouse is the original commissioned by King Kalākaua in 1878. Designed by Thomas R. Gould of Boston, it was cast in bronze in Paris. During shipment from Europe, it was lost at sea when the barge on which it was stored burned and sank at Port Stanley in the Falkland Islands. After a new statue was ordered and delivered to Honolulu, the original was found and placed in Kohala, the home district of its namesake, first in 'Āinakia (1883) and later to its present location (1912).

The courthouse is on the National Register of Historic Places.

Section II.4

THE LEEWARD COAST: SETTLEMENT EXEMPLIFIED

The leeward area of the present survey consists of a coastal strip extending from Upolu Airfield to the northern border of Lapakahi State Historical Park, a distance of approximately seven miles. This strip, in the northern portion of the leeward environmental zone, crosses 17 ahupua'a from Hukia'a at the north end to Pu'ukole at the south end; its width varies from a few meters to over 1000 m (3300 ft) from the coast inland (see Figure 1).

The purpose of the leeward survey is to provide site inventory information for the Kohala cultural resources data base and to specifically determine the quantity and significance of sites along this section of coast for incorporation in State Parks planning, which involves the possibility of a coastal recreational trail from Lapakahi to Mahukona and from Honoipu to Kapa'a.

The leeward coastal environment is arid, with rainfall varying between 10" and 20" annually. Vegetation is dominated by various grasses and stands of kiawe. The coastline is rock and cliff-edged, with a number of very small bays and several rich off-shore reef areas. The survey area extends from the coastline to a maximum elevation of about 60 m (200 ft) above sea level. For context, reference is made to the survey region which is the area encompassed by the ahupua'a from Hukia'a to Pu'ukole.

Brief History of the Survey Region

The leeward coast was a locale of intensive, pre-Contact Hawaiian activity, with dense residential and agricultural utilization, and at least two major temples. Although the earliest chronometric date for human occupation is AD 1300 (at Koai'e), legends and traditional history of Kohala make reference to the leeward coast in earlier times.

The most famous are the accounts relating to the heiau of Mo'okini. It was said to have been constructed by the foreign priest, Pa'ao, sometime in the 11th or 12th century AD (dated by genealogies). Pa'ao is said to have instituted new religious practices, including human sacrifice, a new temple form (that is exemplified by Mo'okini), and a new line of chiefs.

Whether real or symbolic Pa'ao's role in the history of Hawai'i represents a period of dramatic cultural change.

Kukuipahu figures in two legends. One, dating genealogically to the late AD 1400s, relates how a "chief of Hawaii named Kukuipahu was swallowed by a shark and lived a great many days inside the shark. The shark came ashore at Hana on Maui, with the chief inside; and the Hana chief gave his daughter Ahukokalani to the chief from Hawaii" (Kamakau 1964: 76). The other legend, dating genealogically to AD 1600, is an account of a battle between the chiefs, Kukuipahu and Niuli'i, for supremacy of the district (Fornander 1916: 215-220).

During this same period, Lono-i-ka-makahiki, ali'i nui of Hawai'i, chased rebel contenders for his rule through Kohala. A major battle was waged at Kai'ōpae on the coast at Kahuā, where the last rebel chief was killed (ibid: 328).

Other traditions indicate that Kohala was often the scene of warfare between chiefs of the island of Hawai'i and those of Maui. In fact, the leeward coast was being used as a staging area for an attack on Maui on the night that Kamehameha was born to the wife of one of the war leaders. Kamakau (1964: 67) relates that the war fleet was "encamped at Kohala, from Koai'e to Pu'uwepa" (coincidentally the exact area of the present survey).

Approximately 20 years after Kamehameha's birth, European contact was made with the Hawaiian islands, and dramatic changes began to take place. Much of these changes were rapid and, for this reason, it is often difficult to separate pre-Contact from post-Contact aspects of life in the sources of information which are available, e.g. written accounts and the archaeological remains.

In the first half of the 19th century, settlement along the leeward coast grew. There was much construction, including the enlargement of chiefs' residences and extensive wall-building to enclose houselots and gardens. This was due to a number of factors, including maintaining the productivity of the leeward agricultural fields and the use of the landing at Māhukona by natives and foreigners. Ellis (1969: 394) noted settlements at Awalua and Hihiu (the latter may have been the village around the landing) in his 1823 circuit of the island.

An 1833 letter from missionaries at Waimea to the Board of Commissioners for Foreign Missions noted that:

The population as enumerated in 1832 was 8,014--many of these live along the western shore where there is a good fishing ground, a still greater number along the line of

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cultivation which commences two or three miles inland...
(American Board of Commissioners for Foreign Missions
circular of 15 March 1833).

Two years later, the population of North Kohala was listed in another missionary census as 6,175 (Kumu Hawaii 1835: 98). The census showed a slightly higher population on the leeward side, with the largest concentration in the ahupua'a of Kukuipahu (319).

By 1850, however, the pressures of disease, field destruction by feral cattle, and economic change, accompanied by out-migration, were having their effects. Land records indicate that much previously cultivated land was laying idle in 1848, and sections of the coast were probably abandoned.

The historic land division of Hawai'i which began in 1848 reflects the growing disinterest in this area. The majority of land in the survey region became government land under two processes. The first involved land which Kamehameha received as Crown lands in the Mahele and then turned over to the government; none were retained by the King. The second involved lands which were received by Leleiohoku and Kekauonohi as konohiki lands and then turned over to the government in commutation for other claims. The result of these actions was that only four ahupua'a went to chiefs: one-half of Pu'uepa to Akahi; Kukuipahu (except for the 'ili of Lahuiki) to Kekauonohi; a portion of Kapa'a to Kale Davis; and Kamano to Lot Kamehameha. The disposition of Mahukona is unclear; it is noted as an award to Keelikolani, but became government land either through commutation or because the title was never perfected (see Section I, Table 1 for summary).

In general, there appears to have been little concern by the chiefs for land in this area (with the exception of Kukuipahu)*, as there was for land on the windward side. This may be another indication of a shift in economic potential and population from the leeward to the windward sides of the district (see discussion in Section I).

Only a few kuleana claims were made in ahupua'a along the leeward coast. Of a total of 29 awards, 13 are located in Kukuipahu; the others are situated in the nine ahupua'a between Pu'uepa and Lamaloloa (Table 3). None were awarded in the 16

*Kukuipahu appears to have been the scene of some conflict over land between a local chief and the chief who was awarded the ahupua'a; it may be that the area was still agriculturally important (see Appendix 2 on Kukuipahu).

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ahupu'a south of Lamaloloa (Indices 1929). However, a large percentage of the government land was made available through grants and most of this was sold in the early 1850s. Thus, by 1860, most of the leeward coast was held as private property, with the government retaining only a small parcel in Kokoiki-Pu'uepa, a parcel in Kapa'a, and a section of uplands.

Although it is clear that various factors, including the social and economic development of the windward side, continued to drain the leeward population, specific events on the leeward coast in the late 1800s are not clear. Some early efforts at commercial agriculture were occurring, e.g. an attempt to grow tobacco in and around Mo'okini heiau in 1863 (Thrum 1909: 117); ranching, which evolved from the lucrative profession of cattle hunting, occupied large parcels of upland lands.

However, it appears that subsidiary developments of the fledgling sugar industry created the most impact on leeward land use. An attempt at sugar growing occurred as early as 1870 in the Puakea Ranch area; an animal-powered mill was started by James Wight (the stack of which still remains), but it proved unsuccessful. It was not until 1879 that the sugar operations of the windward side crept onto the leeward slopes, the upland Kukuipahu area. In the 1880s, the Hawaiian Railroad Company linked Māhukona to Niuli'i, the harbor facilities at Māhukona were improved, and the cable landing at Honoipu was built.

At this time, there were scattered communities along the leeward coast, predominantly at Māhukona, Kapunapuna, Honoipu, and Mo'okini. There were railroad stations at Māhukona and Honoipu, and schools at those two locales as well as at Ha'ena (Ashcomb et al 1977).

The 20th century saw the gradual abandonment of the leeward coast. Haena School, built some time in the 1860s, was listed in the schools of Kohala at 1900 (Territorial Planning Board 1939). Honoipu Landing was closed in 1912, when Hawi Mill began using the railroad and Mahukona Harbor. Informant information indicates that a few people continued to live in the vicinity of Mo'okini until the cane fields expanded into the area in the 1930s. While some habitation continued at Mahukona, the closing of the harbor by the military in World War II spelled the end of the leeward settlement. The harbor reopened briefly following the war but finally shut down in the early 1950s, marking the end of permanent habitation along this coast which had been occupied for at least 1000 years.

The current use of the leeward survey area is primarily recreational. The two County parks at Kapa'a and Māhukona have restrooms and pavilions and are used by campers, picnickers, and swimmers. The old Mahukona Harbor facilities (privately owned)

are used by swimmers, although there are no public facilities (the foundation of a historic building is used as a toilet).

The coastline is frequented by local fishermen, although it has been suggested that since the highway opened in 1968, the area has been depleted by fishermen from outside Kohala. Access to the coastal strip between Kapa'a and Māhukona is by a jeep road, the old railroad bed, from the Kapaa Park road. The coast north of Kapaa Park to the Loran Station is closed to vehicles, except for a few lightly used jeep roads on private ranch land. However, it is fairly heavily used by fishermen who walk in from either end.

Parker Ranch pasture lands run to the coast and cattle can be found in the coastal kiawe thickets in the cool of the morning.

History of Survey on the Leeward Coast

Until the late 1960s, very little archaeological work had been carried out along the leeward coast. Reference to sites had been made by visitors as early as Ellis in 1823, when he mentioned the district of "Paupē, in which formerly stood a temple called Mokini" (Ellis 1969: 392). In 1853, Remy (1858) mentioned four major heiau in Kohala: Kuapalaha on the windward side, Mo'okini, and Ku'upapaulau and Alaikamahina in Kukuipahu.

At the turn of the century, the ethnologist, Stokes, visited Mo'okini, as part of an effort to compile a list of heiau on the island. Although he noted several on the windward side, he made no mention of temples on the leeward side other than Mo'okini.

In 1924, Kenneth Emory, archaeologist with Bishop Museum, visited North Kohala. He noted numerous housesites and agricultural features between the N point of the island and Kawaihae. He made specific reference to only Mo'okini and Lapakahi.

In 1956, Hawaiian specialist Violet Hansen visited Mahukona Harbor and located a nearby site which she refers to as a heiau (this site was relocated and mapped in the present survey as site K-174). Hansen also recorded the story of a cave north of Māhukona in which were found idols, stone objects, and artifacts (Hansen 1956).

The first systematic surveys of the leeward coast were carried out by Lloyd Soehren: in a reconnaissance survey of the Māhukona-Kawaihae highway corridor (1964) and in a survey of Parker Ranch coastal lands (1969). In 1968, William Bonk executed a reconnaissance of the leeward coast from Kawaihae to N

of Māhukona for the Division of State Parks, Outdoor Recreation, and Historic Sites (Bonk 1968).

This data served as the basis for the next major survey of the area, which was conducted in 1972 by the Historic Sites section of the Division of State Parks, as part of the Statewide Inventory of Historic Places. The Inventory was directed only toward relocating and describing known archaeological and historical sites.

At this same time, two other cultural resource inventories were carried out, one for the County of Hawaii (Loo and Bonk 1970) and one for the Department of Land and Natural Resources (DLNR 1972). Like the Statewide Inventory, only known sites were noted; thus, only Mo'okini and Lapakahi were included.

The Lapakahi project was a major endeavor carried out over a period of three years by the University of Hawaii-Manoa in conjunction with the Division of State Parks. Although most of the work was concentrated at the coastal village of Koai'e (Pearson 1968; Newman 1968, 1970; Tuggle and Griffin 1973), some work in prehistoric agricultural studies was carried out in the uplands section (particularly Rosendahl 1971, 1972) and in ahupua'a outside of Lapakahi (in Honoipu and in areas south of Lapakahi, see Cordy and Kaschko (1980).

Since the early 1970s, four contract-related projects have been done on the coast; three were brief reconnaissance surveys (in Kukuipahu, Luscomb 1974 and Rosendahl 1974; in upland Waikā and Kahua, Sinoto 1979b) and the fourth was an intensive survey (in Kaiholena and nearby areas, Schilt and Sinoto 1980).

State Parks personnel walked the coast from the US Coast Guard Loran Station to Māhukona in 1968 and a brief report was prepared by Beggerly (1968).

Problems of Survey and Inventory

In spite of the amount of archaeological work completed for this area, information about the coastal settlement pattern, especially for the survey area N of Māhukona, is sketchy and sometimes misleading. This is due primarily to the limited and sometimes piecemeal nature of the original surveys, particularly those before 1970, with problems exacerbated by the inventories which reiterated the survey data. Thus, the process of inventorying only known sites on the coast resulted in the overall patterning and site relationships being obscured.

This problem is particularly true of the Statewide Inventory of Historic Places, especially as it was carried out in this area.

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Because only known sites were inspected, a very circumscribed view of the cultural resources was described; on the leeward coast, sites were defined largely out of the context of the complex and contiguous site distribution of the area.

Further, in an effort to impose some order on the data, several sites were later combined into "complexes". However, without the total set of settlement information, the "complexing" was often inappropriate.

The following are a few examples of these problems. Some of the "enclosing wall" complexes were noted by the Inventory team (e.g. K-95, 2317), but others were not (e.g. K-75 was described as three different sites). The run-off agricultural pattern was not seen, so that an important site in the total agricultural system K-27 (4143), was recommended as marginal; only a portion of that site was recorded in the Inventory survey. Three similar sites, 2304, 2305, and 2306, were all recommended as marginal, when, in fact, they represent an important form of housesite found only in one section of the coast.

Since the completion of the Inventory in the early 1970s, no sites have been added to the Historic Sites section files.

Schilt and Sinoto (1980) is the only recent work which ties a particular study to larger areal questions of chronology and settlement pattern.

The 1981 Survey

The present survey was conducted in the summer of 1981 toward the end of a long period of drought, with vegetation consequently sparse, allowing a better recognition of sites in the area than is generally possible. A total of 26 man-days between 20 June and 20 July 1981 was spent in the survey of the coast between Upolu Airfield and Lapakahi State Historical Park. Kukuipahu heiau in the uplands was also visited.

The area from Upolu Airfield to the US Coast Guard Loran Station has been virtually destroyed by sugar cultivation, except for the two sites under the jurisdiction of the Division of State Parks, Mo'okini heiau and Kamehameha Birthsite. Survey in this area was limited to walking the coastal section, looking for any remnant sites which might be exposed below the cultivation debris or which might have escaped the bulldozer.

Permission was not obtained for a survey of the Loran Station; thus, only a small coastal section of the Coast Guard property was examined.

From the Loran Station to Māhukona, a coastal strip averaging approximately 300 m (1000 ft) wide was surveyed. This was conducted by running parallel sweeps (mauka-makai) 30 m (100 ft) apart; sites were recorded on acetate overlays of low level aerial photographs (1"=500') or on an enlargement to the same scale of the USGS topographic quad maps. Larger sites were mapped by Lietz packet transit and pacing. Smaller sites were mapped or only verbally described. This same method was used in the survey of the small section between Mahukona Park and the US Coast Guard lighthouse at the northern boundary of Lapakahi State Historical Park.

A reconnaissance sweep was conducted around Mahukona Harbor. Additional survey was conducted by walking the track of the railroad line from the Loran Station to Māhukona; sites in the vicinity of the rail line were noted but not mapped.

All sites located and described in this survey area are identified by the prefix "K-" and numbered consecutively from "1". Site K-1 is the railroad bed; site K-2 is the northernmost site in the survey area (near Upolu Airfield), with numbers being assigned in southward order. Sites which can be definitely identified as Statewide Inventory Sites are renumbered under this system, but their State numbers follow in parentheses, e.g. the number "K-23 (2354)" indicates that Site K-23, numbered under the present system, is also State Inventory Site 2354 (see Appendix 1 for concordance of different numbering systems).

Data Corrections and Questions

As a result of the survey and historical research, several questions arose as to the proper identification of resources in the area.

- 1) place and site names.

The heiau in the upland area of Kukuipahu carries the name of the ahupua'a, but it is more likely to be the heiau Ku'upapaulau, first mentioned by Remy (1858).

The name, Hā'ena Point, may be quite recent; thus, the name "Ha'ena Point Village" for site K-105 (2311) may be a misnomer. The point is actually located in the ahupua'a of Awalua.

Perhaps one of the most interesting place name problems regards 'Upolu Point, a name of legendary significance because of its affiliation with names found elsewhere in Polynesia. The place identified as 'Upolu Point on the current USGS map (1957) is named

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Hualua Point on an 1879 map by Lyons and Kaumaumau on early maps of the area by Brown (1885) and Dole (1905). The earliest reference to this point as 'Upolu is by Wall in 1928. The point where the Loran Station is located is identified as 'Upolu on maps by Iao in 1910 and Mann in 1932; this point is in the ahupua'a of 'Upolu. There is, however, an additional element of confusion because of the location of triangulation stations of different names in these locales.

2) boundaries.

There are numerous questions about boundary placement along this coast; the most serious problem is the set of boundaries from Kapa'a through Hā'ena, which is probably set further north than appears on the 1957 USGS map. The problem appears to stem from the misinterpretation of 19th century grant boundaries and subsequent application of those boundaries as ahupua'a borders (Figure 12).

3) site location.

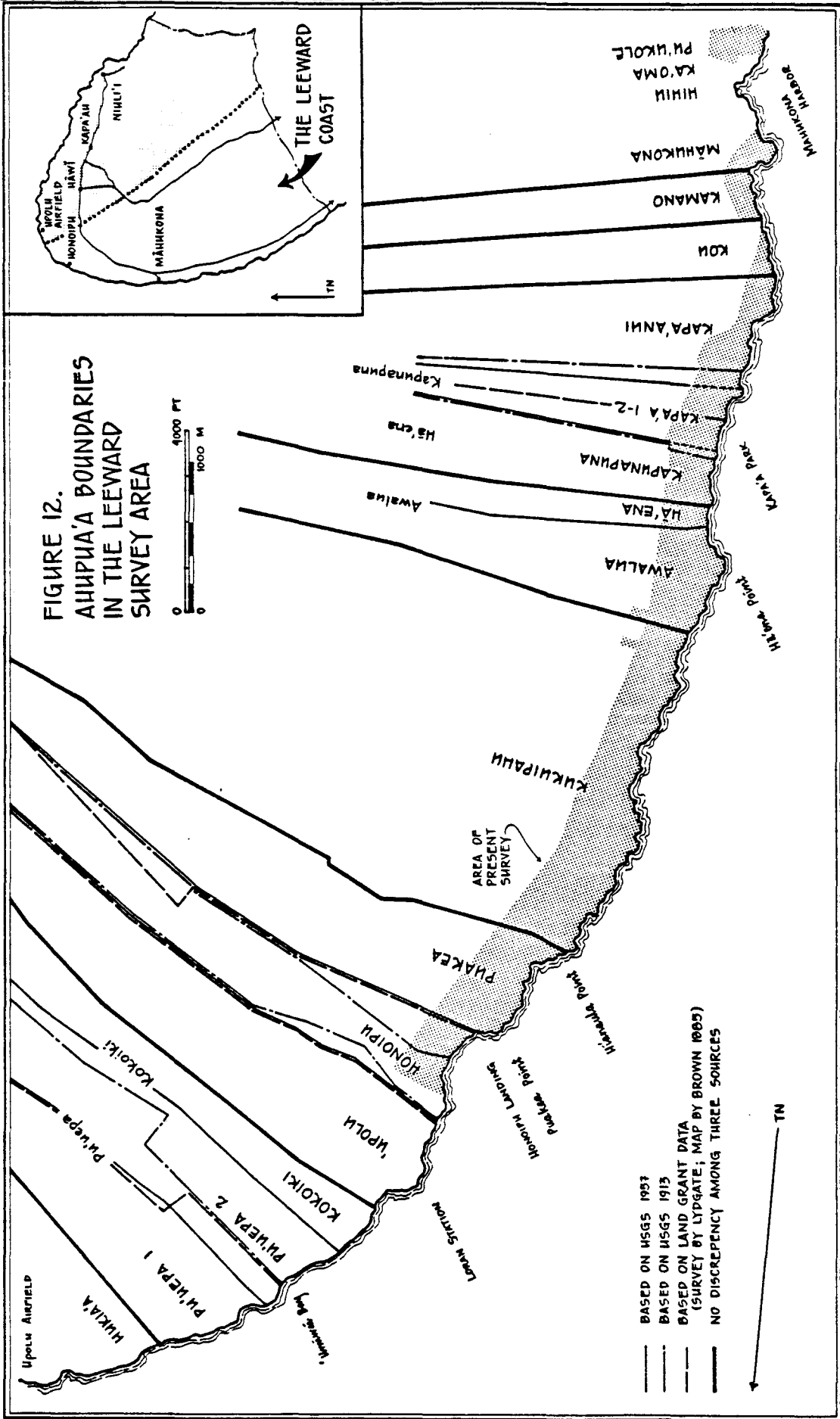
There are a number of small discrepancies in site location of the Statewide Inventory; these are noted in the respective site descriptions. However, there is one major error which is mentioned here; this is in the location of Kapa'anui Village, K-157 (2308), which is located 350 m south of its location on the Historic Sites section base map.

4) unlocated sites.

Several sites recorded in the Statewide Inventory of Historic Places could not be identified in the present survey. This is due, in part, to lack of adequate site information and, in part, to later consolidation of some sites into complexes. It is probable that all of the unlocated sites are actually accountable. The sites which were not clearly identified are listed at the end of the Site Number Concordance Table (Appendix 1).

Two sites listed in historical documents were not located. These are the Honoipu School and the Honoipu Railroad Station.

One prehistoric site mentioned by V. Hansen (1956) was not located. Hansen did not see the site but was told that a cave was found by C. L. Wight, presumably in the late 1800s. In the cave, he found "idols, stone



objects, and artifacts" which he removed. However, the next day, he lost a finger in an accident while working; and so he returned the artifacts and sealed the cave.

Site Inventory

The leeward coast is an environmentally homogeneous expanse of dry slopes, gently falling to a rocky coastline. In prehistoric times, it was settled at least as early as AD 1300, with coastal settlements and upland agricultural fields. Archeological remains testify to the extensive Hawaiian occupation and utilization of this presently barren area. It was during the post-Contact, 19th century period that settlements shifted to the windward side and occupation of this zone was restricted primarily to low density ranching activities and small, localized communities.

The absence of historical development has helped in the preservation of a range of archaeological features and complexes which reflect the prehistoric and early historical occupation of this area. Based on the existing archaeological literature, a Hawaiian settlement pattern organized within three activity zones has been postulated. The zones are the coastal strip, extending inland approximately 150 m (500 ft), a barren, intermediate zone, and an upland zone, the lower limit of which corresponds to the 20" rainfall isohyet.*

Although habitation enclosures, C-shaped structures, and platforms occur in small aggregations or as isolated features in the upland area, they are predominant along the coast. They are concentrated in clusters, with several major aggregations spaced between Honoipu and Kaiholena and at Waika'ilio Bay. Scattered structures occur almost continuously along the coast, with virtually no area lacking some kind of surface remains of Hawaiian occupation.

Subsurface deposits which occur at Lapakahi suggest that such buried remains may exist in other areas, such as around bays which would provide easy access by canoe to marine resources or near sources of fresh water (which presently may not be apparent). Midden scatters without associated structures are also found around similar small bays and inlets.

The leeward upland agricultural complex extends in a wide belt from 'Upolu to Kahua. The lower limit follows the 20" rainfall line, the upper limit fluctuates between the 40" and 60" isohyets. Field borders range from crude rock alignments to dirt bunds up to one meter in height, with more elaborate construction typifying sites in the higher elevations. Gardens were also planted in gullies and around the low cinder cones which are

*The barren intermediate zone is not found in the northern section of the leeward coast.

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scattered throughout the uplands. The remains of these fields are visible despite ranching activities.

Burial complexes and refuges have been found in lava tubes on the leeward slopes. Although the only known lava tube features have been located near the southern border of the district, it is probable that similar sites may be found elsewhere on this side of Kohala.

Mo'okini and Kukuipahu Heiau are outstanding examples of Hawaiian religious sites on the leeward side. Lesser heiau occur in the upland agricultural area and along the coast, possibly in association with primary marine resource collection areas. They may also be manifestations of Hawaiian socio-political land units, the ahupua'a, which are also reflected in extensive trail networks.

Trails, extending from mauka to makai, appear to be equidistantly spaced along the leeward slopes. They are the primary type of feature found in the intermediate zone between the upland agricultural fields and the coastal habitation sites, and may have served as ahupua'a boundary markers and as access or communication features between the uplands and the coast. Many are presently eroded, having formed erosional gullies from surface runoff (M. Kaschko, pers. comm.).

Since the late 19th century, various activities have resulted in adverse impact on the archaeological and historical sites. However, compared with the impact from cane cultivation and commercial development on the windward side, site deterioration has been moderate and, with the exception of ranching, has been restricted to small areas.

These high impact areas include the areas from Upolu Airfield to the Loran Station, around Honoipu Landing, in the two County parks at Kapa'a and Māhukona, and around Mahukona Harbor. The Upolu Airfield-Loran Station strip was put into cane cultivation in the 1930s; virtually all sites in the area were destroyed by bulldozing. The Loran Station was constructed at the coast of 'Upolu ahupua'a in 1955 and expanded in 1961; it is unknown what archaeological sites, if any, remained prior to this construction.

Honoipu Landing was developed as a major sugar transport facility in the late 19th century. It is one of the primary historical features along this coast; there are possible prehistoric structures remaining in the area.

The development of the two County parks appears to have adversely impacted archaeological sites in the area. At Kapaa County Park, much of the coastline was affected, although sites remain intact further inland. The area was given by the State to the County of Hawaii by executive order in 1958, but maps indicate

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that the area was already blocked out, and sites probably destroyed, as early as 1935. A similar situation occurred at Mahukona County park, which was deeded to the County in 1949.

The construction and expansion of Mahukona Harbor and its facilities undoubtedly destroyed many Hawaiian sites (some such sites appear on early maps of the harbor). However, the harbor area is itself of major historical importance and has tremendous potential for historical and archaeological research on turn-of-the-century Kohala. There is also some possibility of archaeological remains of Hawaiian sites still occurring immediately inland.

The area of exemplary preservation is between Honoipu Landing and Kapaa Park. The prehistoric and early 19th century structures are in generally excellent condition, with only minor damage from jeep road construction and cattle grazing. The one exception is a zone which was used by the military during World War II; a large earth target for firing practices and two concrete bunkers were constructed. Even in this zone, however, many of the coastal sites are at least partially intact.

Historical sites are limited primarily to the complexes associated with ranching activities and with transportation facilities at Mahukona and Honoipu and along the rail line. Also of note are the Puakea Boiler stack, which is the remnant of an early sugar mill, Pu'u o Nale, historically one of the primary survey triangulation stations in the district, two plantation camps located in upland Kukuipahu, and the two Mahukona-Hawi roads.

The focus of resort development presently appears directed toward the leeward area. Adverse impact from such development includes destruction from construction activities, as well as deterioration from increased visitor traffic and a concomitant increased potential for pothunting and vandalism. Archaeological work carried out for mitigation purposes, as well as research, can be a destructive factor. Excavation of archaeological deposits is essentially the destruction of the context of the excavated materials. While site information may be preserved, the materials are irreplaceable in their original provenience, emphasizing the need for preservation and well-conceived, well-executed archaeology.

Up until the present, the cultural resources on the leeward coast have been little damaged because of the concentration of activities on the windward side. Thus, the relationship between and among individual features has been maintained, and offer rich source for continuing research on Hawaiian adaptation in this environment. However, the immediacy of adverse impacts from development suggests a need for a better understanding of these resources before they are irretrievably lost.

Summary of Survey Results

A total of 193 sites was identified and mapped in the survey of the northern portion of the leeward coast between Upolu Airfield and Lapakahi State Historical Park. The sites form an almost continuous complex of features reflecting prehistoric and 19th century Hawaiian occupation, as well as historical commercial development. Their distribution allows a refinement for this specific area of the postulated settlement pattern.

Habitation sites appear to aggregate at the center of each ahupua'a. Kukuipahu, the largest ahupua'a in the survey area, and one with several subunits, including an 'ili kupono, has several major residential complexes. Burial cairns which are scattered throughout the leeward coastal strip occur in concentrations in association with these complexes, generally on bluffs mauka of the settlements.

Although all of these complexes probably date from the historical period, they almost certainly are built on a core of pre-Contact settlements. Based on evidence from other areas, it is probable that many of the pre-Contact habitation sites are the low platforms, pavings, and possible buried deposits beneath the walls and high platforms of the 19th century occupation.

Of special note are three distinctive forms of habitation sites: enclosing wall complexes, "multiple-unit longhouses", and enclosure platform houselots. Enclosing wall complexes, such as K-75 and K-95 (2317) in Kukuipahu, K-105 (2311) in Awalua, and K-126 (2315) in Kapunapuna, are the major sites along this coast. They consist of massive walls, platforms, and enclosures, bounded by an enclosing wall which separates the complex from the surrounding, relatively barren (archaeologically) area. The internal structures and the amount of historical debris vary in each complex.

"Multiple-unit longhouses",* such as K-150 and K-154, have the superficial appearance of canoe sheds, i.e. long, narrow, open-ended enclosures, but are subdivided into smaller units. These occur as individual features primarily in the southern portion of the survey area; they also occur within enclosing wall complexes.

An enclosure platform houselot consists of a large, square, usually low walled enclosure, within which is a low platform or paving near the center. Smaller platforms sometimes abut the interior of the enclosure wall. Sites such as K-45, which is 30 x 35 m, are typical of this habitation form which generally occurs in the northern and central portions of the survey area. They also occur within enclosing wall complexes.

*Beggerly (1978) recognized the distinction between these structures and canoe sheds but did not use this term.

Located toward the N end of the survey area are the remnants of two major forms of agriculture, gully run-off systems and dry field plots. The gully run-off systems include low terrace walls placed across gullies with intermittent water flow and pocket terraces built on the sides or steeper sections of the same gullies.

The dry fields, essentially part of the extensive leeward upland agricultural complex, are formed by bordering alignments of rock, often set on edge or on end, forming large rectangular areas. While portions of these fields are certainly prehistoric, they may have been expanded during the early historical period as a response to a demand for cultigens, such as potatoes, for foreign ships' stores.

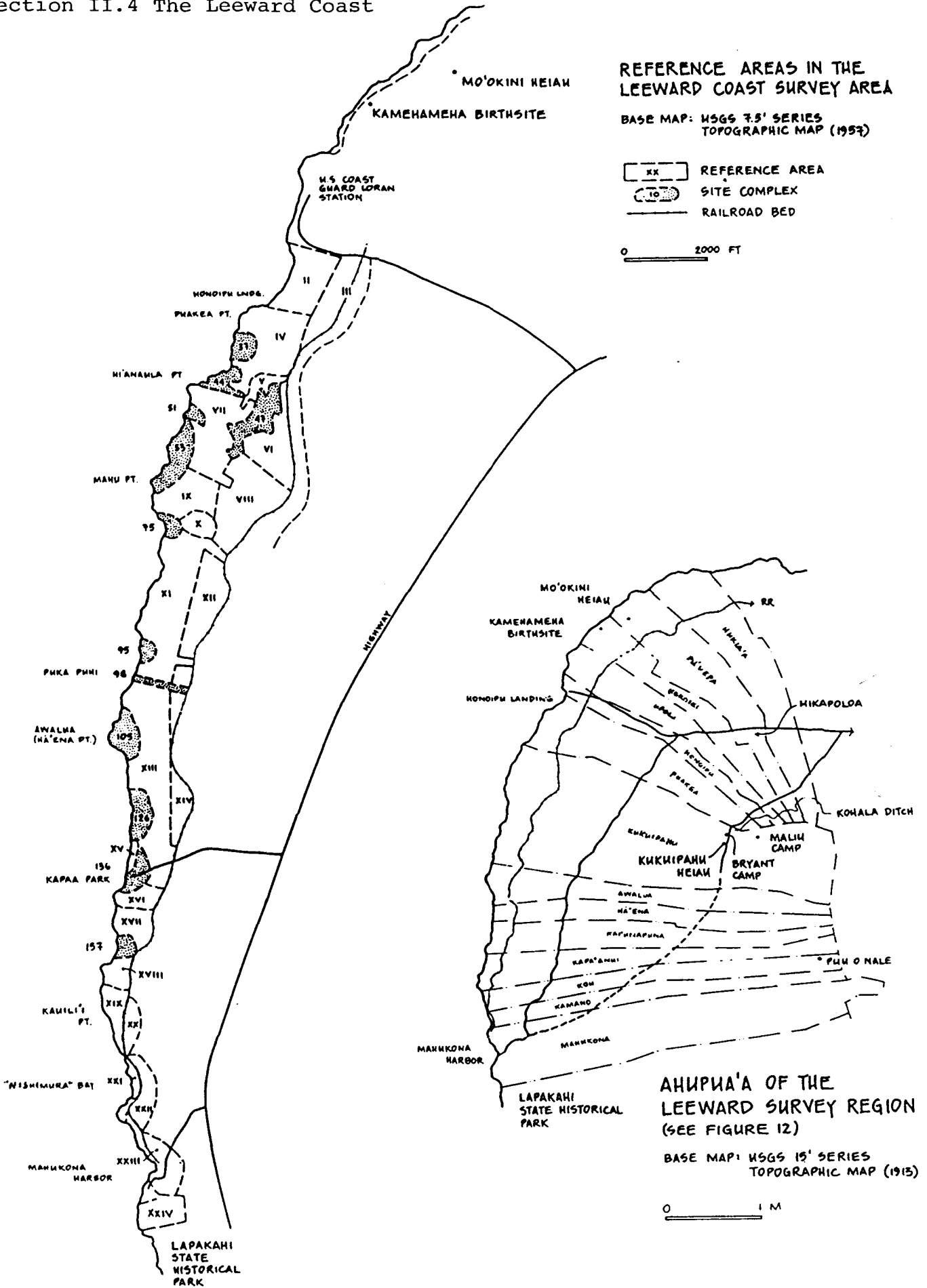
At nearly every undisturbed coastal boundary of the major ahupua'a were found the archaeological manifestations of boundary markers. These features occur in a variety of forms, ranging from a wall (K-24) or set of walls (K-44) to ahu (K-96).

Reference Areas

Because of the complexity of the contiguous archaeological features, the survey area has been divided into reference areas for ease of discussion. The following descriptions can be matched with corresponding Roman numerals on Figure 13.

- I. The area from Upolu Airfield to the Loran Station. The sites which were located are fragmentary at best and may be of little significance. However, their proximity to the important sites of Mo'okini heiau and the Kamehameha birth-site, now under State control, warrants some further investigation. Sites K-2 to K-6.
- II. The Honoipu coastal area between the Loran Station and Honoipu Landing contains dense archaeological material, dating primarily from the post-Contact period, with probably some prehistoric remains. Further inland are fragments of pre-Contact and early 19th century agricultural sites. A scattering of historical features associated with the landing are located at the S end of this reference area. The area was surveyed by 30 m sweeps from the coast inland approximately 330 m (1000 ft). Sites K-7 to K-24.
- III. This is a bulldozed pasture area.
- IV. This area from S of Honoipu Landing to Hi'anaula Point contains a scatter of isolated sites which include

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platforms, enclosures, and C-shaped structures. Site K-27 (4143) is a significant complex of coastal agricultural features of gully and pocket terraces designed for rainfall run-off. This area was surveyed by 30 m sweeps. Sites K-25 to K-45 (excluding K-37 and K-44; both are enclosing wall complexes).

- V. Located inland of Hi'anaula Point, this area has been bulldozed, primarily for roads.
- VI. Located inland of Hi'anaula Point and area V, this area was not surveyed in detail, but it does contain a number of agricultural features typical of the leeward upland agricultural complex. Sites K-46 to 48.
- VII. This area just south of Hi'anaula Point contains limited archaeological material. There has been some bulldozing in the northern section, primarily for roads. K-49 to K-55 (excluding K-51 and K-53).
- VIII. Located inland of Mahu Point and areas VII and IX, this area is unsurveyed except along the railroad bed. General observations indicate that the region makai of the railroad has not been bulldozed, but that it contains few sites. Although there was no longer any significant cultivation at this elevation this far south along the coast, there is evidence of some gully run-off farming in K-51. Sites K-56, K-57.
- IX. Located at Mahu Point, this area is dominated by military remains from World War II activities. There are some remnants of Hawaiian sites, especially along the coast. The area was surveyed by 30 m sweeps. Sites K-58 to K-74.
- X. Located inland of the major complex, K-75, and just south of Mahu Point, this area has been bulldozed.
- XI. This area from K-75 to Puka Puhi is characterized by rough, rocky terrain. There are a number of archaeological sites, including burials, small housesites, and trails, located here. It does not appear to have been bulldozed. The area was surveyed by 30 m sweeps. Sites K-76 to K-98.
- XII. Located inland of area XI, this area was not surveyed except along the railroad bed. Site density is probably not high. Site K-86.
- XIII. The area from Puka Puhi to Kapaa Park is very rough, rocky terrain. The site density is not high, but the sites are important ones, including many burials

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and Hawaiian trails. The area was surveyed by 30 m sweeps. Sites K-99 to K-141 (excluding the enclosing wall complexes, K-105, K-126, and K-136).

- XIV. Located between area XIII and the railroad bed, this area was not surveyed but undoubtedly contains several Hawaiian trails.
- XV. This area is part of the site complex of K-136 which has been impacted by the development of Kapaa Park.
- XVI. The area just S of Kapaa Park contains few sites. Some recent bulldozing appears to have taken place. The area was surveyed in 30 m sweeps. Sites K-142 to K-146.
- XVII. The coastal flat south of Kapaa Park becomes narrower, with the inland boundary formed by high bluffs. The small number of sites in this area includes several which form a habitation pattern possibly unique to this coast; these sites might be called "multiple unit longhouses". Several are found in this area and in areas XVIII and XIX. The area was surveyed in 30 m sweeps from the coast to the railroad berm. Sites K-147 to K-158 (excluding K-157).
- XVIII. This area just north of Kauili'i Point has been damaged by a jeep road and recent coastal camping. There is very dense kiawe vegetation and numerous boulders. Although survey was limited in this area, it probably contains few sites. Sites K-159 to K-163.
- XIX. This area south of Kauili'i Point contains structures such as those described for area XVII. There has been some disturbance in this area, possibly due to military activities. Sites K-164 to K-171.
- XX. This is an extremely rocky bluff area overlooking Kauili'i Point to the N and "Nishimura Bay" to the S. There are three interesting sites in this area. Sites K-172 to K-174.
- XXI. This small coastal area, locally called "Nishimura Bay," has been disturbed, probably by railroad construction activities. If this was a true ahupua'a,* there should have been at least a small settlement here. However, K-175 is the only obvious site and it is not certainly prehistoric or early historic. There are a number of areas of scattered stone and shell; the kiawe trees have platforms built around them. All this indicates that the archaeology, if there was any, has been obliterated. The area was walked-through. Site K-175 and railroad debris.

*This is the only coastal portion of Kamano ahupua'a.

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- XXII. The area inland of "Nishimura Bay" is characterized by rough, rocky terrain; several shallow gulches extend inland from the bay. There are few sites; all appear to be habitation features. The area was walked through to look for specific sites which appeared on the aerial photograph. Sites K-176 to K-178.
- XXIII. The Mahukona complex includes an area which has been stripped of most archaeological and historical remains as well as an area which contains a wealth of such material. Only a reconnaissance survey (no mapping) was done of this area. Site K-179.
- XXIV. The area between Mahukona and Lapakahi State Historical Park is characterized by rough, rocky terrain. A number of small sites, pre-Contact and 19th century, are scattered in the area. Sites K-180 to K-190.

Note: the enclosing wall complexes have not been included in this list in that they are large enough to serve as their own references (see Figure 13).

Site Descriptions

- K-1: Roadbed of the Hawaiian Railroad Company (later the Hawaii Railway Company and Mahukona Terminals Limited), (see Figure 13 for location). This site is the old roadbed for the railroad which ran between Māhukona and Niuli'i. The original roadbed was built in the early 1880s. The section which runs through the survey area was later modified (between 1906 and 1910; see Best 1978:47) by the construction of massive earth and stone berms; this work was done, it is said, under the supervision of a Japanese stonemason named Nishimura. The railroad was abandoned in the early 1940s when Mahukona Harbor was closed by the military.

The railroad is seen as one of the major factors in the success of the Kohala sugar industry and in the development and maintenance of a tie between Kohala and the modernizing world. The site is valuable for its engineering and for its role in the economic and social history of the district.

The roadbed from Māhukona to Kapaa Park is currently in excellent condition and is used as an access jeep road to the coast by fishermen. The section from Kapa'a to the Loran Station is damaged in a number of places, but is still easy to follow and suitable as a trail. Most of the rails and ties have been removed from the roadbed (three ties were noted still buried in the dirt at various locales), but there are places along the roadbed, particularly near Māhukona, where some rails and other debris from the railroading operation have been dumped.

There were approximately 120 men working on the construction of the railroad in the 1880s. There is no record of the location of any of the construction camps, although they are mentioned as being moved every two miles (Gazette, 8 June 1881, in Conde 1971: 26). The crew lived in tents or in huts. No such camps were identified during the present reconnaissance. However, if they were immediately adjacent to the track, a more detailed survey would probably locate them. If they were along the coast, it is probable that abandoned Hawaiian structures were used.

A railroad station and school were indicated by several sources to have been located near the point where the railroad bed crosses the road to the Loran Station. No remains of these structures were found; they may have been destroyed by the expansion of the Loran Station or earlier activities.

Finally, it should be noted that the present survey on the windward side also located remnants of the railroad in the form of stone foundations for trestles (see description for WK-24, Section II.2).

Although the railroad terminal area at Māhukona is listed in the Historic Sites section files (7149), the roadbed was not included in the description. For additional information on the railroad see the Inventory site form for 7149 and Conde 1971.

Reference Area I: Upolu Airfield to the Loran Station

- X:* Wooden building, possibly a work shed, located at the corner of the road to Mo'okini Heiau where it meets the coast; at the SW end of the airfield; appears to have been recently moved to this location.
- K-2: Concrete foundation, ca. 1.5 x 2 m. Located in dirt road to Mo'okini; probably a remnant of sugar operations, perhaps an irrigation feature.
- X: Surveyors pipe, set at edge of sea cliff.
- X: Mo'okini Heiau. See description under Additional Sites.
- X: Kamehameha Birthsite. See description under Additional Sites.
- K-3: Exposed deposit in beachface, ca. 10 cm thick, 5 to 15 cm below surface, 8 m long. Contains silt with scattered charcoal and shell, fire-cracked rock, and a possible firepit; no portable artifacts. This site is valuable for its research potential; one of few deposits remaining in this area of the coast.
- K-4: Remnant stone structure, 6 x 10 m. Boulder alignment and scattered shell; located in a thicket of koa haole, immediately makai of the dirt road.
- K-5: Two basalt flakes with good percussion characteristics. Secondary deposition, on slope to ocean; possible remnants of prehistoric occupation in area, although surface is now bulldozed; limited possibility of deposit below cane cultivation zone.
- K-6: Stone facing, ca. 1 m high, 12 m long. Located on low hill overlooking ocean on Loran Station property; built onto natural outcrop at N end; possible remnant of more extensive structure. If this is a prehistoric structure, it could be of some significance in that this location may be the original 'Upolu Point (see discussion on page 63).
- X: Loran Station; coastline not surveyed.

* The notation "X" denotes landmarks in the survey area which are included as locational reference points.

Reference Area II: Honoipu Landing

K-7: Complex of archaeological and historical features at the coast S of the Loran Station. Historical features in this area include roadbeds leading S to the Honoipu cliff landing (K-21), cement pilings, small brick structures, and numerous fragments of metal. There are archaeological features, possibly prehistoric, including two stone platform facings near the shore and several stone features (of undetermined nature) located inland.

Most of the historical references to Honoipu are concerned with the cable facilities (K-21), but this area is of importance as well, containing a small boat pier (the cement pilings) and a number of other landing features (see Figure 14). It may be that this is the only turn-of-the-century landing site remaining in North Kohala. The presence of possible prehistoric features and the adjacent cable landing facilities makes this area of overall high value.

Honoipu Landing (the cable operation) was developed for the Hinds' Hawi Mill. It was constructed in the early 1880s and abandoned in 1912. But it is not clear when the pier was constructed, although the Inventory form for 7012 (K-21) suggests this pier may have been built in the 1860s.

K-8: Disturbed complex of agricultural features (not mapped).

K-9: Stone enclosure, 4 x 6 m. Mauka and makai walls are terraced.

K-10: Complex of stone features, covering an area of ca. 40 x 70 m. Terracing and dirt-surfaced platforms, formed by field rock alignments, little stacking; large boulders integrated into alignments; midden present on one platform; probably remnant of once much more extensive agricultural field system, with associated residences.

K-10a: Field alignments. A few fragments of a larger dryland field complex located mauka of the railroad bed.

K-11: Remnant of low boulder wall running mauka from coast, ca. 40 m.

K-12: Complex of stone habitation and storage features, ca. 15 x 40 m. Built into and around large outcrop; large dirt-surfaced platform 15 x 18 m, with two small sheltered areas formed by overhanging outcrop; boulder alignments extending off N and S ends of platform; scattered midden.

K-13: Circular enclosure, 5 m across. Rough stacked boulders, with small rocks on top; built against outcrop; possible storage area.

K-14: Two alignments of field rocks, 3 and 4 m long. Remnant field boundaries.

K-15: Platform, 4 x 5 m, and adjacent field boundary. Platform is constructed on a slope so upper and lower edges are terrace facings; field boundary is 10 m N.

K-16: Corner remnant of enclosure, 4 x 4 m. Only two standing walls remain; scattered midden.

K-17: Remnant of stone platform. Located in area of Honoipu Landing roads; possibly part of the habitation associated with the landing.

K-18: Historical debris. Machinery and a rusted metal box, 1.5 m on each side; probably from railroad operation; similar items seen near Māhukona.

K-19: Scatter of shell, bottle glass, and metal fragment, with possible stone structure remnant in an area about 4 m in diameter.

K-20: Concrete and stone structure, in ground 6 x 7 m, 2.5 m deep, sidewalls 0.5 m above ground. Cement floor; filled with old wire; probably a cistern to supply water to Honoipu Landing.

K-20a: Field alignments. Portion of a dryland agricultural field system; located mauka of the railroad bed and N of the Puakea-Honoipu boundary; the area S of the boundary has been bulldozed.

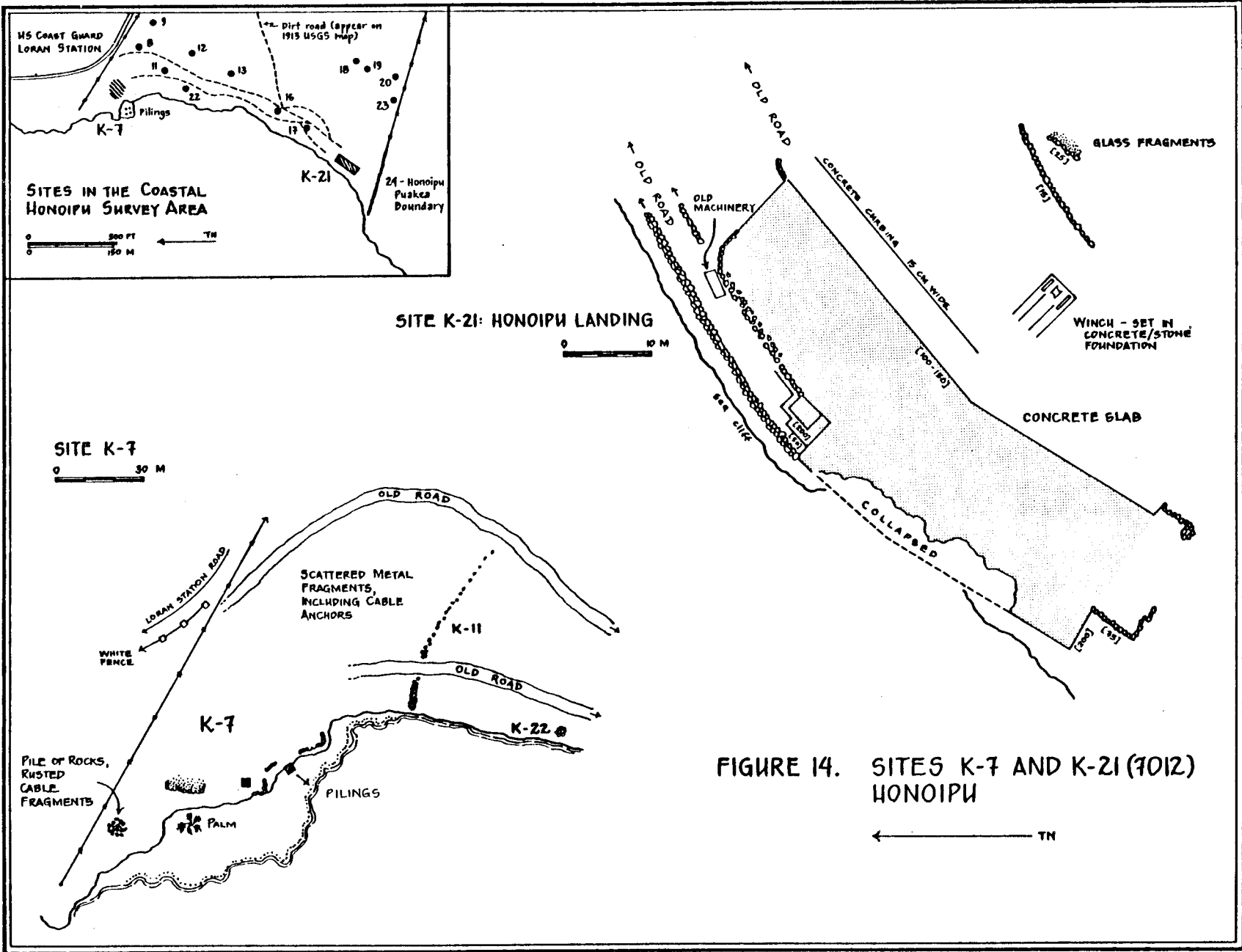
K-21: Honoipu Landing. Covers a total area of 65 x 20 m. Large concrete slab, stone and cement walls; winch built from old tractor located mauka of concrete slab; site is set at edge of high sea cliff; roads leading to N (Figure 14).

These are the remains of the well-known cable landing, one of the few on the island, and part of the larger facilities at Honoipu associated with the Hawi Mill operations (see K-7). With a system of cables, freight up to 1800 pounds was conveyed from a warehouse at the top of a 90 foot high bluff to ships anchored offshore. The landing was used primarily by Hawi Mill Company until 1912, when the company discontinued use in favor of railroad transport to Māhukona. The concrete slab is all that remains of the large warehouse (see photograph in Hansen 1963).

Associated roads and related features are located in the area to the N and mauka. See Inventory site form for 7012 for more details.

K-22: Ahu, 50 cm high, 75 cm across. Does not appear to be recently constructed; at edge of low sea cliff.

K-23: Two alignments of stone, 4 and 5 m long. Probably remnant field features.



- K-24: Stone wall, 1 m high, 75 cm wide, 130 m long. Well-constructed, not recent, but probably historic; located on the historically recognized boundary between Honoipu and Puakea ahupua'a.

Reference Area IV: Honoipu Landing to Hi'anaula Point

- K-25: Fragments of stone outlines, midden, bottle glass, in a general area of 10 x 24 m; probable remnant of historical house.
- K-26: Stone platform, 2 x 3 x 0.5 m. Possible burial; only feature in this area (the surrounding area has been bulldozed); large piles of bulldozer debris.
- K-27: "Honoipu Rock Gardens". The name of this site as it is listed in the Historic Sites section files (4143) is a misnomer. The site is located in Puakea ahupua'a, not Honoipu, and it is a series of dry agricultural features.

The site is composed of two sets of features located in a gully which drains into a small bay N of Puakea Point. The upper set is composed of small terraces, each about 1 m in diameter, located in a shallow drainage leading into the gully. The second set, constructed on the very steep lower section of the gully just above the bay, also contains pocket terraces, as well as a probable house terrace. This set lies just below a long, low retaining wall constructed across a wide part of the gully.

This is one of several sites in the northern part of the survey area which are rainfall run-off complexes. They are technologically an elaboration of the dry field features of the leeward area, which are an important expression of the agricultural intensity of this environmental zone.

The original Inventory description of this site is misleading and the context of agricultural adaptation was not presented to the HHPRB at the time of review. Thus, it was rated as marginal. It is now clear that the complex deserves a ranking of higher value.

- K-28: C-shaped structure, 2 m in diameter.
- K-29: Two alignments of stone, fragments of field borders, 8 m across.
- K-30: Set of remnant field borders, in an area ca. 40 x 70 m. At mauka end is a boulder outcrop against which a stacked terrace is attached.
- K-31: Low wall of stacked cobbles along upper edge of a boulder outcrop, 15 m long. Above inland fishing trail.
- K-32: Boulder alignment, 14 m long; unknown function.
- K-33: C-shaped structure, 6.5 m across, 0.5 m high. Located near coast, opening faces mauka; extensive, but light, scatter of shell and coral in the general vicinity.
- K-34: Two continuous square areas, each ca. 4 x 4 m. Located immediately makai of the coastal trail. Coastal edge of the site is an eroding soil beach face; each area has a shallow depression in the center, one is partially outlined by rocks. Exposed deposit in beach face has fire-cracked rock and charcoal, but no portable artifacts. There is an extensive scatter of shell in the vicinity.
- K-35: Habitation feature and possible burials, in an area of 10 x 20 m. Boulder outcrop forms a shelter, which is fronted by a low terrace facing, with an adjacent low, stacked stone wall. Two platforms, possibly burials, are also adjacent. One is collapsed or has been vandalized.
- K-36: Possible housesite, 2 x 3 m. Stone structure with line of rocks forming mauka wall, low terrace forming makai boundary.
- K-37: Enclosing wall complex of housesites, burials, and agricultural features, in an area of ca. 150 x 150 m (Figure 15). The NW corner of the complex is Inventory site 4144 (named "Puakea Point Complex", although it is not at Puakea Point).

This site is an outstanding example of an integrated set of features. There is one habitation complex (4144) and two agricultural complexes on the inside of the enclosing wall; another possible habitation complex is attached to, but outside of, the NE corner of the enclosing wall.

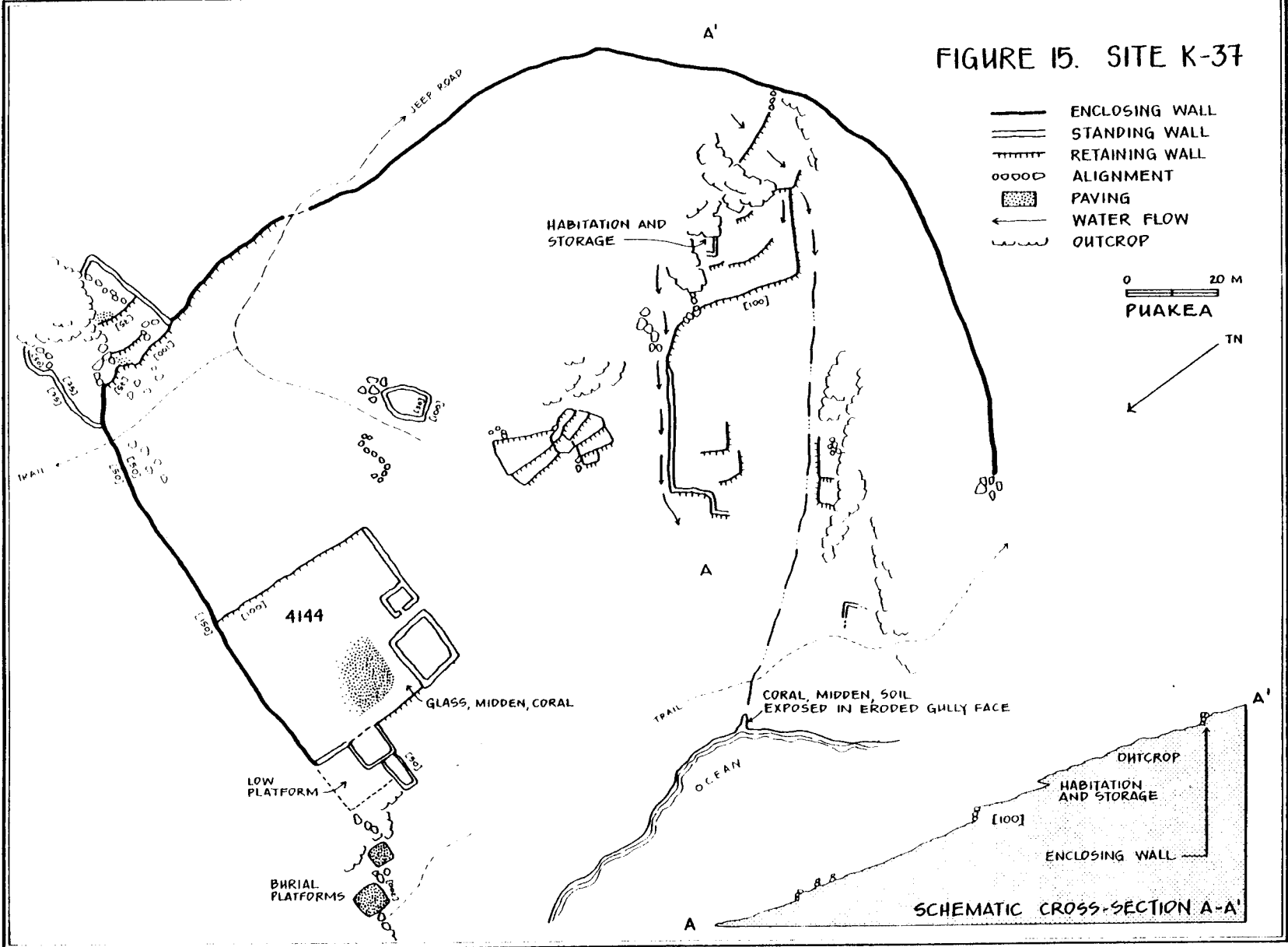
Much of the complex appears to date from the 19th century (based on surface bottle glass, see Inventory site form), but it probably has a prehistoric substrate as well. There are burial platforms associated with 4144, as well as additional burials mauka of the enclosing wall; these are identified as a separate site (K-38), although they undoubtedly belong with this site. The agricultural features include slope terraces, as well as a series of run-off terraces.

Overall, K-37 (and K-38) is an interesting variation on the type of site described as the enclosing wall complex, which characterizes habitation sites along this section of the coast; this form of site is clearly a local version of "kuleana" adaptation.

The site also provides an example of misleading site data resulting from limited survey; i.e. only one component of the complex was described, which affected the later evaluation by the HHPRB.

- K-38: Two burial platforms, each approximately 2 m across, 1 m high. Built against outcrop; both visible from the upper coastal trail, both looted; probably associated with K-37. The location

FIGURE 15. SITE K-37



SCHEMATIC CROSS-SECTION A-A'

North Kohala Cultural Resources
Section II.4. The Leeward Coast

-80-

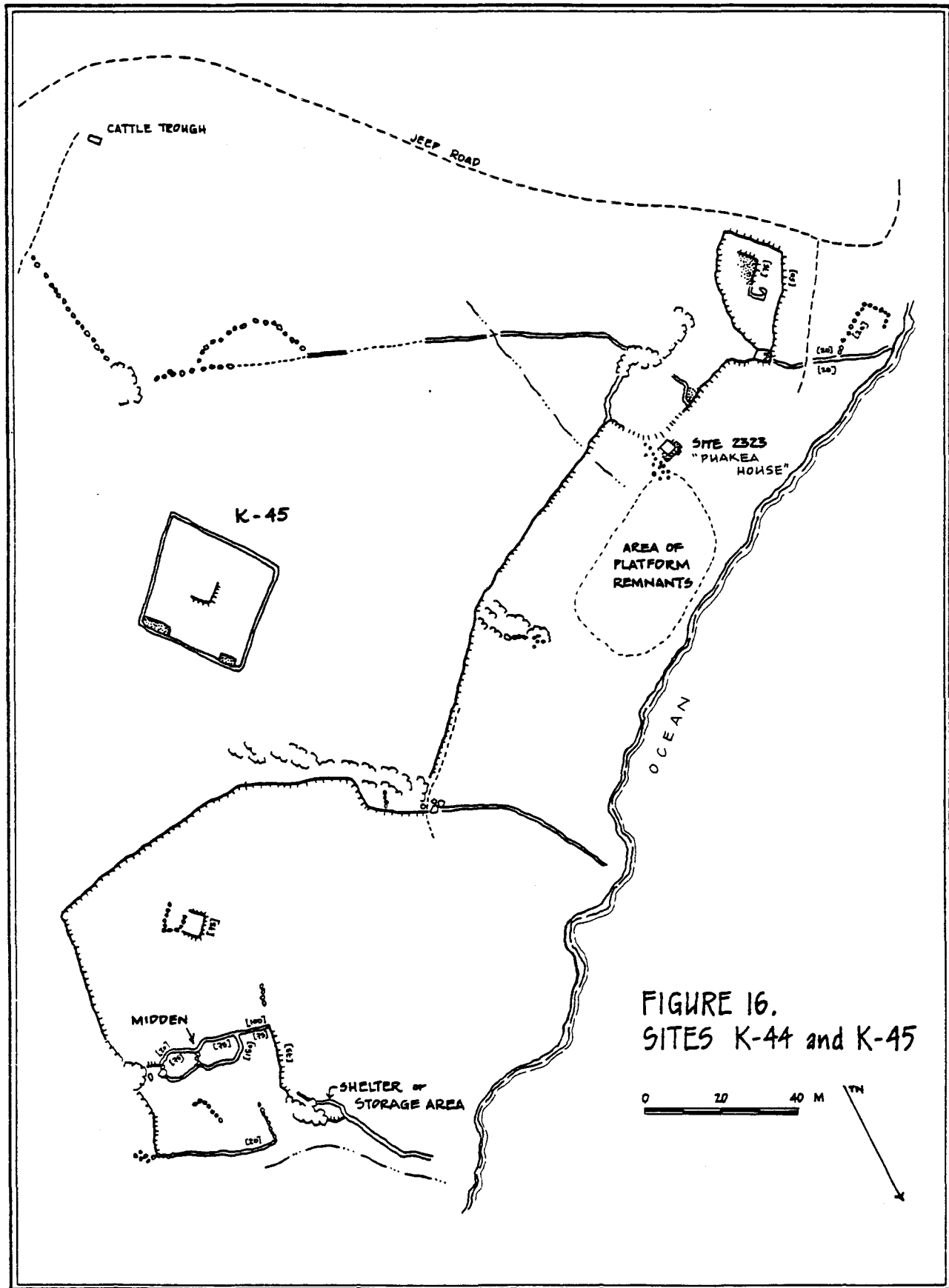


FIGURE 16.
SITES K-44 and K-45

of burials on the bluff above coastal habitation is a common settlement pattern all along the Kohala (and Kona) coast.

- K-39: Enclosure, ca. 40 x 40 m. Irregularly shaped, with an interior low platform and several small, oval-shaped rock outlines; two recent glass bottles. Adjacent to the S is a possible field area marked by a cobble alignment (with some uprights); a 3 x 3 m enclosure is built into the mauka alignment of the field area. Dating and function of this complex are uncertain, although some features may be burials. It does not appear to be a standard 19th century housesite or an animal enclosure. It may be associated with K-40.
- K-40: Four concrete foundation posts, in a 5 x 5 m square. A 1 x 2 m concrete slab is adjacent; possibly associated with K-39.
- K-41: Low-walled stone enclosure, 3.5 x 4.5 m. Probable housesite; outcrop and stone alignment adjacent; no midden.
- K-42: Low-walled stone enclosure, 3 x 5 m. Housesite of roughly stacked stone, with a small terrace on the makai side; midden; located on a low point immediately above a small bay; coastal trails pass next to the structure.
- K-43: Habitation complex and burials. Several cobble-outlined ovals, probable burials, are found within an enclosure, measuring 16 x 20 m. A houselot is adjacent to the E; many of its wall stones have been robbed. Midden and bottle glass fragments are present. The Inventory site form identifies the glass as early to mid-19th century. This early date is interesting in view of the form of the burials, i.e. oval outlines, rather than platforms. A jeep road passes by one edge of the site.
- K-44: Enclosing wall habitation complex covering an area of ca. 17000 square m (Figure 16). One of several complexes defined by an enclosing wall, this site contains a number of sets of habitation platforms, one of which is the base of a wooden and tin house, identified in the Inventory as site 2323 (Puakea House Site); this may be a turn-of-the-century structure; it appears to be the last structure abandoned along this coast and it is probably the house shown on the 1913 USGS map. However, long-time Kohala residents familiar with this coast do not remember it being occupied. The Inventory form suggests that adjacent platforms may be earlier.

The complex is unusual in having no burials associated in any obvious manner.

The southern wall of the complex lies along the border between the ahupua'a of Puakea and Kukuipahu.

- K-45: Houselot, ca. 30 x 35 m. This is a typical 19th century housesite formed by a low (up to 50 cm high), roughly stacked enclosing wall, within which is a central house platform and two smaller platforms against the enclosing wall (see Figure 16).

Recent surveyors have robbed the walls to make stone piles for reference points.

Reference Area VI: Inland of Hianaula Point

- K-46: Platform, 3 x 5 m. This platform is one stone high and earth-filled. A second, disturbed feature and an ahu are adjacent; midden in the area. This is probably a small housesite which may be a part of an adjacent field complex (K-47).
- K-47: Agricultural field system, covering an area of ca. 50,000 square m. This complex is an extensive system of stone walls, field alignments, and stone mounds (of which some may be burials), which constitutes a primary example of late prehistoric and early historic agriculture. This is the best example in the survey area of this type of an agricultural complex. Bifaced stone walls serve to enclose and define much of this site, but there are adjacent agricultural features (e.g. K-50), which suggest that the original, probably pre-Contact, system is much more extensive. This should probably be considered one segment of the total leeward Kohala upland field system. Portions of K-47 have been destroyed by bulldozing.
- X: A bulldozed jeep road from mauka comes to the coast at this point (Hianaula Point) and then extends S along the edge of the coast.
- K-48: Agricultural field outlines. Located S of K-47 and makai of the railroad bed, it was not mapped and its size was not estimated. This is probably an extension of K-47, although it does not have the high enclosing walls of that complex.

Reference Area VII: South of Hi'anaula Point

- K-49: Burial complex, on a bluff, covering an area of 15 x 30 m. Six platform burials and five cobble outline burials; some looted.
- K-50: Stone alignment/low terrace facing, runs along the front of the beach, ca. 100 m. This may be of recent construction, as is an associated circular structure. The sand of the beach in this locale is reported to have been brought in by the 1946 tidal wave.

K-51: Terraced and walled gulch, extending from the coast to the railroad bed, ca. 1000 m. The inland section of the gulch has low rock alignments extending across the gulch bed, forming run-off terraces. There are also low stone walls, in many places only alignments, running along the top edge of the gulch, in effect outlining it; field alignments on the area outside the gulch may abut these walls.

Toward the makai end of the gulch are two large enclosures, each with walls set across the gulch and along the tops of the gulch sides (Figure 17). These may have been cattle pens, taking advantage of water pooled after run-off occurred. There are few agricultural features in the lower section of the gulch. It is not clear if this is due to the use of this area for animal holding or due to flood damage.

It is clear that flood has occurred in the gulch and the remaining features show extensive signs of damage. The attempt to use water in this gulch is indicated by a cement cistern which is constructed at the mauka end of the lower stone enclosure.

The coastal portion of this site consists of scattered rock and sand, but no standing features. Features may be buried, but extensive damage has taken place due to flood and tidal wave.

This is the last intact agricultural run-off system in the survey area as one goes S. One more such system existed in the next gulch S, but it has been largely destroyed (K-74).

The lower portion of K-51 is probably inventory site 2321.

K-52: Two stone-faced terraced platforms, one set about the other, 8 m along the face. Located on a bluff, well removed from other sites, this may be a housesite or a ceremonial structure.

K-53: Large habitation complex with partial enclosing wall, ca. 55,000 square m. The ends of the enclosing wall in this complex do not run to the coast; the complex contains a number of housesites (Figure 18). Both of these features differentiate this complex from other similar ones along the coast. It is not certain if this is a variation of the "enclosing wall" form of habitation site, or if it is not a valid complex.

As presently defined, it contains three, perhaps four, major housesites, additional house platforms, and habitation material in beach deposits. Sites K-67, K-68, and K-69 might also be considered part of this site. Much of the surface material is probably 19th century, but, like other such sites along this coast, it undoubtedly overlies earlier occupation. Some features are in poor condition; the site in general is in good condition.

K-54: Rock pile, possibly a deteriorated platform, 5 m across, 1 m high. May also be a clearing pile from the nearby military activity. In many cases, however, structures are located beneath such clearing debris.

K-55: Possible house lot, 25 x 35 m. Substantial enclosure of unique configuration, with heavy parallel internal walls up to 1 m wide; badly deteriorated; exterior walls are slightly terraced to S and to W.

Reference Area VIII: Inland of Mahu Point

K-56: Complex of small, low-walled house outlines (not mapped). Seven structures; may be associated with the railroad construction or may be a specialized Hawaiian camp.

K-57: Low stone alignments forming dry terraces in gully bed, and rock alignments along edge of gully. This site is very similar to the mauka end of K-51. It is probable that this gully was terraced from this section to the ocean, but the entire lower section has been destroyed by military activity. This gully is the central portion of the 'ili of Lahuiki, an 'ili kupono in the ahupua'a of Kukuipahu (see Appendix 2).

Reference Area IX: Mahu Point

K-58: Large, concrete bunker, one room with observation slit; high cement facade, rear covered by dirt mound. This site is part of a military operations area dating to World War II; the area includes two bunkers (K-58 and K-74) which served as observation posts, and a target (K-65); ordnance found up to 450 m (1500 ft) from the target. The general area has been badly disturbed by the military activity, but a number of coastal sites remain intact (e.g. K-70).

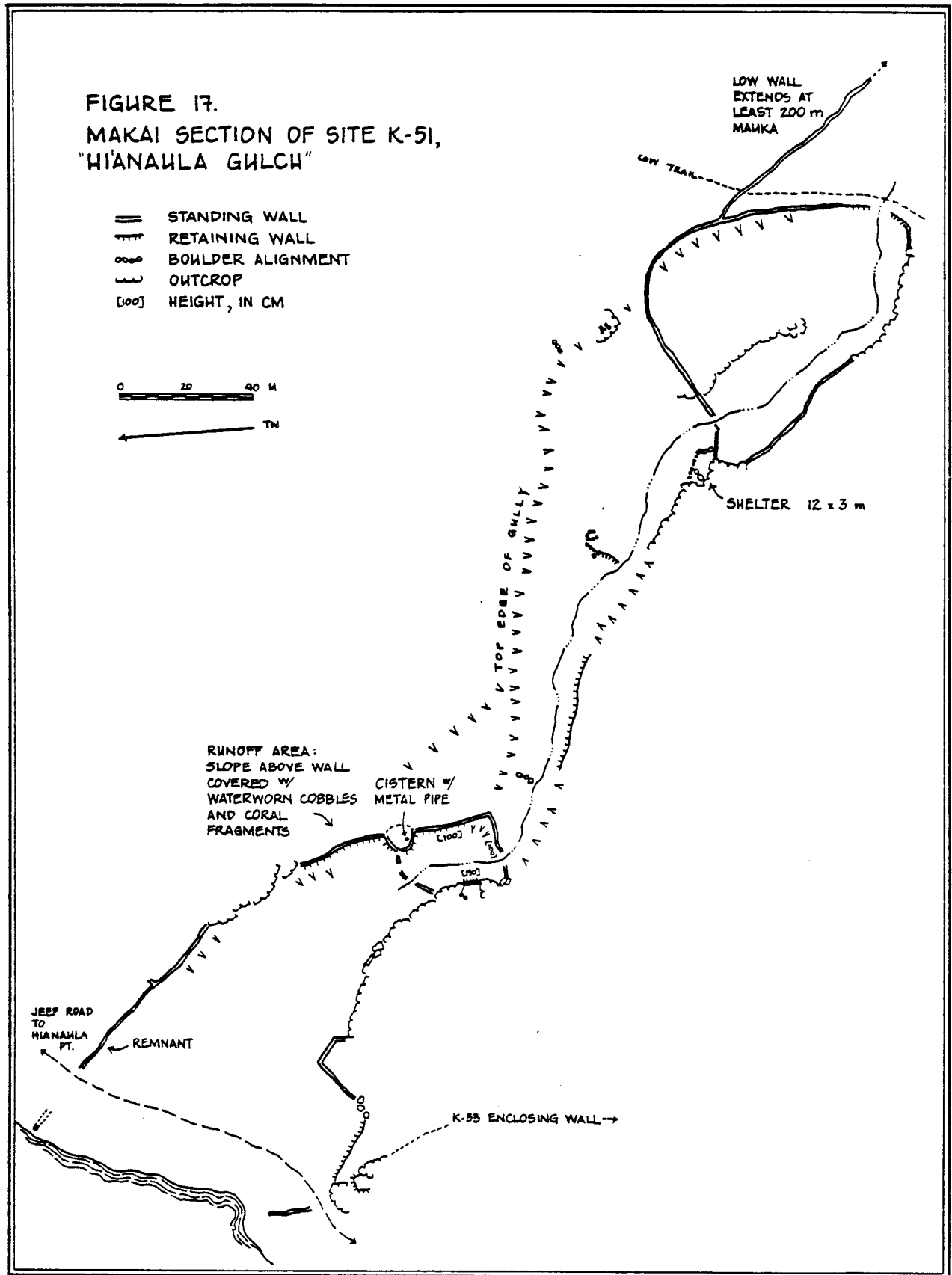
K-59: Stone enclosure, 10 x 15 m. Stacked walls, 50 cm high; 4 x 4 m enclosure attached; function unknown.

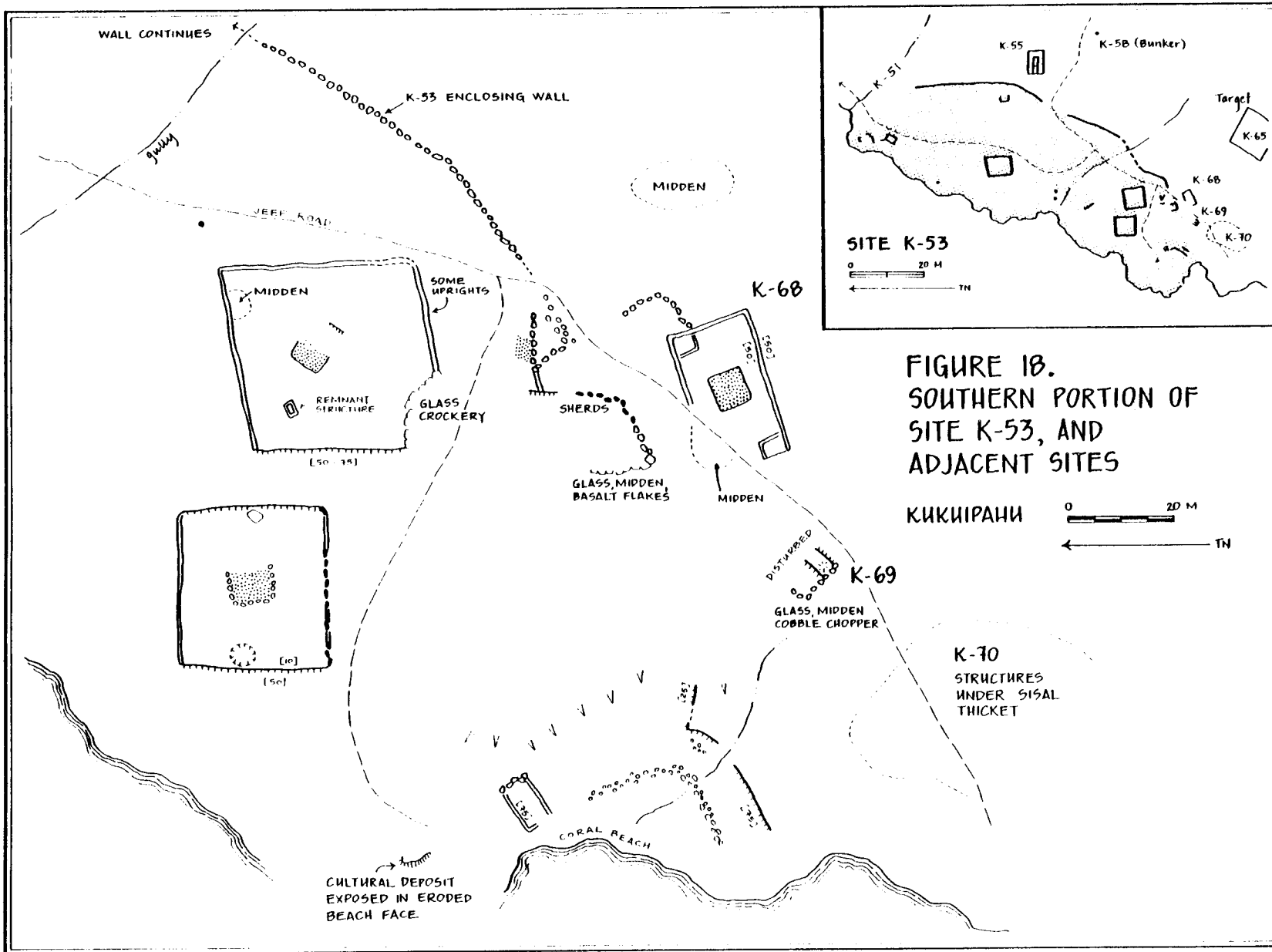
K-60: Platform, with dirt surface, 5 x 6 m. Rubble facing on makai side, 50 cm high; grades into slope on mauka side; possible house terrace.

K-61: Series of rock piles, probably resulting from military activity in area.

K-62: Two platforms and a cobble outline, probable burials. Located at the edge of a bluff in mauka area; platforms are low, boulder-outlined, with cobble/boulder fill.

K-63: Rough platform, 2.5 m across. Built against boulder outcrop, with a low wall associated; function uncertain.





- K-64: Two remnant structures. The first is a wall corner and platform fragment, probably a houselot. The second is a wall remnant. The original structures were probably destroyed by military activity.
- K-65: Military target, formed by rock alignment, 68 x 68 m. Located on large, constructed dirt embankment; scattered ordnance, exploded and unexploded, from ship to shore fire; part of a military complex (see K-58).
- K-66: Cobble outline, 3 x 1.5 m. Possible burial; oval-shaped; located at base of outcrop.
- K-67: Cobble pile, 1 m across. Possible ahu or mound from pasture clearing.
- K-68: Houselot, ca. 20 x 30 m. Low-walled rectangular enclosure with platform in center and two platforms in inside corners; one side has been destroyed by a jeep road exposing large quantities of shell and bottle glass (see Figure 18).
- K-69: Stone structures, including two platforms, alignments, and a possible burial, in area of ca. 900 square m. Extensive disturbance from a jeep road, bulldozing, and sisal growth; shell and bottle glass exposed.
- K-70: Houselot, under sisal grove, ca. 30 x 30 m. This may be the most southerly house on the trail from Honoipu shown on the 1913 USGS map. This site may be part of State Inventory site 2319, which also may include K-68, K-69, and the southern end of K-53. Extensive scatter of shell and some volcanic glass throughout this general area from K-53 to K-71.
- K-71: Platform with well-faced sides, 16 x 22 m. Interior platform on NE corner, depression in SW corner, small enclosure attached to SE corner. This may be a house platform or a ceremonial structure, possibly Remy's Alaikamahina heiau (Remy 1853); possibly associated with K-75 (see Figure 19).
- K-72: Scatter of shell and coral, with one basalt flake; 20 m diameter.
- K-73: Possible burial, 1.3 x 2.5 m. Rock-edged oval outline; rock pile adjacent; located on bluff.
- K-74: Military bunker, identical to K-58.

Reference Area XI: Site K-75 to Puka Puhī

- K-75: Enclosing wall complex of housesites and agricultural features, covering an area of ca. 20,000 square m. This site varies from other complexes of this type in that the enclosing wall is formed by three large units which may have additional functions, such as animal enclosures or garden areas (Figure 19). Within the complex are a number of enclosures and platforms, including burials, with scattered shell, bottle glass, and pottery.

A unique feature of the complex is that water is clearly channelled through the settlement, and may have been used to water small terraced garden areas within the settlement itself. The area mauka of the site has been bulldozed so it is not possible to determine if there were agricultural features in the gullies immediately inland.

This area may include State Inventory sites 2320, 4147, and 4148.

- K-76: Enclosure, 12 x 15 m. Possible housesite, with wide, bifaced, core-filled walls up to 1 m high; midden.
- K-77: Burial complex. Located on high bluff; six cobble outlines, rock-filled and slightly terraced on makai edge; gravel, coral, and waterworn stones scattered in area; bottle glass and one small stone adz also found in vicinity. The railroad bed runs a few meters mauka of the site.
- K-78: Enclosure, 12 x 20 m. Possible housesite located on bluff at sea edge. Wide, core-filled, bifaced walls, most at least 1 m high; makai wall is built on top of massive beach boulders, total height from base of boulders is 2.5 m; some low, attached walls.
- K-79: Enclosure, 4 x 4 m. Stacked walls, 30 cm high, 50-60 cm wide, with sections of boulder edging/cobble fill; some interior fill; possible houselot.
- K-80: Area of remnant stone walls and platforms, in an area of ca. 800 square m. Located between two jeep roads; generally badly deteriorated.
- K-81: Enclosure, 4 x 4.5 m. Low-stacked walls; located on S edge of shallow gully; small (3 x 3 m) enclosure abuts N wall; possible housesite.
- K-82: Enclosure, 4 x 4 m. Stacked walls up to 1 m high; nearly filled with dirt on inside, so could be considered a platform; unknown function.
- K-83: Small platform remnant.
- K-84: C-shaped structure, 5 m across. Located on edge of sea cliff; open to mauka side; formed by boulder alignment and outcrop.
- K-85: Enclosure, probable houselot; noted on air photo, but not located on ground.
- K-86: Complex of stone features (not mapped) bisected by railroad. This includes a houselot makai of the roadbed and a set of dry terraces and field borders which are set across the face of a slope mauka of

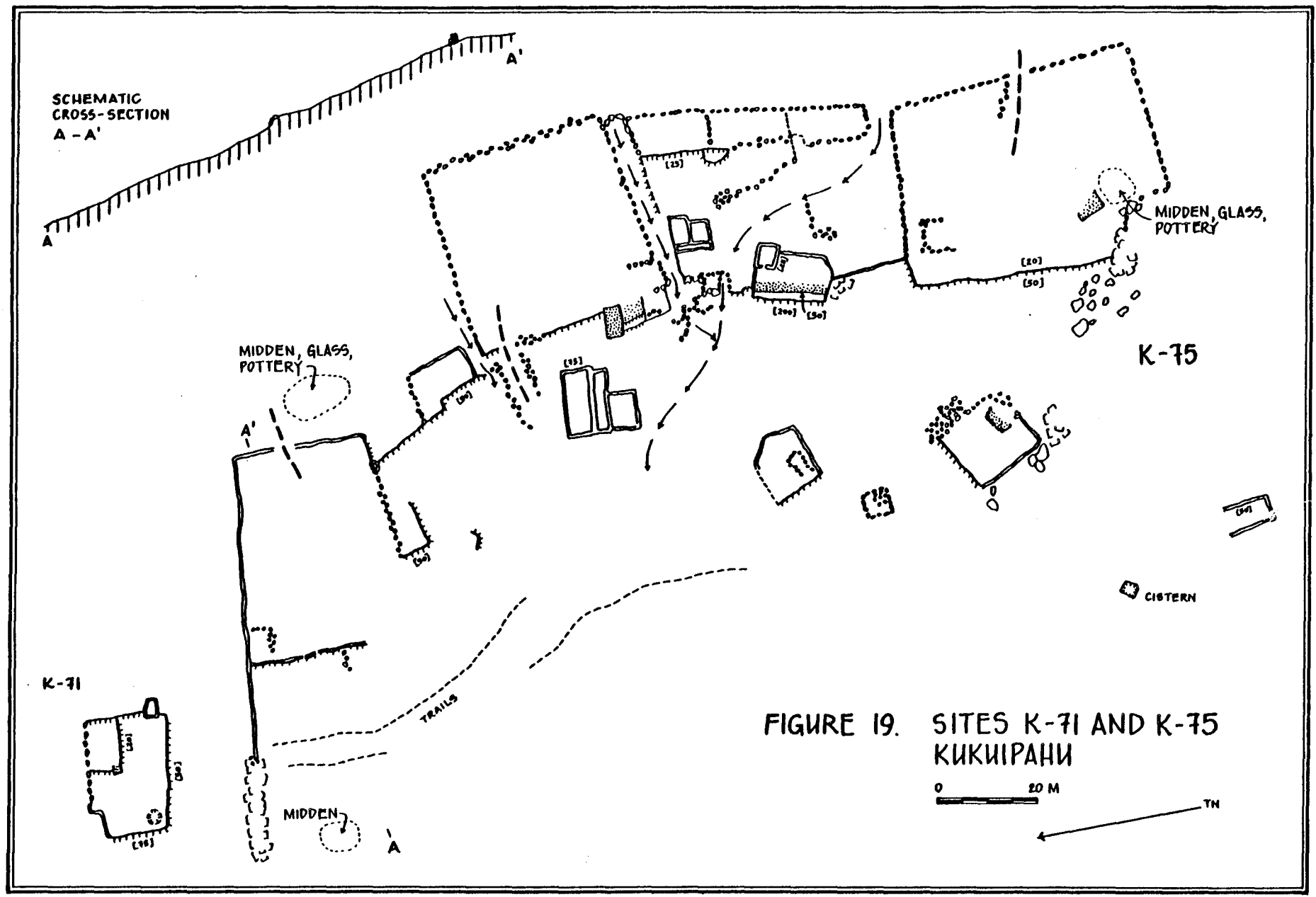


FIGURE 19. SITES K-71 AND K-75
KUKIPIAHI

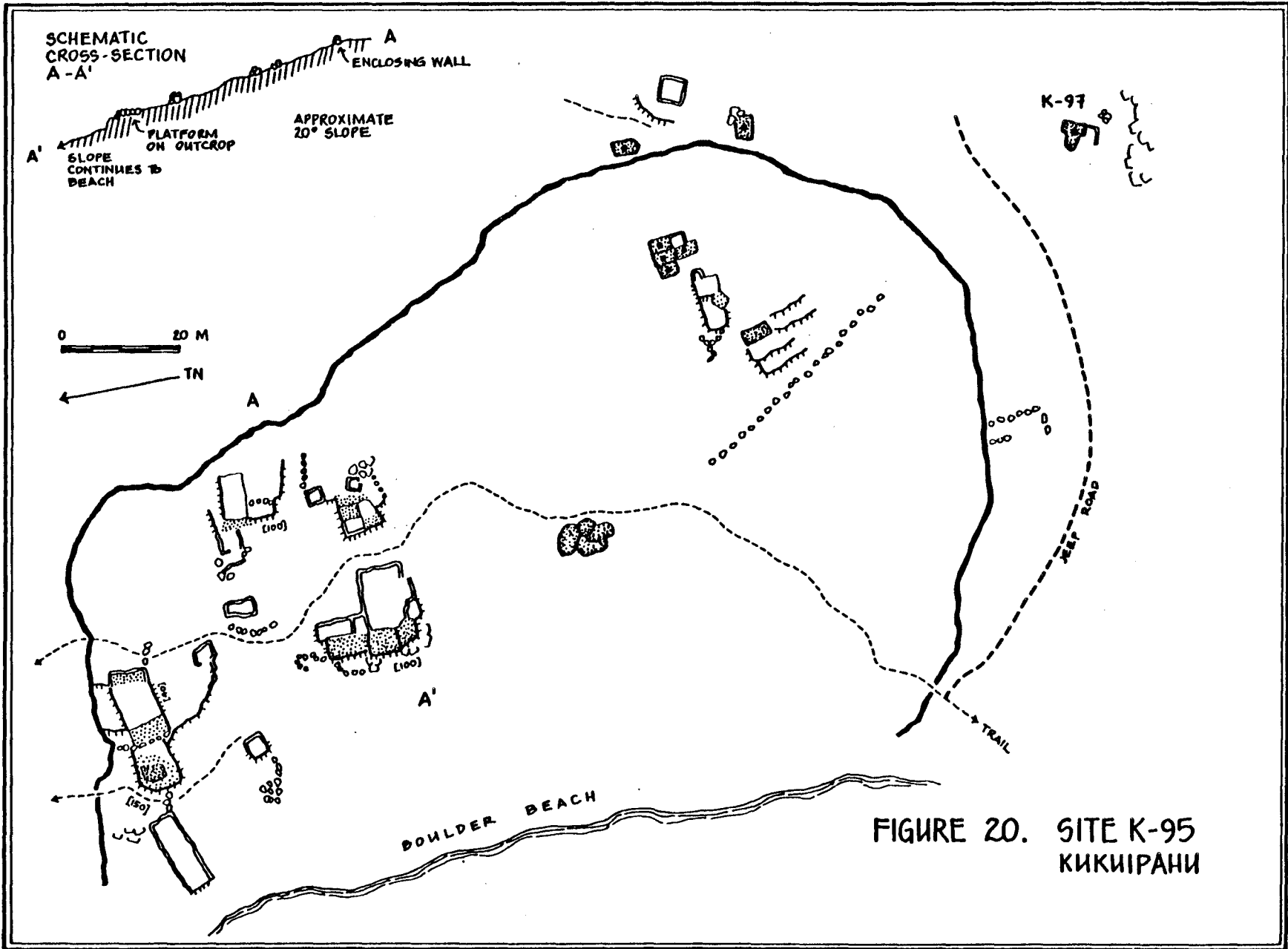
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- the roadbed. A rock pile was constructed at the top of the slope. (Reference Area XII)
- K-86a: Ahu or remnant wall; numerous scattered rocks in area; located on a large flat with boulder outcrop on makai side.
- K-87: Alignment of large stone uprights, low platform, and possible burial; associated with a C-shaped structure constructed against a boulder outcrop; habitation complex.
- K-88: Small structure consisting of paved area, 1.5 x 2.5 m, with an attached rough stacked or damaged section of the same size. Located on point of sea cliff, may be a religious structure; coastal trail and a large open area are mauka.
- K-89: (2318) Enclosure, 13 x 16 m. Walls up to 1 m high, 150 cm wide, but collapsed in many areas. State Inventory form indicates that function is uncertain. Although it is not a typical houselot, it probably is a site of this general type. Firepit in SW corner; boulder alignment marks interior area (4 x 5 m) inside NE corner.
- K-90: Roughly constructed platform, 2 m across, on top of bluff.
- K-91: Two possible burials; piled cobbles marked by boulder alignment on makai side; located at the base of a low bluff. Probably associated with K-95.
- K-92: Remnant of a Hawaiian trail; cobbles placed along edge of shallow gully. Probably associated with K-95.
- K-93: Remnant of Hawaiian trail, probably connects with K-92, and leads toward burial area mauka of K-95. Probably associated with K-95.
- K-94: Hawaiian trail, with some associated field borders. This trail was not traced out, but it undoubtedly connects the coastal complex of K-95 with the upland field system. Probably associated with K-95.
- K-95: (2317) Enclosing wall complex, ca. 13,000 square m. A distinct enclosing wall sets this complex apart from the surrounding area, but, as noted above, several additional sites (certainly the trails located mauka) are probably associated with it. Within the enclosing wall are several house platforms, enclosures, possible canoe sheds, and platform burials (Figure 20). There are also burial platforms outside the wall, immediately mauka. There is scattered midden, but no historical artifacts were noted. This is probably a 19th century house complex, possibly an early one.
- K-96: Ahu, with upright on top, 2 x 2 m, 1.5 m high. Built on outcrop at edge of sea cliff, so it gives the appearance of being much higher; well-constructed of waterworn and field rocks; wall marks off small area at base of outcrop. It appears to have had a ceremonial function. It could have served as a fishing shrine, or, as it is near the ahupua'a boundary (between Kukuipahu and Awalua), it may have been a boundary marker or a boundary shrine or altar. Probably associated with K-95.
- K-97: Rough terrace alignments, each 8 m long; function uncertain. Probably associated with K-95.
- X: Small, high-cliffed bay; historical records indicate that this was a blowhole around the turn-of-the-century (called "Puka Puhi"), but it has obviously collapsed in the interim.
- K-98: Possible ahupua'a boundary line and trail. Puka Puhi (the now collapsed blowhole) is recorded as being the coastal point of the Kukuipahu-Awalua boundary. On a bluff at the southern edge of the former blowhole is an alignment of rocks running mauka for some 200 m (with some breaks). This appears to be a boundary marker, possibly a prehistoric one. It is not a standing wall such as that between Honoipu and Puakea (which is probably a historically marked boundary).

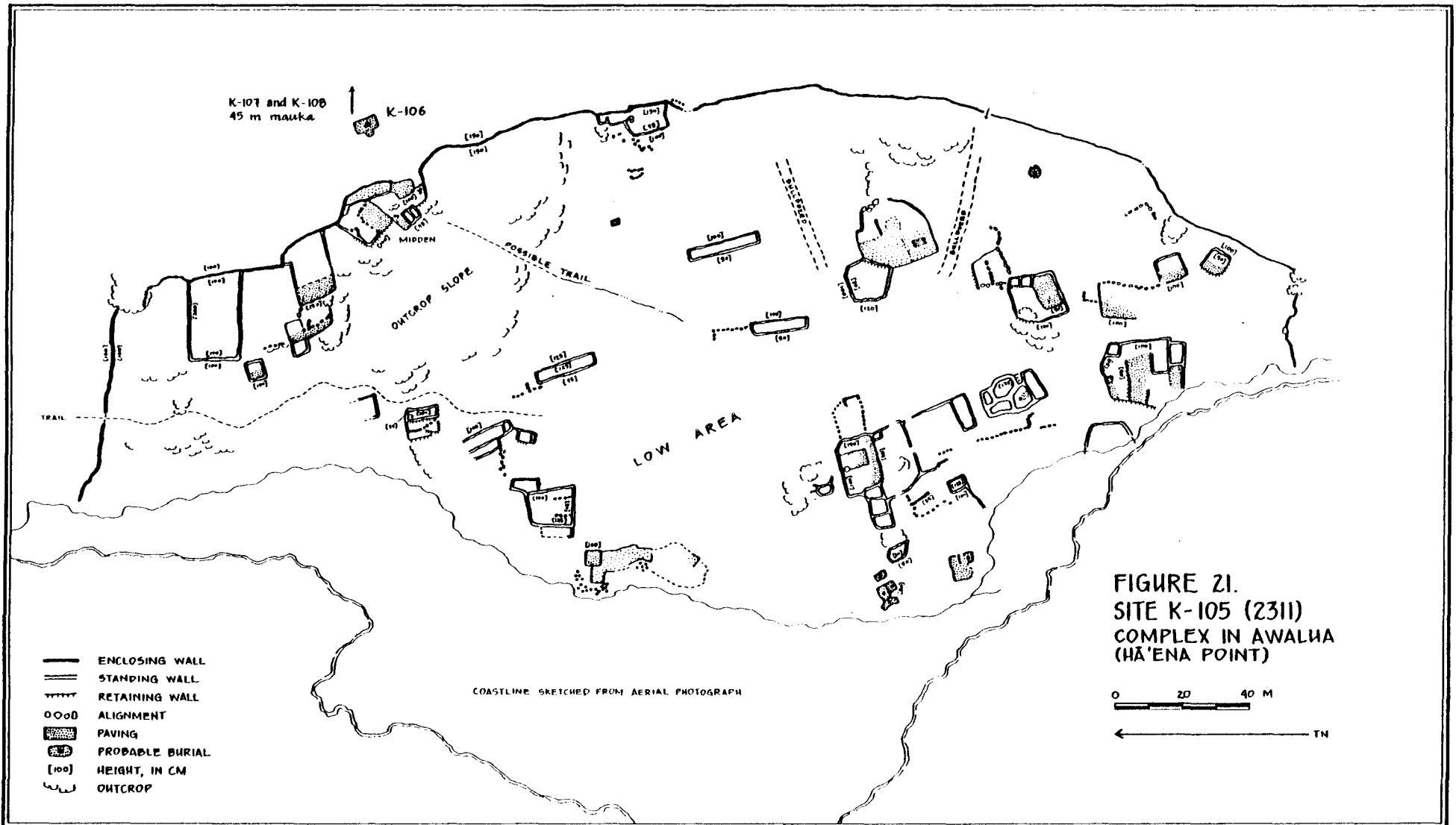
Although the stone alignment ends at approximately 200 m inland, there are a number of features which can be found further inland along the same bearing, suggesting a continuation of the ahupua'a boundary. These features include several ahu and, notably, two alignments which cross over low outcrops. Evidence of the boundary is found as far as the railroad bed, mauka of which a stone alignment and possible trail continues further inland.

Reference Area XIII: Puka Puhi to Kapaa Park

- K-99: Possible horse trail between the habitation complexes of K-95 and K-105. This was once a well-cleared path over 1 m wide, running near the brow of the hill between the two complexes. A portion is currently used as a fishermen's trail, but most of it is overgrown. At one place, there are some large trees growing in it.
- K-100: discarded number.
- K-101: Enclosure, 2 x 1.5 m. Constructed on outcrop; formed by boulder alignment; 4.5 m long boulder alignment extends from one corner; function uncertain.
- K-102: Abandoned wagon, heavy metal wheels. The wagon is loaded with rocks and buckled in the middle. It is decades old and may have been in service for some phase of railroad construction. It is not located on any identifiable road or path.
- K-103: Small ahu at point on coast.



- K-104: Stone platform, with well-constructed makai edge, 3 m wide. Located at edge of sea cliff; a rough shelter wall is located immediately mauka of the platform.
- K-105: Enclosing wall complex, covering an area of ca. 36,000 square m. Within the walled area of this (2311) complex are numerous platforms, walls and specialized structures, including canoe sheds and burials (Figure 21). Little midden and no artifacts were seen, but the surface structures are predominantly 19th century in form.
- Sites K-106, K-107, K-114, K-116 and K-120 (burials and a trail) are certainly associated with this complex.
- This site is named "Ha'ena Point Complex" in the State Inventory form, but this name should be dropped because of confusion with K-126 which is noted as "Haena (Site)" on the 1957 USGS map. This site is in the ahupua'a of Awalua.
- K-106: Burial platform, 6 x 6 m, 75 cm high; well-constructed.
- K-107: Burial platform, 3 x 1.5 m, 50 cm high; boulder facing with cobble/boulder fill; flat surface.
- K-108: Three small enclosures, built on and around a low outcrop, stacked boulder alignment construction.
- K-109: C-shaped structure, 2.5 m across. Open toward ocean, alignment to one side.
- K-110: Remains of 7 stone structures in various stages of collapse; some C-shapes, others more nearly square, with some large remnant walls. This may be associated with the railroad construction or may be a specialized Hawaiian camp (compare with K-52, also near the railroad bed); no portable artifacts were seen.
- K-111: Circle of stones, 1 m across. Built on top of a 2 m high outcrop; an elongated waterworn rock, perhaps an image stone, lies at the base of the outcrop. This may be a ceremonial site.
- K-112: Enclosure, 11 x 12 m (not mapped). Roughly stacked, single face walls, 50 cm high; constructed on rocky slope; associated C-shaped structure.
- K-113: C-shaped structure, 2.5 m across, 75 cm high. Located adjacent to Hawaiian trail (K-114); fragments of other structures in vicinity.
- K-114: Hawaiian trail. Rocks cleared from shallow gully and placed along sides; trail extends mauka from the habitation complex of K-105; it is destroyed by the railroad bed, but continues further mauka for at least 300 m. There are features along the trail mauka of the railroad bed, including a C-shaped structure at the edge of a bluff and a long, terrace alignment running along the base of a bluff.
- K-115: Two enclosures, each about 6 x 7 m, with 50 cm high walls. Located adjacent to a 2 m high outcrop with an oval of stacked stones on top; function of the complex is unknown; it is adjacent to a Hawaiian trail (K-116).
- K-116: Fragment of Hawaiian trail; could not be followed due to deteriorated condition.
- K-117: C-shaped structure and 3 enclosures, constructed against a 1.5 m high boulder outcrop.
- K-118: Enclosure, 4 x 4 m. Roughly stacked walls, with rounded corners.
- K-119: Enclosure, 2 x 4 m. Roughly stacked walls, 50 cm high.
- K-120: Two platform burials, each 3 m across, 50 cm high. Boulder facing, cobble fill; built at base of low outcrop.
- K-121: Two enclosures formed by walls built against outcrop; one is 2 x 3.5 m, the other is 3 x 7 m; walls are stacked cobbles, 50 to 70 cm high.
- K-122: Mounded platform of cobbles and boulders, 5 x 6 m. Built against outcrop on slope of hill; possible burial.
- K-123: Complex of 10 burial platforms, ranging in size from 1.5 to 4 m across, from 50 to 70 cm high. (2310) Construction varies from cobble piles to well-constructed platforms; all within an area of 10 x 25 m. These burials, as well as those in sites 122 and 124, fall between two major habitation complexes, K-105 and K-126, and may be associated with both. However, they fall within the ahupua'a of Awalua (as reconstructed, not according to the 1957 USGS map) and if this is correct, they would be associated with K-105 (see Figure 12 for locational differences in ahupua'a boundaries).
- K-124: Burial platform, 2 x 3.5 m, 70 cm high. Two openings at top, suggesting it has been vandalized; well constructed, with fine cobble paved surfaces boulder facings.
- K-124a: Possible horse trail. Connecting the habitation complexes of K-105 and K-126; this trail is very similar to K-99 which is located N of K-105.
- K-125: Small ahu. Located on point at sea cliff; possible ahupua'a boundary marker.



K-126: Kapunapuna Complex. Enclosing wall complex, covering an area of ca. 32,000 square m. This is not the largest of this type of complex along the coast,* as is usually stated, but it has the most dense and most massive set of features (Figure 22). It may also be the most recently abandoned of sites of this type (the one housesite at K-44 may have been occupied longer, but not the entire site); dense quantities of historical debris are scattered through the complex. Bonk (1968) suggests that the debris indicates abandonment by approximately 1920. The 1913 USGS map shows houses in the northern portion of the complex; Mann's map of 1932 shows no occupation.

The features within the enclosing wall include massive platforms, enclosures, and many specialized features such as burials. In addition to the quantities of historical artifacts are large amounts of midden.

Bonk argues that one of the structures is a school or church platform. This structure has been identified as a school by an informant and there is a historical reference to a school in this vicinity.

There are three major trails (K-127, K-128, and K-131) leading into the complex from mauka.

It appears that the complex may straddle both Hā'ena and Kapunapuna ahupua'a.

K-127: Hawaiian trail. Leads mauka from the habitation complex of K-126; for a portion of the distance it is a shallow gully with stones placed along the upper edges; it varies in width from 1 to 3 m and could have generally accommodated a horse. The trail divides as it approaches the habitation complex from mauka.

K-128: Hawaiian trail, similar to K-127.

K-129: Remnant of possible trail.

K-130: Small ahu along trail (K-131).

K-131: Hawaiian trail, similar to K-127.

K-132: Possible trail remnant, or old jeep or wagon track.

K-133: Remnant corner of stone-walled structure.

K-134: Circular rock outline, 1.5 m across, 2-3 rocks high. Located at top of outcrop; rock piles adjacent, probably resulting from construction of fence line (i.e. site destruction).

K-135: Alignment, probable remnant edge of old road, immediately makai of railroad berm.

K-136: Kapa'a Complex. Enclosing wall complex, covering an area of ca. 25,000 square m. Activities in the area, culminating in the development of the County park in the late 1950s, have destroyed a large portion of the complex. Bonk (1968) mapped the southern portion which he called "Kapa'a Village" (2309), but the enclosing wall makes it clear that this is only part of the larger complex identified here. Bonk's mapped area and three platforms mauka are the only portions remaining in good condition (Figure 23).

The enclosing wall, as it exists at present, is low and is primarily of boulder uprights, with some stacking. It does not meet the coast at either end; at the N end, this is due to destruction from modern activities, at the S end, the wall terminates in a complex of six platform house lots and an stone and concrete-lined cistern, presently used by the County (Bonk's "Kapa'a Village"

The relationship between this complex and K-126 is interesting. They are both enclosing wall complexes; they appear to share a common border (just N of the present County park facilities), whereas other such complexes are more widely spaced along the coastline.

K-137: Possible burial platform, 4 x 3 m. Roughly constructed, 30 cm high.

K-138: Rock pile on outcrop. Possible burial.

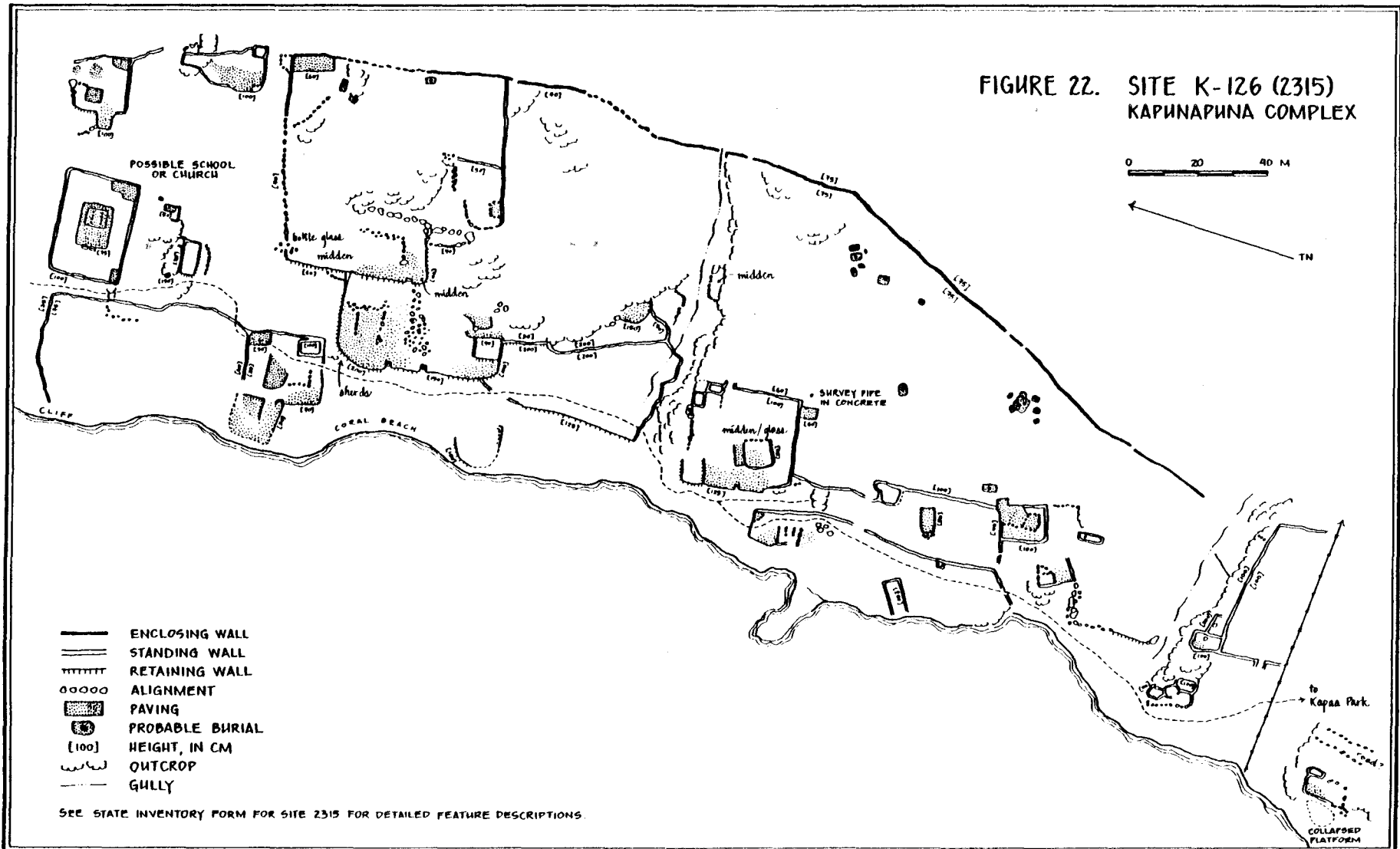
K-139: Burial platform. Located against outcrop to S of and visible from Kapaa Park access road; looted; human bone fragment found in cavity; construction of platform observed; sticks placed against side of outcrop, forming cavity where body placed, rock slabs placed over sticks and covered with cobbles; one piece of wood showed a saw cut, indicating that this is a historical feature.

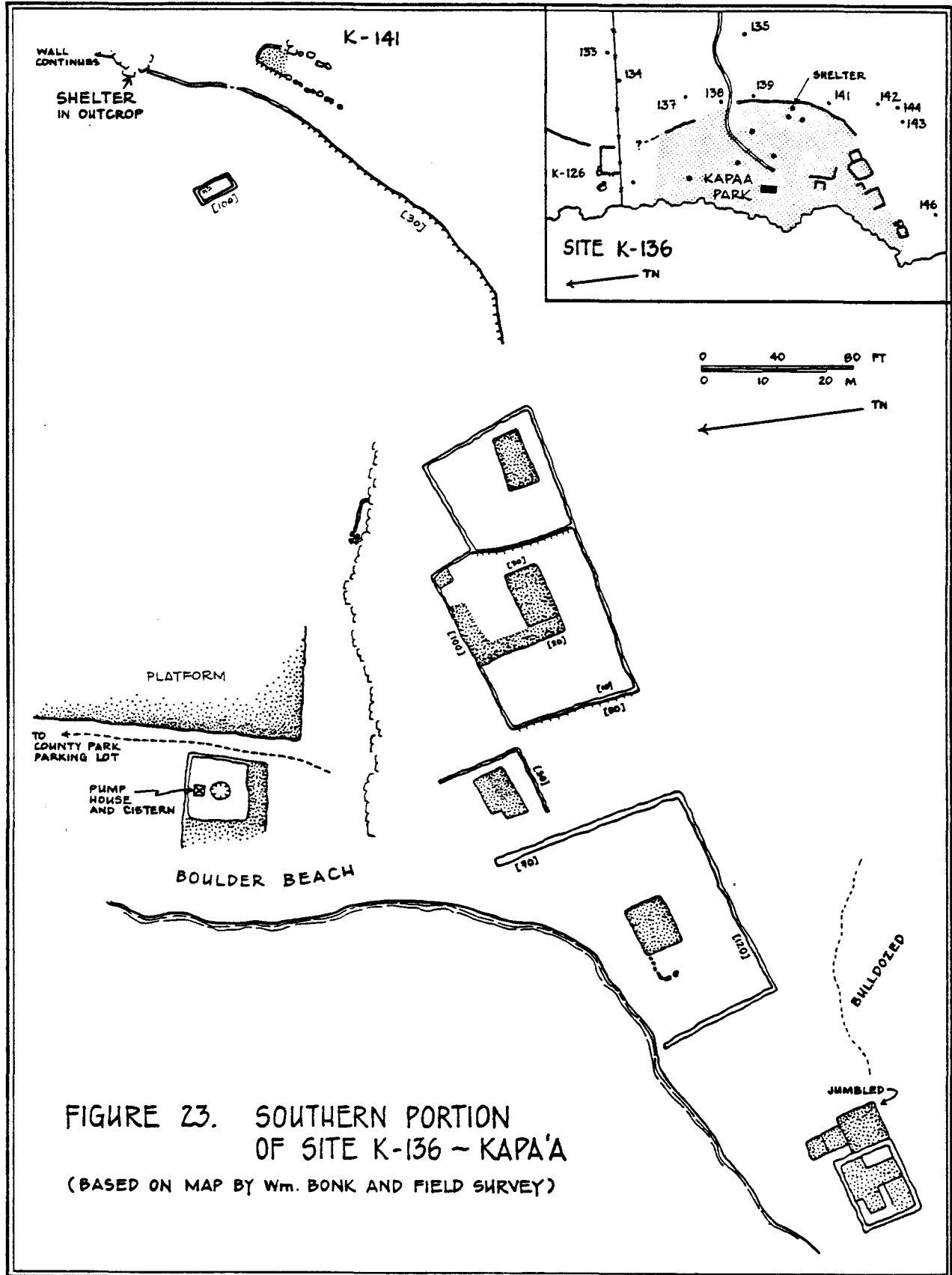
K-140: Burial complex of 11 platforms or rock piles, in an area of ca. 30 x 10 m. Located along S side of outcrop; features range in size from 1 to 4.5 m across.

K-141: Platform with adjacent C-shaped wall on mauka side. Built onto outcrop area about 5 x 14 m; located just mauka of the enclosing wall of K-136. This site is in a typical burial location, but its form is different from the typical burial platform; it may be a burial and/or a shrine.

*Although it was probably somewhat larger before the construction of Kapaa Park which appears to have destroyed part of the complex.

FIGURE 22. SITE K-126 (2315)
КАРИНАРИНА COMPLEX





Reference Area XVI: S of Kapaa Park

- K-142: Three burials of piled field cobbles. Located on the S side of a long outcrop which forms the N side of a gully leading into Kapaa Park; beach cobble found on the largest rock mound.
- K-143: Burial platform built against outcrop which forms the S side of the gully leading into Kapaa Park (see K-142). The burial, 2 x 5 m, 1 m high, is located on the S side of the outcrop.
- K-144: Shell scatter, ca. 10 m diameter. Located on N side of outcrop leading into Kapaa Park.
- K-145: C-shaped structure, 2 m across, 50 cm high. Built on top of outcrop.
- K-146: C-shaped structure, 3 m across. Built into boulder pile; located in kiawe S of K-136.

Reference Area XVII: Further S of Kapaa Park

- K-147: Ring of stacked cobbles, ca. 2 m across. Located on outcrop, just inland of the rocky beach S of K-136.
- K-148: Platform, 5 x 6 m. Roughly constructed of cobbles, uneven surface, no clear facings.
- K-149: Burial platform, 4 x 5 m. Built against slope of gully, on two levels (i.e. two interments), with a small stone pile adjacent which may be another burial.
- K-150: Fragment of stone structure, standing walls up to 1 m high from two sides of an L-shape, 3 m and 20 m long. Located on edge of cobble beach; scattered shell; may be remnant of canoe shed or rebuilding of an earlier structure. There are a number of structures in this area of the coast which have the superficial appearance of canoe sheds, but which may have been long, segmented habitation structures (see Figure 24). This site may be State Inventory site 2304.
- K-151: Rock pile, 5 x 10 m. Possible platform, but roughly constructed.
- K-152: Two enclosures, 2.5 x 3 m each, joined by a 1.5 m high wall; enclosure walls are 1 m high on the outside, while the interiors are filled to within 50 cm of the tops of the walls; walls are so wide there is little room within the enclosures; function unknown. This site is similar to three described in the State Inventory (2305, 2306, 2307) but is not in a location where any of these is mapped.
- K-153: Three adjoining enclosures. A small one (1.5 x 3 m) is built on top of an outcrop, the two larger ones are at the base of the outcrop; one is 7 x 20 m with a 1 m high, 1.5 m wide wall; the other, being destroyed by the action of the ocean, is 5 x 20 m. Located at the edge of a boulder beach.
- K-154: Elongated stone structure with partially collapsed walls, total area is 5 x 25 m. Site is composed of several units built together, not necessarily all at one time (see Figure 24). The coastal side is damaged, however, so the total pattern cannot be determined. There is a scatter of midden. This site is similar to a number of others along the coast S of Kapaa Park and may represent a regional variation of a habitation complex (multiple unit long house). This is probably State Inventory site 2305.
- K-155: Two rough stone piles; could be ahu or burials.
- K-156: C-shaped structure. Rough outline of rocks built on a boulder, with alignment across opening.
- K-157: Kapa'anui Complex. This habitation complex is unlike many of the others along this coast in that it has no enclosing wall; it does have one large enclosure. The complex does seem to form an integrated unit, even in the absence of the enclosing wall; it covers an area of ca. 12,000 square m, and includes several platforms and enclosures, some of which were identified in previous surveys as canoe sheds, but which may well be the multiple unit habitation structure described under site K-154. A notable feature of this site is a possible holua slide, traditionally associated with the activity and residence of chiefs (Figure 25).
- K-158: Roughly stacked wall forming enclosure and terrace, 10 x 12 m. Built on steep slope immediately mauka of K-157, and about 20 m below the railroad bed; scattered midden; probably housesite.

Reference Area XVIII: Kauili'i Point

- K-159: Enclosure, 5 x 11 m. Structure is in deteriorated condition; it is oriented perpendicular to the coast, with the mauka walls in the best condition, up to 1 m high; small enclosure, 1.5 x 3 m, abuts NE corner; function uncertain.
 - X: Jeep road used by fishermen comes to the coast at this point; the road is an offshoot of the old railroad bed, which is used as an access route from Kapaa Park to this turnout. The area along the coast is badly jumbled and the gulch area to the S is a dense jungle of kiawe and high grass. It was not well-surveyed, but sites in such terrain are unlikely.
- K-160: Several small windbreaks of recent construction.
- K-161: Low wall and rough platform edge, 6 m long. Located at edge of boulder beach.

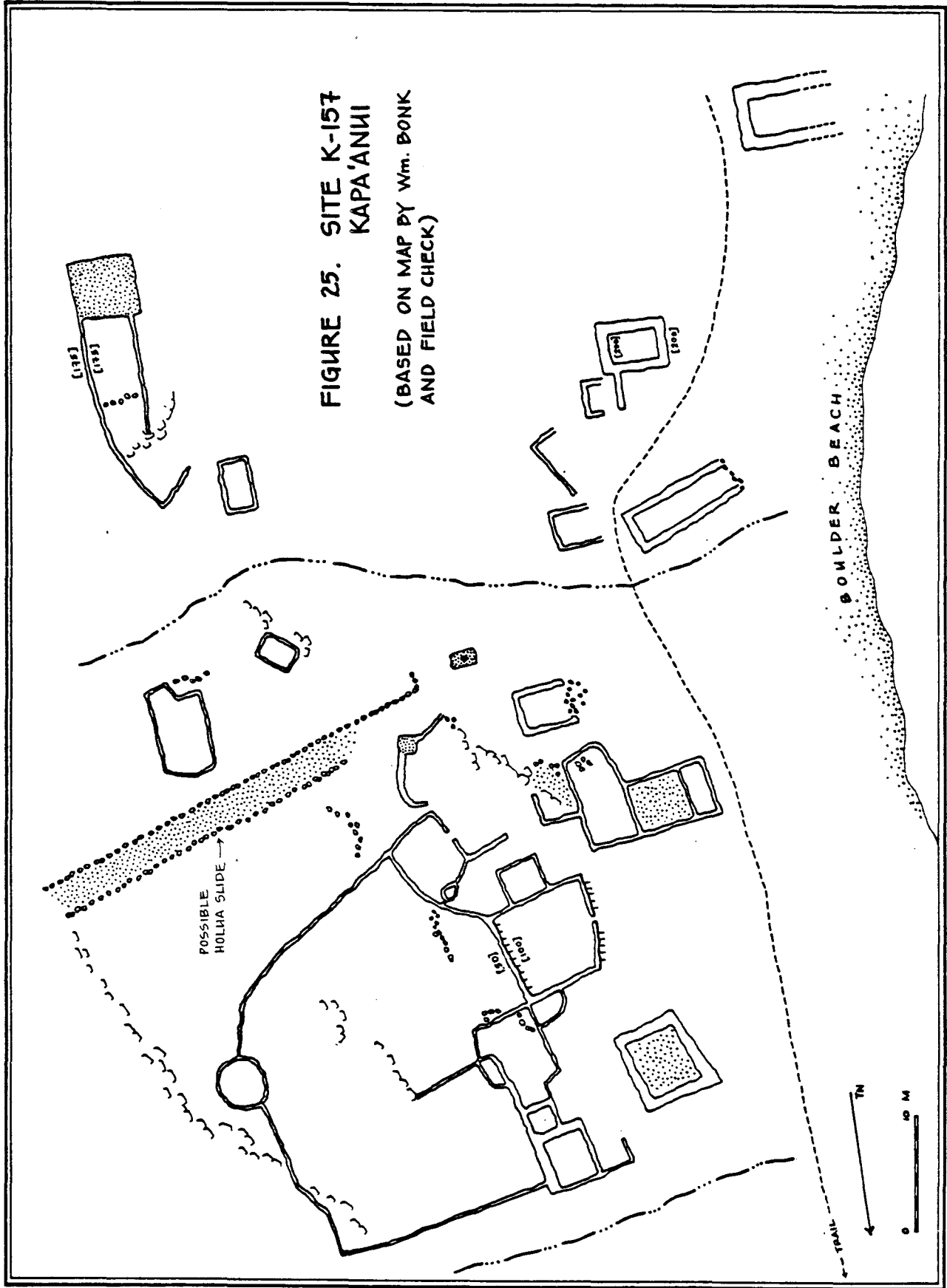


FIGURE 25. SITE K-157
KAPA'ANUI
(BASED ON MAP BY Wm. BONK
AND FIELD CHECK)

- K-162: Stone "cupboards" (small storage areas) built into outcrops. Two cupboards, one collapsed; constructed with corbelled slabbing; small rocks placed on top and in cracks of outcrop to form level surface.
- K-163: Stone alignment, 8 m. Located across slope wash in shallow gully; no others in vicinity.

Reference Area XIX: S of Kauili'i Point

- K-164: Fragment of a platform edge, 2.5 m. At edge of cobble beach.
- K-165: Small ahu built at edge of coast; boulder with small rocks piled around.
- K-166: Kauili'i Point Structure. Large, irregularly shaped rubble-filled platform and standing wall, ca. (2303) 20 x 50 m. Probably originally a habitation complex, but modified and deteriorated; suggested in State Inventory form that this was used as a WW II gun emplacement.
- K-167: Small ahu with upright in center, located at edge of coast; near location of ahupua'a border, but unlikely to have survived in this location if it were an old feature.
- K-168: Elongated stone structure, ca. 5 x 20 m, with partially collapsed walls. This site is very similar to ones previously described (e.g. K-152 and 154) as multiple unit habitation sets (see Figure 24). This is one of the structures in State Inventory site 2302; however, K-170 was also placed under this number. The sites are not related so they are separated in the present inventory.
- K-169: Beach curbing, 15 m long. Retaining wall is one stone high; piled stones at one end, forming a corner; function uncertain. A rough platform fragment is located 20 m to the S.
- K-170: Two small stone structures, each about 2 x 3.5 m. One is a U-shaped wall, the other an L-shaped structure with a "cupboard"; some scattered midden; habitation-related features. This is part of State Inventory site 2302, see comment under K-168.
- K-171: C-shaped structure, 1.5 m across. Located on steep slope makai of railroad bed.
- X: Fenceline.

Reference Area XX: Bluff above "Nishimura" Bay

- K-172: Two enclosures and a C-shaped structure (not mapped). Located just below edge of a high bluff overlooking the ocean, on N side of a new fenceline.
- K-173: Small circle of rock and a wooden pole anchored by wire; probably a USGS marker.
- K-174: Two-level platform, 15 x 15 m. Located on high bluff to N of "Nishimura" Bay. This site is rather strange in appearance; the basic platform is constructed of field cobbles, but there are 18 large (up to 1 m long) elongated beach boulders set upright over the structure. Portions of the site are disturbed and there is also a pile of barbed wire, metal rods, wood, and a fragment of concrete with "Mahukona" written on it. The historical disturbance is probably in part the result of USGS activity; this appears to be the Mahukona triangulation station.
- This site may have been an ahupua'a shrine. The platform and uprights have the appearance of the presumably early "marae-type" structures at places like the Mauna Kea adze quarry (although the uprights on those structures are of local stone). V. Hansen visited the site (1956) and refers to it as a heiau (disturbed by the Army). It is located very near the traditional border between the ahupua'a of Kamano and Kou. Further, before the railroad bed was cut through the rock in the cliff below this site, there would have been little chance that a Hawaiian trail was located there; thus, any coastal trail would probably have crossed near where this site is located (although no such trail was seen). However, the degree of disturbance leaves a number of unanswered questions about the nature of the structure.

- X: Steep cliff at coast; railroad bed cuts through to form trail.

Reference Area XXI: "Nishimura" Bay

- K-175: Enclosure, 4 x 5 m. Walls up to 1 m high; but age is uncertain.

Reference Area XXII: Inland of "Nishimura" Bay

- K-176: Platform and wall complex. The main feature is a platform in two levels, 4 x 8 m; the upper level is walled on two sides and has a coral and pebble floor, with a beach boulder upright in the middle; the lower level has a cobble fill. Extending off the NW corner is a dirt and pebble paved area, 4 x 6 m, with standing and retaining walls to the N, E, and W. There are 3 parallel wall foundations to the makai, 9 to 11 m long, 4 m apart; coral and midden on the surface.
- K-177: Shelter formed by outcrop, with wall, 8 m long, 50 cm high, built on leeward side, creating enclosed area 2 m wide; two, adjacent, low-walled enclosures, 2 x 2 m and 3 x 8 m, with 50 cm high walls.

K-178: Houselot. Square stone enclosure, walls 70 cm high; there is a low platform in the interior with an upright with shells at the base, possibly a house shrine; midden. A wall extends from the houselot into the adjacent gulch to the N and along the N side of the gulch. This may have been an animal pen or a boundary marker. There is also a small shelter at the base of the outcrop in the gulch.

X: The area from the S edge of Kamano to Mahukona harbor has been generally destroyed. The coastal flat was part of the trainyard; but all of this has been removed. On the slopes above is some historical trash but no distinct sites were identified.

Reference Area XXIII: Māhukona

K-179: Mahukona Harbor: The harbor is located on the W coast of the district approximately midway between (7149) the N point of the island and the district boundary at Waikā. Located on the sheltered lee side, this area has figured throughout Kohala's history as an access point into the district.

From its early beginnings as a Hawaiian canoe landing, Māhukona gradually developed into a port facility, utilized by district residents as a line of communication with Honolulu, San Francisco, and international ports, and by the sugar companies as a vehicle to markets for sugar. By the late 1800's when the railroad was completed, the harbor also served as the main offices of the railway company. Facilities included warehouses, offices, a store, and a restaurant; a school also operated in the area.

However, with the advent of World War II, the harbor was closed for security reasons, and was only briefly reopened after the war.

The remains of the harbor facilities lie in mute testament to the once busy activities. The office of the railroad company is presently used as a private residence. Concrete foundations and the wharf superstructure mark the locations of other offices and stores, warehouses and rail car structures.

In addition, there are the remains of the habitation areas of the Māhukona community, some of which may date back to the 19th century. Most of this material is located mauka of the County park access road where it crosses the gulch feeding into the harbor. Among these remains are a number of features which could also be prehistoric; they deserve further investigation.

Remains of late 19th century structures which were built when the railroad opened may also be present; these include a restaurant, a lodging house, a blacksmith shop, and a cattle pen. There were also "kueana" houselots in the area.

The habitation remains N of the harbor have been bulldozed (the area is presently used as a parking lot for the State Parks facility for Lapakahi).

The remains of this historical complex offer great potential for both research and interpretation.

Reference Area XXIV: Māhukona to Lapakahi

K-180: Shell scatter, 10 m diameter; in an isolated location at edge of gulch mauka of Mahukona.

K-181: Machine gun emplacement. This harbor fortification from WW II still includes the swivel mount and arm. It is built in a dirt and rock open bunker which may be a modified C-shaped structure; there is also a stone platform just makai.

K-182: Rubble piles and rough alignments at the edge of the sea cliff makai of the road from Mahukona to the lighthouse.

K-183: Two stone platforms. The larger is 4 x 8 m; it is roughly constructed of boulders with no clear facing and is built on a portion of an outcrop. Coral is scattered on the surface and there are several boulders which were probably salt pans. The other platform is 4 x 4 m, also roughly constructed, but has uprights in 3 corners. One piece of coral was on the surface. The jeep road from Mahukona to the lighthouse is immediately makai of the smaller platform.

K-184: Rock pile and a remnant wall, composed of field rock and waterworn stones; probably related to K-183.

K-185: Low pile of field rocks, 1 m across, filled with coral.

K-186: Cement foundation posts, immediately mauka of the Mahukona lighthouse access road, probably associated with lighthouse features.

K-187: Scatter of shell and coral, 15 m diameter.

K-188: Collapsed, small ahu.

K-189: Trail paralleling the coast, possibly prehistoric-early historic.

K-190: Enclosures and platform. The main structure is a cleared area defined by boulder alignments, 5 x 12 m; the makai wall is stacked, 50 cm high on the outside. There is a small feature, 3 x 10 m,

also of boulder alignments, leading of the NW corner of the main structure. A remnant dirt platform is adjacent to makai. Shell is scattered over the area.

- X: Coast Guard Lighthouse: an abandoned lighthouse is located a few meters to the north. This marks the beginning of the Lapakahi survey area.

Additional Sites in the Environmental Zone:

- 2245: Lapakahi Field System. Although this site is shown in the Inventory description as wholly within the borders of Lapakahi ahupua'a, it is, in fact, only a small part of the extensive leeward Kohala upland agricultural complex. The system extends in a broad swath from the northern end of the district to the southern boundary at Waikā; its mauka-makai limits correlate with the zone of optimum rainfall, i.e. the lower edge approximates the 20" isohet, with the upper boundary falling between the 40" and 60" rainfall contours.

Within the area of the present survey, it exists only in the northern section; K-47 is probably a part of this complex.

- 2328: Mo'okini Heiau. One of the most important structures in the Hawaiian Islands, this impressive temple is located in the ahupua'a of Pu'uepa on the NW coast of the district. It is currently under the administration of the Division of State Parks. It is a striking landmark on the coastal plain, although the area around it unfortunately has been destroyed for cane cultivation. It measures 140 by 280 feet, with massive walls from 5 to 15 feet high, perhaps once over 20 feet high (Fornander 1969: 36). They enclose an open area marked by several internal walls and platforms; walls and enclosures about the exterior W wall. For archaeological details, see Loo and Bonk 1970: 34-38.

There is a wealth of information about this site, too great to present here; but its significance can be expressed in several regards. In 1832, it was referred to as perhaps the most famous temple in the islands for human sacrifice (Alexander 1953: 50), and in 1853, it was described as a place of refuge, a temple so old "that Night helped the priest raise the temple: Na ka po i kukulu ae ia Mokini, a na Paao nae" (Remy 1858: 231).

Legends indicate this priest was Paao, a foreigner, but, in effect, a culture hero who brought radical changes to the religion and politics of Hawai'i in the early centuries of this millenium. Captured in the stories of Paao and expressed in the material form of the temple is the dramatic recognition by ancient Hawaiian historians of the increasing social and political complexity of their culture (although the processes involved in this change, e.g. evolution, conquest, remain unclear). In one story, Paao's bones are said to be buried in a cave of Pu'uepa (Beckwith 1970: 372).

The pamphlet prepared for distribution at the heiau indicates that the temple was constructed in AD 480. However, most sources date the construction by Paao to the 11th or 12th centuries (by genealogical count). Paao's construction could, of course, have been a rebuilding of an older temple.

As is the case with most Hawaiian heiau, Mo'okini could have been rebuilt several times. It is said that it had been rebuilt by Alapai-nui, an ancestor of Kamehameha (Fornander 1969: 38), and there is also information that Kamehameha rededicated Mo'okini, making it the primary war temple of North Kohala (National Park Service 1962: 88).

A curious comment by Fornander (1969: 53) should be noted:

There was, doubtless, a Heiau in Puuepa, Kohala, near the shore, called Mookini, the ruins of which still remains, but it was much older than the one which Paao built, and probably gave its name to the latter.

This may be read in various ways, but it suggests that there was another heiau near the one now called Mo'okini.

There are other traditions concerning the construction of this temple. One account makes an association with a companion of Moikeha, the priest Mo'okini (see Section I, page 9); Fornander (1969: 53), however, questions the implied relationship between the priest Mo'okini and the heiau. Another account attributes the construction to Hikapoloa, who built it "after the great burning of the land by Kalaikini" (Kalakaua Genealogical Society 1882). Hikapoloa is mentioned as the chief of Pu'uepa and Hukia'a in the legend of Kaulanapoki'i (Fornander 1916: 560-568); it is also the name of a coastal cave, as well as a place along the present highway, in the area.

In several accounts, the stones used in the construction are said to come from Poloju. Either men or menehune formed a single line from the windward valley to Pu'uepa and the rocks were passed from hand to hand.

The legendary association with Pa'ao provides a place in the island history. This heiau was the second which Pa'ao designed; the first was Waha'ula at the southern end of the island. Together, they may symbolize the environmental separation of the leeward and windward sides of the island which figured in the political successions of the Hawaiian ali'i in later centuries. The association with the priest Mo'okini provides a district context through the family which presently claims stewardship of the heiau. The interpretive value of the structure could be enhanced by this duality.

*Translation of text: "A ma ka mana'o o kekahi po'e na Hikapoloa no i kukulu i ua Heiau la mamua aku o ke pani ana o Kalaikini i na puhi o na 'aina."

- 2329: Kamehameha Birthsite. In referring to the birthsite, writers frequently mention that several places in Kohala are noted as the birthsite. However, as Silverman notes (DLNR 1972: 33), traditional Hawaiian historians cite Kokoiki as the locale; so the present site, accepted in Kohala today, seems reasonable, at least as being within the vicinity where the event took place.

Kenneth Emory visited the area in 1924 and he was then shown two places in Kokoiki related to the birth, the first was said to be where the birth was first attempted and the second where the delivery actually occurred (Judge Moses Mahelona, in Emory 1924).

In the birth story, it was said that the infant was taken to a coastal cave named Hikapoloa, the same name as that of an upland 'ili in Kokoiki, of an area mauka of Mo'okini where the makahiki god was taken (Beckwith 1970: 370), and of the chief mentioned in a Mo'okini heiau account. This may also relate to the persistent stories of a cave at Mo'okini; although this cave could be a confusion with a crypt in the heiau (Fornander 1969: 36).

The judge also told Emory that there was a shark god on a point below the heiau, and that there were two sets of boulders in the vicinity of Mo'okini and Kokoiki. The stones of one set were called Pohaku Waiwai (stone of prosperity) and Pohaku Ilihune (stone of poverty). Travelers guessed which to sit on for good luck in a version of economic Hawaiian roulette.

The other two stones were called Pohaku Ho'oulu'ai (stone of increase) and Pohaku Mahina (moon stone). The stone of increase leaned into the sea; if seaweed was found on the Maui side, this indicated that food was abundant on Maui; if seaweed was on the Kona side, then food was abundant in Kona. The moon stone was said to have been brought by Paao from Kahiki.

To the north is another rock with a carved fishhook, called Manaia-ka-lani, which menehune unsuccessfully attempted to use to drag Maui to Hawaii (see Beckwith 1970: 370, for references to various stones of Paao).

- 4143: Kukuipahu Heiau. This complex and impressive heiau, noted for its cut stone construction and raised carvings, is located in upland Kukuipahu, at approximately 900 ft above sea level. It is 90 x 135 ft, and has multiple terraces descending from a main platform. One Kohala resident is said to remember high stone walls around the structure. It is seen by some archaeologists as having affinities with temples of east-central Polynesia.

Although this heiau is generally identified as Kukuipahu, there is a good possibility that its traditional name is Ku'upapaulau. A heiau by this name is mentioned by Remy (1858) as being located in upland Kukuipahu; this name is also that of an 'ili of Kukuipahu (see Appendix 2, Kukuipahu Land Disposition). Other than providing the original name, Remy's identification is also of value in that he lists this as one of the four most important heiau in North Kohala, the other three being Kuapalaha on the windward side, Mo'okini, and Alaikamahina in lowland Kukuipahu (possibly K-70).

It is also suggested that this is the temple associated with an ancient priest named Kamapi'ikai (DLNR 1972: 32; P. Hooten, pers. comm.), who was described to Ellis as he passed near the vicinity of Kukuipahu ahupua'a (Ellis 1969: 394). Kamapi'ikai was called a "priest of a temple in Kohala, dedicated to Kanenuiakea", and was famous for making several voyages to Tahiti. The possibility of association with the east-central Polynesian style temple is intriguing in this regard.

The site is presently protected by a wire fence and extremely thick vegetation. Access is limited by private ownership.

The location of this temple in an ahupua'a that may have figured considerably in the district's history (see Section I, page 15) and the possibilities for east-central Polynesian connections add a significance beyond that of its unique construction style. Research at the heiau is critically important for answering a number of questions about Hawaiian prehistory in general, not just that of Kohala, and not the least of which is the problem of contacts with east-central Polynesia. However, any such research would have to be surgical in quality, supported by a well-thought research problem statement and research design, and conducted with the thought of public presentation of the structure in mind. Therefore, it is advised that a clearcut management and preservation plan be devised before any kind of activity be allowed.

- 7196: Kohala Ditch. This important engineering structure, still functioning, originates in the windward Kohala valleys and is described in detail in the chapter under that heading. However, it is mentioned here because, although it is associated with the windward side, it was, in fact, constructed to bring water to the northern and leeward fields. It was instigated by the maverick sugar planter, John Hind, for his Hawi Mill operations. The project received no support from other planters until the water was available for their use (Hansen 1963).

The descriptions for the following archaeological areas are summarized from Bonk 1968 and Schilt and Sinoto 1980.*

- Waikā to Makiloa: A total of 68 sites were located in this coastal area. It includes examples of house enclosures and platforms, shelter areas and campsites, burials, heiau, canoe sheds, and animal pens. Of note is the settlement around Waiakailio Bay; it was also mapped by P. Hooten in 1953, showing an old windmill, a walled-in spring, five house platforms, a small enclosure, a canoe shed, and a possible canoe landing. An ahu was located at the boundary between Kahuā and Pahinahina.
- Kehena 2: A total of 15 discrete sites and eight clusters were identified. These included enclosures, platforms, C-shaped and U-shaped structures. No functional interpretations were made.
- Kaupalaoa: Seven discrete sites and six clusters were identified. These included enclosures, C-shaped structures, alignments, and an ahu. Again, no functional interpretations were made.
- Kaiholena: A total of 270 sites were located and mapped in this area. A tentative formal classification describing 22 site types was devised. The most frequently represented site types were ahu, C-shaped structures, enclosures, platforms, and multi-type compound structures. Sites occurred in a dense, continuous pattern from the shoreline to the 100 ft elevation.
- Lamaloloa: Two discrete sites and seven clusters were identified in this area. No functional interpretations were made.

There are several historical sites, not reported in the State Inventory, which are included here.

The old upland Mahukona-Hawi road (in its later history called Maliu Road). This was probably constructed in the 1840s, but full historical research has not been conducted to allow verification. This road passes Kukuipahu heiau. There were plantation camps beside it around the turn of the century. Sometime before 1913, the section from the plantation camps fell into disuse in favor of a "new" lowland Mahukona-Hawi road (see below). Portions of the road exist today and on a section leading to Kukuipahu Heiau massive stone facings were observed where a berm is built across a gulch.

The old lowland Mahukona-Hawi road. This road was probably built around 1900 and became the main route from the harbor to the windward side. This route has been rebuilt several times, but what are thought to be portions of the original, with stone facings, can be seen adjacent to the present Mahukona-Hawi road.

Puu o Nale (not visited). In the history of the geographic survey of the area, beginning in the mid-1800s, this hill served as the primary triangulation station. Pu'uonale is also the name of a legendary ruling chief of Kohala (Beckwith 1970: 516).

Plantation camps (not visited). Two camps, known as Bryant Camp and Maliu Camp, were located in the upland Kukuipahu area, at the end of the Kohala Ditch and near the old upland Mahukona-Hawi road. They were not visited and it is not known if there are any remains.

*Bonk carried out detailed site description and mapping for the 1.5 mile stretch between Waikā and the northern border of Makiloa, but with the realization that continued detailed survey would not allow completion of his study, he simplified his field method for the area N of Makiloa. Only the results of the initial survey are described here.

Significance of the Leeward Coast Cultural Resources

The remarkably rich archaeological and historical remains along the leeward coast include materials from pre-Contact Hawaii, 19th century indigenous occupation, historical transportation facilities, and World War II military use. The sites reflect a wide range of pre-Contact and historical activities habitation, agriculture, and commerce. The remains along this coastline have excellent research potential, good possibilities for public display and education, and are probably valuable from a cultural standpoint.

Research Potential

It is probable that most of the shrines, many platforms, and portions of the agricultural fields are pre-Contact and have great research potential. And as the work at Lapakahi has shown there are undoubtedly extensive subsurface deposits which can yield abundant data about Hawaii prior to AD1778. However, the strongest case for research potential rests on the remarkable remains of 19th century Hawaiian habitation and associated agricultural fields. The quantity and density of historical features and artifacts and the variety in size, form, and complexity of settlements and burials suggest exceptional potential for the long-neglected archaeological study of historical Hawaiian cultural change. This theme can also be maintained in the analysis of the agricultural systems which certainly span the pre-Contact and historical periods and exhibit much technological variation.

The 19th century change in Kohala included not only the internal effects of Western con but also the direct intrusion of the Western culture. This change is captured in the valuable remains at Honoipu and Mahukona where landings, harbors, railroad facilities, and Western habitation are mixed with the Hawaiian settlements which were also concentrating in these two areas. For example, an 1881 map of Mahukona shows kuleana areas and Hawaiian houses mixed with the Western structures of the new harbor facilities.

There are few places in the State where such a rich set of sites can be found representing the drastic changes which the Hawaiian population underwent in the 120 years after Western contact.

Public Interpretation

The sites of the leeward coast are in excellent condition

and many are visually impressive. The Hawaiian sites can be all the more dramatic for public presentation and education with information about their origin in the context of 19th century turmoil. Lapakahi and Mo'okini are ideal endpoints for the public interpretation of the Hawaiian occupation of the coast. Comparably, Mahukona and Honoipu are endpoints for the 19th and early 20th century Western occupation. The visually striking remains of the railroad bed physically tie these two areas together and the total historical complex tells the story of commercial Kohala in a dramatic manner.

Although of secondary importance, the World War II remains add a footnote to the history of the area which would be of general public interest and also define the end of the commercial importance of this coastline.

Cultural Value

Little information has been obtained on current cultural significance of the area, but it is probably rather high, given the number of legends associated with the area, the story of Kamehameha's birth, and the number of Hawaiian burials and shrines which are present. Furthermore, there are ties of Kohala people today to portions of the area. Several families have members who lived at Mahukona, Mo'okini, or Honoipu (cf. Switzer and Schontell 1977).

Appendix 1.

TABLE OF SITE CONCORDANCE

ENVIRON- MENTAL ZONE	SITE #	TYPE	AHUPUA'A	TAX MAP KEY	LCA AND GRANTS	STATE SITE #	PREVIOUS SITE #
Windward Valleys	4800	Chinese settlement complex	Pololū	5-1-02-15, 17	LCA 10442:2, 10581:1		
	4801	Exposed deposit	Pololū	5-1-02-14	LCA 10581:1		
	4802	House site	Pololū	5-1-02-15, 17	---		
	4803	House site (historical)	Pololū	5-1-02-15, 17	Gr. 11057		
	4804	Ho'olonopahu Heiau	Pololū	5-1-02-15, 17	Gr. 11057		
	4809	Hab/agric complex	Honokāne	5-1-01-4, 12	LCA 7713:3, 8030		
	4810	Hab/agric complex	Honokāne	5-1-01-4, 7, 8, 10	LCA 8695, 8814-B, 8897; Gr. 11:1		
	4824	Terraces	Honokāne	5-1-01-4	LCA 7713:3		
	4825	Terraces	Honokāne	5-1-01-4	LCA 7713:3		
	4826	Wall fragments	Honokāne	5-1-01-4	LCA 7713:3		
	4827	Terraces	Honokāne	5-1-01-4	LCA 7713:3		
	4828	Terraces	Honokāne	5-1-01-4	LCA 7713:3		
	4829	Agric. complex	Honokāne	5-1-01-4	LCA 7713:3		
	4830	Terrace remnants	Honokāne	5-1-01-4	LCA 7713:3		
	4831	Terrace remnants	Honokāne	5-1-01-4	LCA 7713:3		
	4832	Terraces	Honokāne	5-1-01-4	LCA 7713:3		
	4833	Platform	Honokāne	5-1-01-4	LCA 7713:3		
	4849	Construction camp	Pololū	5-1-01-5	---		
	4850	Terraces	Pololū	5-1-01-5	---		
	4851	Terraces	Pololū	5-1-01-5	---		
	4852	Hab/agric complex	Pololū	5-1-01-5	---		
	4853	Terraces	Pololū	5-1-01-5	---		
	4854	Agric complex	Pololū	5-1-01-5	---		
	4855	Terraces	Pololū	5-1-01-5	---		
	4857	Terraces	Pololū	5-1-01-5	---		
	4858	Terrace dams	Pololū	5-1-01-5	---		
4859	Terraces	Pololū	5-1-01-5	---			
4860	Mule pens	Pololū	5-1-01-5	---			

ENVIRON- MENTAL ZONE	SITE #	TYPE	AHUPUA'A	TAX MAP KEY	LCA AND GRANTS	STATE SITE #	PREVIOUS SITE #
Windward Valleys	4870	Hab/agric complex	Pololū	5-1-01-5	---		
	4874	Agric complex	Honokāne	5-1-01-4	LCA 7713:3		
	4875	Agric complex	Honokāne	5-1-01-4	LCA 7713:3		
	4876	Terraces	Honokāne	5-1-01-4	LCA 7713:3		
	4877	Agric complex	Honokāne	5-1-01-4	LCA 7713:3		
	4878	Wall	Honokāne	5-1-01-4	LCA 7713:3		
	4879	Terraces	Honokāne	5-1-01-4	LCA 7713:3		
	4880	Hab site	Honokāne	5-1-01-4	LCA 7713:3		
	4881	Agric complex	Honokāne	5-1-01-4	LCA 7713:3		
	4882	House site (historical)	Honokāne	5-1-01-4	LCA 7713:3		
	4896	Agric complex	'Āwini	5-1-01-2	Gr. 2497		
	4897	Hab area (historical?)	'Āwini	5-1-01-3	Gr. 4488		
	4916	Exposed deposit	Pololū	5-1-02-15, 17	Gr. 11057		
	4917	Exposed deposit	Pololū	5-1-02-15, 17	Gr. 11057		
	4919	Terraces	Pololū	5-1-02-15, 17	Gr. 11057		
	4920	Exposed deposit	Honokāne	5-1-01-16	LCA 7713:3		
	4921	Structures	Honokāne	5-1-01-16	LCA 7713:3		
	4922	Hab/agric complex	Honokāne	5-1-01-16	LCA 7713:3		
	4923	Structures	Honokāne	5-1-01-16	LCA 7713:3		
	4930	Pololū Dune	Pololū	5-1-02-14, 15, 17	LCA 10851:1, Gr. 11057		
	4939	Agric complex/ Ditch cabins	Honokāne	5-1-01-4	LCA 7713:3		
	4940	Paving	Honokāne	5-1-01-17	LCA 7713:3		
	4941	Boulder facing	Honokāne	5-1-01-17	LCA 7713:3		
	4942	Cobble facing	Honokāne	5-1-01-17	LCA 7713:3		
	4943	Cobble facing	Pololū	5-1-01-5	---		
	4944	Pebble facing	Pololū	5-1-01-5	---		
	4945	Terraces	Pololū	5-1-01-5	---		
	4946	"Fortifica- tion"	Pololū	5-1-01-5 or 19			

ENVIRON- MENTAL ZONE	SITE #	TYPE	AHUPUA'A	TAX MAP KEY	LCA AND GRANTS	STATE SITE #	PREVIOUS SITE #
Windward Kula Gulches	WK-1	Surface artifacts	Waiapuka	5-1-01-6/ 12	LCA 7712:2		
	WK-2	Terrace	Waiapuka	5-2-01-46	LCA 8713		
	WK-3	Platform	Waiapuka	5-2-05-1	LCA 10856		
	WK-4	Waiapuka Tunnel	Waiapuka	5-2-02-3	LCA 511:1	2336	
	WK-5	Concrete & stone foundation	Waiapuka	5-2-02-6	LCA 511:1		
	WK-6	Terraces	Waiapuka	5-2-02-4	LCA 8898		
	WK-7	St. Louis Church	Waiapuka	5-2-02-7	LCA 7712:2		
	WK-8	Enclosure	Makani- kahio 2/ 'Au'au	5-2-02-3	Gr. 1101		
	WK-9	Agric complex	Waiapuka	5-2-02-3/ 5-2-05-5	LCA 7712:2		
	WK-10	Kuapālahā Heiau	Makapala	5-2-01-14	---	2421	
	WK-11	Boulder area	Hālawā	5-3-07-10	Gr. 656		
	WK-12	Stone foundation	Hālawā	5-3-07-10	Gr. 656/ 1957		
	WK-13	Exposed deposit	Hālawā	5-3-07-10	Gr. 657		
	WK-14	Boulder alignment	Hālawā	5-3-07-10	Gr. 657		
	WK-15	Hale o Kaili Heiau	Hālawā	5-3-07-10	Gr. 651		
	WK-16	Hab/agric complex	Niuli'i	5-2-01-8	---		
	WK-17	Agric complex	Makapala	5-2-01-16	8859-B:2		
	WK-18	Agric complex	Makapala	5-2-01-16	Lunalilo Est.		
	WK-19	Agric complex	Makapala	5-2-01-16 (?)	Lunalilo Est.		
	WK-20	Agric complex	Makapala	5-2-01-14	LCA 8683		
	WK-21	Platform	Makapala	5-2-01-16	Lunalilo Est.		
	WK-22	Agric complex	'A'amakāō	5-3-07-10	---		
	WK-23	Agric complex	'A'amakāō	5-3-07-10	---		
	WK-24	Hab/agric complex	'A'amakāō	5-3-07-4	8678		
	WK-25	Hālawā Gulch	Hālawā	multiple	multiple LCA; Gr. 660, 661		
Leeward Coast	K-1	Railroad bed	multiple	multiple	---		
	K-2	Concrete foundation	Hukia'a	5-5-06-4	---		

ENVIRON- MENTAL ZONE	SITE #	TYPE	AHUPUA'A	TAX MAP KEY	LCA AND GRANTS	STATE SITE #	PREVIOUS SITE #
Leeward Coast	K-3	Exposed deposit	Kokoiki	5-5-05-4	Gr. 2508		
	K-4	Structure remnant	Kokoiki	5-5-05-4	Gr. 2508		
	K-5	Surface artifact	'Upolu	5-5-06-24	---		
	K-6	Stone facing	'Upolu	5-5-06-56	Gr. 5089		
	K-7	Complex	Honoipu	5-5-06-24	Gr. 786	7012 (?)	
	K-8	Agric complex	Honoipu	5-5-06-24	Gr. 786		
	K-9	Enclosure	Honoipu	5-5-06-24	Gr. 786		
	K-10	Agric remnants	Honoipu	5-5-06-24	Gr. 786		
	K-10a	Field alignments	Honoipu	5-6-01-26	LCA 10154		
	K-11	Wall remnant	Honoipu	5-5-06-24	Gr. 786		
	K-12	Hab complex	Honoipu	5-5-06-24	Gr. 786		
	K-13	Enclosure	Honoipu	5-5-06-24	Gr. 786		
	K-14	Field alignment	Honoipu	5-5-06-24	Gr. 786		
	K-15	Platform	Honoipu	5-6-01-24	Gr. 786		
	K-16	Enclosure remnant	Honoipu	5-6-01-24	Gr. 2576		
	K-17	Platform remnant	Honoipu	5-6-01-24	Gr. 2576		
	K-18	Historical debris	Honoipu	5-6-01-24	Gr. 2576		
	K-19	Historical debris	Honoipu	5-6-01-24	Gr. 2576		
	K-20	Cistern	Honoipu	5-6-01-24	Gr. 2576		
	K-20a	Field alignments	Honoipu	5-6-01-24	Gr. 2576, 744		
	K-21	Honoipu Landing	Honoipu	5-6-01-24	Gr. 2576	7012	
	K-22	Ahu	Honoipu	5-6-01-24	Gr. 786		
	K-23	Field alignments	Honoipu	5-6-01-24	Gr. 2576		
	K-24	Wall	Puakea/ Honoipu	5-6-01-24	Gr. 2576, 744		
	K-25	Hab remnants	Puakea	5-6-01-24	Gr. 744		
	K-26	Platform	Puakea	5-6-01-24	Gr. 744		
	K-27	"Honoipu Rock Gardens"	Puakea	5-6-01-24	Gr. 744	4143	
	K-28	C-shape	Puakea	5-6-01-24	Gr. 744		
	K-29	Field alignments	Puakea	5-6-01-24	Gr. 744		
	K-30	Field alignments	Puakea	5-6-01-24	Gr. 744		
	K-31	Wall	Puakea	5-6-01-24	Gr. 744		
	K-32	Boulder alignment	Puakea	5-6-01-24	Gr. 744		

ENVIRON- MENTAL ZONE	SITE #	TYPE	AHUPUA'A	TAX MAP KEY	LCA AND GRANTS	STATE SITE #	PREVIOUS SITE #
Leeward Coast	K-33	C-shape	Puakea	5-6-01-24	Gr. 744		
	K-34	Cleared areas	Puakea	5-6-01-24	Gr. 745		
	K-35	Hab/possible burials	Puakea	5-6-01-24	Gr. 1550		
	K-36	Habitation	Puakea	5-6-01-24	Gr. 1550		
	K-37	Enclosing wall complex	Puakea	5-6-01-24	Gr. 745, 1549, 1550	4144 (part)	
	K-38	Burial platforms	Puakea	5-6-01-24	Gr. 745		
	K-39	Enclosure	Puakea	5-6-01-24	Gr. 1550		
	K-40	Concrete posts	Puakea	5-6-01-24	Gr. 1550		
	K-41	Enclosure	Puakea	5-6-01-24	G4. 1550		
	K-42	Enclosure	Puakea	5-6-01-24	Gr. 1550		
	K-43	Hab/burial complex	Puakea	5-6-01-24	Gr. 1550	4142	
	K-44	Enclosing wall complex	Puakea	5-6-01-24	Gr. 1550	2323 (part)	F14-1 (part)
	K-45	Houselot	Puakea	5-6-01-24	Gr. 1549, 1550		
	K-46	Platform	Puakea	5-6-01-24	Gr. 1550		
	K-47	Agric complex	Puakea/ Kukuipahu	5-6-01-18	LCA 8697, 11216; Gr. 1549		
	K-48	Alignments	Kukuipahu	5-6-01-18	LCA 8697; Gr. 1549		F13-7
	K-49	Burial complex	Kukuipahu	5-6-01-18	LCA 11216		
	K-50	Field alignment	Kukuipahu	5-6-01-18	LCA 11216		
	K-51	Hab/agric complex	Kukuipahu	5-6-01-18	LCA 8697, 11216	2321 (part)	
	K-52	Platforms	Kukuipahu	5-6-01-18	LCA 11216		
	K-53	Enclosing wall complex	Kukuipahu ('ili of Lahunui)	5-6-01-18	LCA 11216, Gr. 751		F13-6 (part)
	K-54	Rock pile	Kukuipahu	5-6-01-18	LCA 11216		
	K-55	Houselot	Kukuipahu	5-6-01-18	LCA 11216		
	K-56	Possible habit.	Kukuipahu	5-6-01-18	LCA 11216		
	K-57	Field alignments	Kukuipahu	5-6-01-18	LCA 11216		
	K-58	Bunker	Kukuipahu	5-6-01-18	LCA 11216		
	K-59	Enclosure	Kukuipahu	5-6-01-18	LCA 11216		
	K-60	Platform	Kukuipahu	5-6-01-18	LCA 11216		

ENVIRON- MENTAL ZONE	SITE #	TYPE	AHUPUA'A	TAX MAP KEY	LCA AND GRANTS	STATE SITE #	PREVIOUS SITE #	
Leeward Coast	K-61	Rock piles	Kukuipahu	5-6-01-18	LCA 11216			
	K-62	Burial complex	Kukuipahu	5-6-01-18	Gr. 751			
	K-63	Platform	Kukuipahu	5-6-01-18	Gr. 751			
	K-64	Structure remnants	Kukuipahu	5-6-01-18	LCA 11216			
	K-65	Target	Kukuipahu	5-6-01-18	LCA 11216			
	K-66	Cobble outline	Kukuipahu	5-6-01-18	LCA 11216			
	K-67	Cobble pile	Kukuipahu	5-6-01-18	LCA 11216			
	K-68	Houselot	Kukuipahu	5-6-01-18	LCA 11216			
	K-69	Structures	Kukuipahu	5-6-01-18	LCA 11216			
	K-70	Houselot	Kukuipahu	5-6-01-18	LCA 11216			
	K-71	Platform	Kukuipahu	5-6-01-18	LCA 11216		F13-5(?)	
	K-72	Shell scatter	Kukuipahu	5-6-01-18	LCA 11216			
	K-73	Possible burial	Kukuipahu	5-6-01-18	LCA 11216			
	K-74	Bunker	Kukuipahu	5-6-01-18	LCA 11216			
	K-75	Enclosing wall complex	Kukuipahu	5-6-01-18	LCA 11216		2320 (part)	F13-4(?)
	K-76	Enclosure	Kukuipahu	5-6-01-18	LCA 11216			
	K-77	Burial complex	Kukuipahu	5-6-01-18	LCA 11216			
	K-78	Enclosure	Kukuipahu	5-6-01-18	LCA 11216			
	K-79	Enclsoure	Kukuipahu	5-6-01-18	LCA 11216			
	K-80	Structure remnants	Kukuipahu	5-6-01-18	LCA 11216			
	K-81	Enclosure	Kukuipahu	5-6-01-18	LCA 11216			
	K-82	Enclosure	Kukuipahu	5-6-01-18	LCA 11216			
	K-83	Platform remnant	Kukuipahu	5-6-01-18	LCA 11216			
	K-84	C-shape	Kukuipahu	5-6-01-18	LCA 11216			
	K-85	Enclosure	Kukuipahu	5-6-01-18	LCA 11216			
	K-86	Hab/agric complex	Kukuipahu	5-6-01-18	LCA 11216			
	K-86a	Ahu	Kukuipahu	5-6-01-18	LCA 11216			
	K-87	Hab complex	Kukuipahu	5-6-01-18	LCA 11216			
	K-88	Paved structure	Kukuipahu	5-6-01-18	LCA 11216			
	K-89	Enclosure	Kukuipahu	5-6-01-18	LCA 11216		2318	F13-3(?)
	K-90	Platform	Kukuipahu	5-6-01-18	LCA 11216			
	K-91	Burials	Kukuipahu	5-6-01-18	LCA 11216			
K-92	Trail remnant	Kukuipahu	5-6-01-18	LCA 11216				

ENVIRON- MENTAL ZONE	SITE #	TYPE	AHUPUA'A	TAX MAP KEY	LCA AND GRANTS	STATE SITE #	PREVIOUS SITE #
Leeward Coast	K-93	Trail remnant	Kukuipahu	5-6-01-18	LCA 11216		
	K-94	Trail	Kukuipahu	5-6-01-18	LCA 11216		
	K-95	Enclosing wall complex	Kukuipahu	5-6-01-18	LCA 11216	2317	F13-2(?)
	K-96	Ahu	Kukuipahu	5-6-01-18	LCA 11216		F13-1(?)
	K-97	Terrace alignments	Kukuipahu	5-6-01-18	LCA 11216		
	K-98	Boundary line and trail	Kukuipahu- Awalua	5-6-01-18	LCA 11216, gr. 2127		
	K-99	Horse trail	Awalua	5-6-01-18	Gr. 2127		
	K-100	Discarded no.	---	---	---		
	K-101	Enclosure	Awalua	5-6-01-18	Gr. 2127		
	K-102	Abandoned wagon	Awalua	5-6-01-18	Gr. 2127		
	K-103	Ahu	Awalua	5-6-01-18	Gr. 2127		
	K-104	Platform	Awalua	5-6-01-18	Gr. 2127		
	K-105	Enclosing wall complex	Awalua	5-6-01-18	Gr. 2127	2311	F12-2, 3,4,5
	K-106	Burial platform	Awalua	5-6-01-18	Gr. 2127		
	K-107	Burial platform	Awalua	5-6-01-18	Gr. 2127		
	K-108	Enclosures	Awalua	5-6-01-18	Gr. 2127		
	K-109	C-shape	Awalua	5-6-01-18	Gr. 2127		
	K-110	Complex	Awalua	5-6-01-18	Gr. 2127		
	K-111	Stone outline	Awalua	5-6-01-18	Gr. 2127		
	K-112	Enclosure	Awalua	5-6-01-18	Gr. 2127		
	K-113	C-shape	Awalua	5-6-01-18	Gr. 2127		
	K-114	Trail	Awalua	5-6-01-18	Gr. 2127		
	K-115	Enclosures	Awalua	5-6-01-18	Gr. 2127		
	K-116	Trail remnant	Awalua	5-6-01-18	Gr. 2127		
	K-117	C-shape	Awalua	5-6-01-18	Gr. 2127		
	K-118	Enclosure	Awalua	5-6-01-18	Gr. 2127		
	K-119	Enclosure	Awalua	5-6-01-18	Gr. 2127		
K-120	Burial platforms	Awalua	5-6-01-18	Gr. 2127			
K-121	Enclosures	Awalua	5-6-01-18	Gr. 2127			
K-122	Platform	Hā'ena	5-6-01-18	Gr. 2583			
K-123	Burial complex	Hā'ena	5-6-01-18	Gr. 2583			
K-124a	Trail	Hā'ena	5-6-01-18	Gr. 2583			

ENVIRONMENTAL ZONE	SITE #	TYPE	AHUPUA'A	TAX MAP KEY	LCA AND GRANTS	STATE SITE #	PREVIOUS SITE #
Leeward Coast	K-125	Ahu	Hā'ena	5-6-01-18	Gr 2397		
	K-126	Enclosing wall complex	Kapuna-puna	5-6-01-13, 16, 18	Gr. 2529, 2683, 2397	2315	F12-6
	K-127	Trail	"	5-6-01-18	Gr. 2397		
	K-128	Trail	"	5-6-01-16	Gr. 2683		
	K-129	Trail remnant	"	5-6-01-16	Gr. 2683		
	K-130	Ahu	"	5-6-01-13	Gr. 2529		
	K-131	Trail	"	5-6-01-13	Gr. 2529		
	K-132	Trail remnant	"	5-6-01-13	---		
	K-133	Structure remnant	"	5-6-01-13	---		
	K-134	Stone outline	Kapa'a 1-2	5-6-01-13	---		
	K-135	Alignment	"	5-6-01-13	---		
	K-136	Enclosing wall complex	"	5-6-01-13, 36	---	2309 (part)	F11-8 (part)
	K-137	Burial platform	"	5-6-01-13	---		
	K-138	Rock pile	"	5-6-01-13	---		
	K-139	Burial platform	"	5-6-01-37/60	---		
	K-140	Burial complex	"	5-6-01-37	---		
	K-141	Platform/C-shape	"	5-6-01-37/60	---		
	K-142	Burials	"	5-6-01-37/60	---		
	K-143	Burial platform	"	5-6-01-60	---		
	K-144	Shell scatter	"	5-6-01-60	---		
	K-145	C-shape	Kapa'anui	5-7-02-11	LCA 8522-B		
	K-146	C-shape	"	5-7-02-11	LCA 8522-B		
	K-147	Stone outline	"	5-7-02-11	LCA 8522-B		
	K-148	Platform	"	5-7-02-11	LCA 8522-B		
	K-149	Burial platform	"	5-7-02-11	LCA 8522-B		
	K-150	Multi-unit long-house	"	5-7-02-11	LCA 8522-B	2304 (?)	F11-3 (?)
	K-151	Rock pile	"	5-7-02-11	LCA 8522-B		
	K-152	Enclosures	"	5-7-02-11	LCA 8522-B	2306 or 2307	F11-5 or 6
	K-153	Enclosures	"	5-7-02-11	LCA 8522-B		

ENVIRON- MENTAL ZONE	SITE #	TYPE	AHUPUA'A	TAX MAP KEY	LCA AND GRANTS	STATE SITE #	PREVIOUS SITE #
Leeward Coast	K-154	Multi-unit longhouses	Kapa'anui	5-7-02-11	LCA 8522-B	2305(?)	F11-4(?)
	K-155	Rock piles	"	5-7-02-11	LCA 8522-B		
	K-156	C-shape	"	5-7-02-11	LCA 8522-B		
	K-157	Enclosing wall complex	"	5-7-02-11	LCA 8522-B	2308	F11-7
	K-158	Enclosure/terrace	"	5-7-02-11	LCA 8522-B		
	K-159	Enclosure	"	5-7-02-11	LCA 8522-B		
	K-160	Recent structures	"	5-7-02-11	LCA 8522-B		
	K-161	Wall	"	5-7-02-11	LCA 8522-B		
	K-162	Cupboards	"	5-7-02-11	LCA 8522-B		
	K-163	Alignment	"	5-7-02-11	LCA 8522-B		
	K-164	Platform remnant	"	5-7-02-11	LCA 8522-B		
	K-165	Ahu	Kapa'anui /Kou	5-7-02-11	Gr. 3405		
	K-166	Platform/wall	"	5-7-02-11	Gr. 3405	2303	F11-2
	K-167	Ahu	"	5-7-02-11 or 5-7-03- 3	Gr. 3405		
	K-168	"Kou Complex"	"	5-7-02-11 or 5-7-03- 3	Gr. 3405	2302 (part)	F11-1
	K-169	Alignment	"	5-7-02-11 or 5-7-03- 3	Gr. 3405		
	K-170	Structures	"	5-7-03-3	Gr. 3405	2302 (part)	
	K-171	C-shape	"	5-7-03-3	Gr. 3405		
	K-172	Enclosures/ C-shape	"	5-7-03-10	Gr. 3405		
	K-173	Stone outline	"	5-7-03-10	Gr. 3405		
	K-174	Platform complex	"	5-7-03-10	Gr. 3405		
	K-175	Enclosure	Kamano	5-7-03-3	LCA 7715		
	K-176	Platform/wall	"	5-7-03-10	LCA 7715		
	K-177	Outcrop shelter	"	5-7-03-10	LCA 7715		
	K-178	Houselot	"	5-7-03-10	LCA 7715		
	K-179	Mahukona Harbor	Māhu- kōna/ Hihū	5-7-03- multiple	LCA 8723,8729, 7149 8098; Gr. 1992		
K-180	Shell scatter	"	5-7-03-2	Gr. 1992			
K-181	Machine gun emplacement	"	5-7-03-13	Gr. 1992			

ENVIRON- MENTAL ZONE	SITE #	TYPE	AHUPUA'A	TAX MAP KEY	LCA AND GRANTS	STATE SITE #	PREVIOUS SITE #
Leeward Coast	K-182	Rock piles	Kaoma/ Pu'ukole	5-7-03-13	Gr. 1992		
	K-183	Platforms	"	5-7-03-15	Gr. 1992		
	K-184	Rock piles	"	5-7-03-15	Gr. 1992		
	K-185	Rock Piles	"	5-7-03-13	Gr. 1992		
	K-186	Cement posts	"	5-7-03-15	Gr. 1992		
	K-187	Shell scatter	"	5-7-03-15	Gr. 1992		
	K-188	Ahu	"	5-7-03-13	Gr. 1992		
	K-189	Trail	"	5-7-03-13	Gr. 1992		
	K-190	Enclosures/ platform	"	5-7-03-15	Gr. 1992		

1. State Inventory sites which could not be identified:

2310
2319
2325
4145
4146
4147
4148.

2. The location of sites within tax map parcels, LCAs, and grants are approximate.

ARCHAEOLOGICAL AND HISTORIC SITES IN NORTH KOHALA
(From Hawaii Historic Places Review Board Files)

SITE #	SITE NAME	AHUPUA'A	DESCRIPTION	OWNERSHIP	BIBLIOGRAPHIC REFERENCE	PREVIOUS SITE #	COMMENTS
2245	Lapakahi Complex	Lapakahi	Coastal complex of walls, platforms, mounds; and upland field areas within traditional land unit	State	Pearson 1969 Newman 1970 Tuggle and Griffin 1973 Rosendahl 1972		State Historical Park; National Register
2302	Kou Walled Complex	Kou	Enclosures	Private	Bonk n.d.	F11-1	Between sea and Railroad; midden
2303	Kauilii Point Structure	Kapa'anui	Large Rubble-filled platform	Private	Bonk n.d.	F11-2	Used as gun emplacement
2304	Canoe Shed	Kapa'anui	Single feature	Private	Bonk n.d.	F11-3	
2305	Habitation Site	Kapa'a or Kapa'anui ?		Private	Bonk n.d.	F11-4	
2306	Walled Structure	Kapa'a		Private	Bonk n.d.	F11-5	
2307	Walls	Kapa'a		?	Bonk n.d.	F11-6	
2308	Kapa'anui Village	Kapa'anui	Complex of walled structures	Private	Bonk n.d.	F11-7	Small village complex with six major units including canoe shed, holua slide and habitation features
2309	Kapa'a Village	Kapa'a	Complex of walls, platforms and enclosures	?	Beggerly 1978	F11-8	Possible prehistoric to 20th century use; kuleana walls, habitation features
2311	Haena Point Village	Awalua	Cluster of platforms, cairns and enclosures	Private	Bonk n.d. Beggerly 1978	F12-2 thru 5	No historic material; wall marks inland extent
2315	Kapunapuna Village	Kapunapuna	Cluster of stone structures	Private	Bonk n.d. Beggerly 1978	F12-6	Historic material
2317	Kukuipahu Habitation Complex	Kukuipahu	Complex of stone structures	Private	Bonk n.d. Beggerly 1978	F13-1	Possible prehistoric unknown function
2318	Walled Enclosure	Kukuipahu		Private	Bonk n.d. Beggerly 1978	F13-2	Possible prehistoric unknown function
2319	Kukuipahu Platforms	Kukuipahu	Cluster of platforms	?	?		Probable habitation; midden and historic artifacts; possibly damaged as bomb target
2320		Kukuipahu	Platforms and enclosures	?	Bonk n.d.	F13-5	Possible habitation with double canoe shed
2323	Puakea House Site	Puakea	House on rubble-filled platform	Private	Bonk n.d.	F14-1	Associated habitation and canoe shed; probable 19th century use
2328	Mo'okini Heiau	Puuepa	Large enclosure with interior platforms and cairn	State	Thrum 1908 Stokes 1912 Damon 1927 Beggerly 1978		Prehistoric, luakini heiau, legendary associations; National Landmark; National Register
2329	Kamehameha Birthsite	Kokoiki		State	Beggerly 1978 Ellis 1823		Associated with Kamehameha
2332	Hale o Kaili Heiau	Hālawa	Rubble/dirt mound	Private	Thrum 1908 Stokes 1912 Beggerly 1978	F23-1	Associated with Kamehameha; difficult to clearly define extent of site
2336	Kamehameha Tunnel	Waiapuka	Tunnel cut through bedrock	Private	Williams 1918 Handy 1972 Beggerly 1978	28(Loo)	Irrigation feature from Neve Stream to kula lo'i; attributed to Umi, Kamehameha, or J. P. Parker; Hawaii Historic Civil Engineering Landmark (1978)

SITE #	SITE NAME	AHUPUA'A	DESCRIPTION	OWNERSHIP	BIBLIOGRAPHIC REFERENCE	PREVIOUS SITE #	COMMENTS
2344	Kalala Enclosure	Lamaloloa		Private	Bonk n.d.	F8-48	
2345		Lamaloloa	Enclosure	Private	Soehren 1969	F8-6	Habitation with midden
2347	Housesite	Paoo/Lamaloloa	Stone structure	Private	Soehren 1969		Habitation with midden
2348	Possible Heiau	Kehena	Stone structure	Private			Possible religious site
2349	Campsite	Lamaloloa		Private	Soehren 1969	F8-7	With small saltpans
2350	Housesite	Lamaloloa	Two enclosures	Private	Bonk n.d.	F8-7(B)	Habitation features
2351		Paoo 1	Stone structure	Private	Soehren 1969	F8-8	Campsite with saltpan; possibly recent
2352	Vault Complex	Lamaloloa	Complex of four platforms, cairn, enclosure	Private	Bonk n.d.	F8-8(B)	Artifacts, midden, possible burials
2353	Housesite	Lamaloloa		Private	Soehren 1969	F8-9	
2355		Lamaloloa	Semicircular enclosure with compartment; adjacent wall	Private	Soehren 1969	F8-10	
2357	Walled Enclosure	Lamaloloa	Stone structure, paving	Private	Soehren 1969	F8-11	Aboriginal artifact saltpan
2358	Habitation Complex	Kehena 2	Enclosures, pavings	Private	Soehren 1969	F5-2 thru 12	Habitation features around Keawenu Bay, canoe sheds, midden
2359	Wall	Lamaloloa	Wall	Private	Soehren 1969	F8-12	
2360	Platform and Wall	Lamaloloa	Possible enclosure remnant with platform	Private	Soehren 1969	F8-13	Possibly a deteriorated enclosure with interior platform
2361	Low Wall	Lamaloloa	Low wall	Private	Soehren 1969	F8-14	
2362	Kehena Inland Complex	Kehena 2		Private	Soehren 1969	F5-23 thru 26	
2363	Shelter	Paoo	Single feature	Private	Soehren 1969	F8-16	
2364		Lamaloloa	Walls	?	Soehren 1969	F8-17	Remains of two temporary shelters
2365		Lamaloloa		?	Soehren 1969	F8-18	Habitation
2366	Housesite	Paoo	Single feature	State	Soehren 1969	F8-19	Habitation
2367	Canoe Shed	Paoo	Enclosure, walls	Private	Bonk n.d. Soehren 1969	F8-20, F8-6(B)	Canoe shed with adjacent enclosure; massive walls
2368		Lamaloloa	Stone structure	?	Soehren 1969	F8-21	Habitation
2369	Enclosure	Lamaloloa	Stone structure	Private	Soehren 1969	F8-22	
2390	Kiiokalani Complex	Kiiokalani	Enclosures, platforms, cairns	Private	Bonk n.d.	F4-3	Habitation cluster near possible canoe landing; possible burials; midden
2395		Kehena 1	Enclosures, platforms, cairns, pavings	?	Bonk n.d.	F5-4	Habitation complex; possible burials; midden; at north end of Keaweula Bay
2398	Kipi Complex	Kehena 1	Enclosures, platforms	?	Bonk n.d. Ellis 1823	F5-5B	Marks northern extent of Thurston's walk from Kawaihae (Ellis 1823)
2406		Kehena 1	Stone structure	?	Soehren 1969	F5-13	On top of bluff at sea coast
2410	Keawenui Habitation	Kehena 2	Stone structure	Private	Soehren 1969	F5-21	
2411	Kehena Makai Complex	Kehena 2	Enclosures, platforms	Private	Soehren 1969	F5-22	Midden; on bluff overlooking inlet

SITE #	SITE NAME	AHUPUA'A	DESCRIPTION	OWNERSHIP	BIBLIOGRAPHIC REFERENCE	PREVIOUS SITE #	COMMENTS
2419	Kaupalaoa Complex	Kaupalaoa	Enclosures, platforms	Private	Bonk n.d.	F6-28, 4, 6 thru 13	
2421	Kuapalaha Heiau	Makapala	Large, intricate platform	Private	Thrum 1908 Damon 1927 Beggerly 1978	27 (Loo)	On promontory above Keokea Bay, center has collapsed into sea cave
2424	Makeanehu Complex	Makeanehu	Four platforms, six enclosures	Private	Bonk n.d.	F6-2, 3, 5, 14 thru 18	Canoe shed, habitations, in coastal strip
2426	Habitation and Burials	Makeanehu		Private	Bonk n.d.	F6-43	Habitation and burials
4135	Heiau	Kukuipahu	Large, terraced platform structure with internal features	Private	Beggerly 1978		Religious site; dressed stone work; National Register
4141	Canoe Road	Halawa	Remnant of retaining wall	Private	Beggerly 1978		Possible canoe road attributed to Kamehameha
4142	Habitation and Burials	Puakea	Stone structure and six burial plots	Private			With bottles, ceramics, dated 1800 to 1850 based on bottle glass
4143	Honoipu Rock Gardens	Honoipu	Stone alignments and mounds	Private			Similar to upland Lapakahi knoll gardens
4144	Puakea Point Complex	Puakea	Enclosures, platform, tomb burial, alignments	Private			19th century bottle glass, ceramics, midden
4145		Kukuipahu	Enclosure	?			
4149	Keokea Terraces	Makapala	Terraces	County ?			Below Kuapalaha Heiau; agricultural. one possible habitation
4151	Tabrah Complex	Lamaloloa	Platform, enclosure	?	Soehren 1969	F8-4, 9(B), 10(B), 15	Habitation area near possible canoe landing
4152	Habitation Complex	Lamaloloa	Walls, mounds, enclosures, platforms	State			Habitation complex on 1.5 to 2 acres
4153	Lamaloloa Complex	Lamaloloa/ Paoo 6(?)	Complex of enclosures, platforms, pavings	Private	Soehren 1969	F8-23 thru 41, 4(B), 5(B), 77-20	Large habitation complex with canoe sheds; near possible canoe landing salt pans, aboriginal artifacts
4154	Kaiholena Complex	Kaiholena	Walls, six platforms, ca 30 enclosures	Private	Soehren 1969 Bonk n.d.	F7-6 thru 24	Habitation complex; midden, no historic artifacts
4155	Kehena Complex	Kaiholena	Complex of walled structures	Private	Soehren 1969	F7-31 thru 45	Habitations, canoe shed, windbreaks
4156	Waiakailio Bay Complex	Kahua/ Pahinahina/ Makiloa	Four clusters of platforms, enclosures, mounds and walls	Private	Bonk n.d.	F2-2 thru 33, 38, 39, 41 thru 45	18 habitation areas, canoe shed, shelter, burials, heiau
4157	Kahua 2 Complex	Kahua 2	Walls, caves, enclosures, mound	Private	Soehren 1964	F1-1, 4 thru 9	10 hectares around Kai'Opae Gulch, southernmost complex of district habitations, ko'a, three features destroyed by Kohala Estates development, aboriginal artifacts
7012	Honoipu Landing	Honoipu	Large concrete foundation	Private	Hind 1951 Hansen 1963 Conde 1971 Beggerly 1978		Commercial shipping landing; outgoing sugar and incoming goods moved by cable between cliff top and ship

SITE #	SITE NAME	AHUPUA'A	DESCRIPTION	OWNERSHIP	BIBLIOGRAPHIC REFERENCE	PREVIOUS SITE #	COMMENTS
7100	Father Elias Bond District	Iole	Complex of New England style wood and stone structures	Private	Damon 1927 Hind 1951		Mission station compound including Kalāhikiola Church, Bond houses, Kohala Girls School; State Register; National Register
7102	Kohala Pilgrim Church	Hawi	White wood frame structure with Colonial inspiration	Private	Damon 1927		Also called Filipino Church, Kohala Union, Foreign Church; originally in Halaula moved in 1958
7103	Hawi Catholic Church	Kahei	Wood structure with some Gothic style	Private	The Catholic Directory 1973		
7104	Hawi Jodo Mission	Kahei	Wood structure with Japanese details	Private			Priest's residence; Japanese garden; original structure built in 1909, destroyed 1931
7105	Kohala Sugar District		Mill sites, plantation houses and offices	Private	Hind 1951 Hansen 1963 Conde 1971	7106, 7130 7135, 7136 7141, 7143 7146-7148	Variety of sites and features associated with sugar industry
7107	Kamehameha Rock	Halawa	Boulder	State	Kinney 1913		Boulder adjacent to road; may be fish god associated with Kamehameha
7108	Yoichi Okihara House	Makapala	One-story wooden structure	Private			Plantation style house built by W. Rodenhurst
7109	Hongwanji Mission	Niuli'i	Wooden building with Japanese detail	Private	Hunter 1971		Plantation style, destroyed
7110	Samuel Kupukaa Residence	Makapala	Two-story wooden structure	Private			Plantation style, circa 1900
7111	Akoni Pule's House	Makapala	One-story wooden structure	Private			Plantation style, circa 1940
7112	St. Paul's Church	Makapala	Small, wooden structure New England style	Private			Circa 1883 (date of consecration)
7113	Kauhola Point Lighthouse	Pueke	Lighthouse	Federal	Beggerly 1978		1912; unnamed; 85 ft high
7114	Lock Shin Tong Society Building	Napapa'a	Complex of one-story wooden structures	Private	Bonk 1974		1896; includes main building, kitchen, smaller building; family-oriented society; in poor condition
7115	Tong Wo Society Building	Halawa	Two-story wood structure	Private	Bonk 1974		1886; restored; originally consisted of six buildings; State Register; National Register
7116	Wo On Store	Halawa	Two-story wood frame building with false front	Private			Circa 1900; commercial use; owned by James Lake
7117	St. George Catholic Church	Halawa	Wood structure	Private			Circa 1900's
7118	Makapala Commercial District	Makapala	Five wooden structures	Private			Circa 1885; all face street with street level porches
7120	Greenbank	Halawa	Complex of wood structures New England style	Private			Circa 1875-1880; J. Wight estate; partially destroyed but grounds are maintained
7122	St. Augustine's Episcopal Church	Puchuehu	Wood structure in Gothic style	Private			Circa 1884; with gable roof and rectangular tower with spire

SITE #	SITE NAME	AHUPUA'A	DESCRIPTION	OWNERSHIP	BIBLIOGRAPHIC REFERENCE	PREVIOUS SITE #	COMMENTS
7123	Kohala Club Hotel	Honopueo	Three one-story wood frame buildings	Private	Hind 1951		Circa 1833
7124	Koyasan Shingon Mission	Honopueo	Three wood frame one-story buildings with Japanese details	Private			Circa 1924; present mission building built 1950
7125	Kapa'au Commercial District	Kapaau/Ainakea	Seven wooden structures	Private			Typical wood store fronts
7126	Kapaau Jodo Mission	Ainakea	Four wooden structures, two shrines, cemetery	Private	Hunter 1971		1903; Japanese Buddhist Mission complex; oldest Buddhist Mission in North Kohala
7127	Kohala District Courthouse	Ainakea	One-story wooden structure	County	Hind 1951 Damon 1927		Circa 1885; restored; verandah on three sides; State and National Registers
7128	Kamehameha Statue	Ainakea	Bronze cast statue	State			Sculpted in 1879; to Ainakea in 1883; to present location in 1912
7129	Old Shoe Repair Shop	Hanaula	One-room, wooden structure	Private			Circa 1900; plantation style originally used as workmen's sleeping quarters
7131	First Mission Site	Nunulunui	Stone walled enclosure	Private	Damon 1927		1838; first Hawaiian mission church; no visible remains
7132	Nuilii Mill Residence	Niulii	One-story wooden structure	Private			Circa 1900; oldest remaining mill house
7133	Quiming House	Niulii	One-story wooden structure in field style	Private			Circa 1903-1906, built by W. Rodenhurst
7134	Door of Faith Church	Makapala	One-story wooden structure	Private			Circa 1915
7137	Portuguese Oven	Hanaula	Oval, fieldstone and brick oven	Private			Built in plantation camp
7138	Aiko Sugar Mill Site	Ainakea/Iole?	No structures remaining	Private	Damon 1927		Presently used as macadamia nut orchard
7139	Hawi Commercial District	Kaauhuhu/Hawi	Complex of one- and two-story wood structures	Private			Circa 1900-1930; false front buildings commercial use
7140	Benjamin D. Bond Library	Ainakea	One-story wood structure	State			Modern construction, 1928
7142	Our Lady of Victory Church Site	Halawa	Cemetery on or near site of Father Damien's church	Private	Daws 1973		Circa 1865-1873; church built by Father Damien; moved from original site in 1933
7144	Boy Scout & American Legion Hall	Hawi	One-story wood structure	Private			Circa 1930
7145	Ken Murphy Residence	Hawi	Two-story wood structure	Private			Circa 1900; early 1900 style
7149	Hawaiian Railroad Company	Mahukona	Complex of concrete foundations, one-story concrete building	Private	Conde 1971 Hansen 1963 Hind 1951		19th and 20th century
7155	Kahua Ranch	Kahua	Complex of wood structures	Private			19th and 20th century still used
7156	Puu Hue Ranch	Kaiholena	Cluster of one-story wood buildings	Private	Doyle 1945		Now in ruins
7196	Kohala Ditch		Irrigation system of ditches and tunnels	Private	Hind 1951 Hansen 1963		1904 construction; ca 20 miles long

SITE #	SITE NAME	AHUPUA'A	DESCRIPTION	OWNERSHIP	BIBLIOGRAPHIC REFERENCE	PREVIOUS SITE #	COMMENTS
7197	Puakea Boiler Stack	Puakea	Brick and stone mill stack	Private	Hind 1951		
7200	Sniffen House	Niulii	One-story wooden structure	Private			Circa 1896
7238	Kohala Pineapple Cannery Site	?	Ruins of industrial site	Private			20th century
7399	Kehena Ditch	Kehena 2/ Waika/ Kawaihae	Man-made ditch of tunnels and open aqueducts	Private			Circa 1912

Appendix 2.

THE NATURE OF LAND UNITS AND LAND USE IN

THE AHUPUA'A OF KUKUIPAHU

by

H. D. Tuggle and M. J. Tomonari-Tuggle

Land data for the ahupua'a of Kukuipahu are considered in detail for several reasons, including their relevance to the archaeological data, their value for comparison with data from the windward side, particularly the ahupua'a of Niuli'i, and their illustrative potential for leeward settlement patterns.

The following section considers the nature of land units in Kukuipahu in the mid-19th century, the land division of the Mahele, the settlement patterns, and a comparison of the land-use patterns with the archaeological remains. Comparative data for Niuli'i are included.

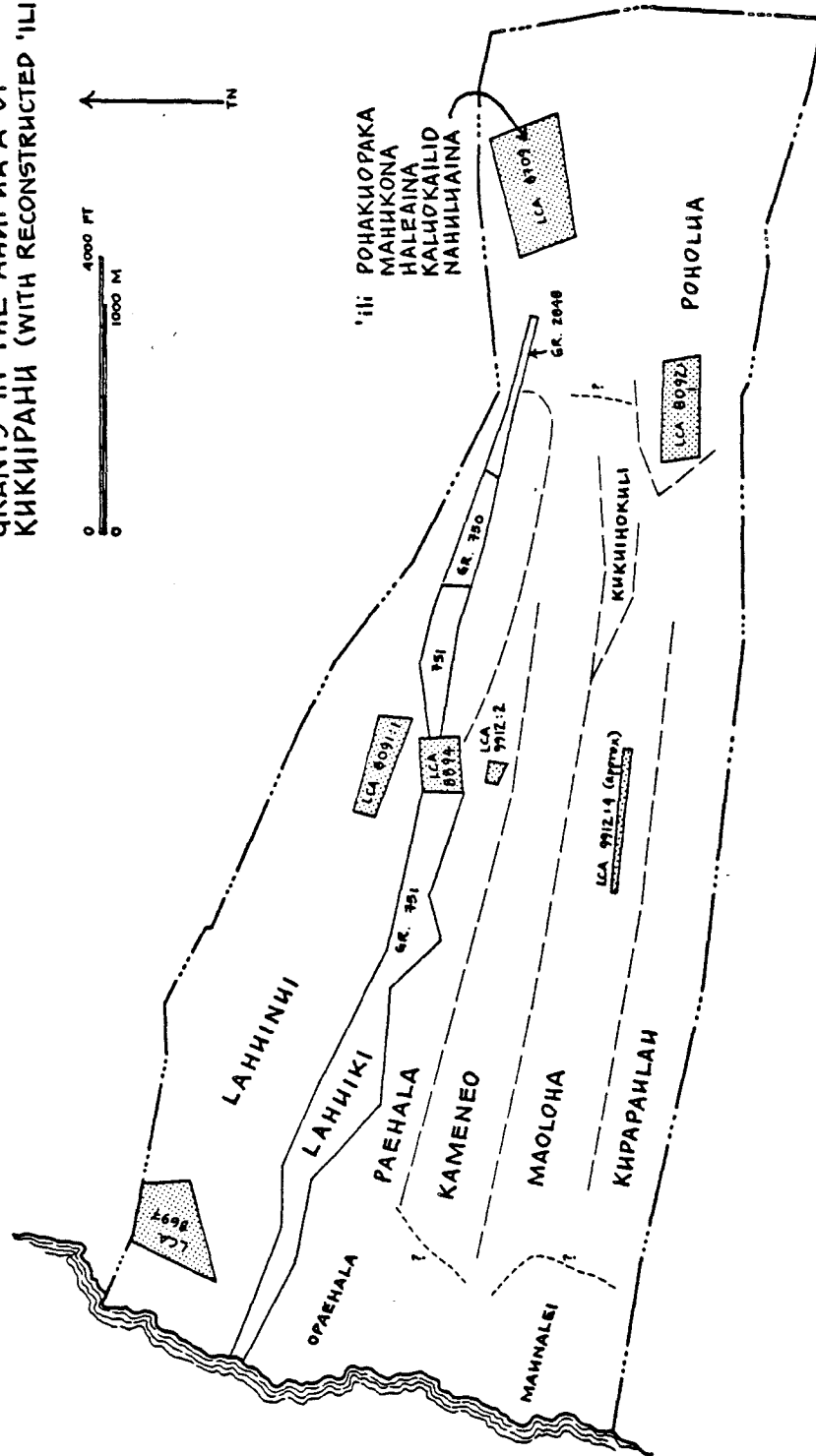
The primary sources of information are 19th century land records which include land grants, testimonies and claims for Land Commission awards (LCAs), and one boundary certificate.

The Nature of Land Units

The primary land unit in Kukuipahu was the 'ili, a named subdivision of the ahupua'a, with "farms" and "houselots" being other land units (possibly named, but if so, not recorded). References are made to a number of 'ili, but only one has recorded boundaries. Most of the LCA claims and testimonies refer to the 'ili of a claim and, in many cases, note the 'ili which border a claim. The 'ili distribution in Kukuipahu has been reconstructed based on these land data (Figure 1).

Reconstruction of these land units in Kukuipahu shows two distinct areas, one above the 1000 ft elevation and one below. The pattern of the upland area is not clear; there occurs a jumble of 'ili names whose spatial relationships are vague. However, the major portion of Kukuipahu falls below 1000 ft, and in this area, the 'ili pattern appears fairly sharp.

FIGURE 1.
 LAND COMMISSION AWARDS AND
 GRANTS IN THE ANIPRIA 'A OF
 KIKIPANI (WITH RECONSTRUCTED 'ILI)



There are seven major 'ili in this section, and perhaps one or two lesser ones. Six of the seven are long strips which run perpendicular to the coast, although not necessarily reaching the coast (the location of the seventh 'ili could not be identified). The one mapped 'ili, Lahuiki or Lahui-iki, runs from the coast to above the 1000 ft contour. Documents indicate that it had a counterpart, known as Lahuinui or Kalahuinui, which filled the gap between Lahuiki and the border of the ahupua'a to the north, Puakea.

It is probable that not all 'ili are this long; there is evidence that at least one (Pu'ukou) does not reach the coast, and another (Maunalei) may be a coastal unit (also possibly known as Opihi). Some evidence is conflicting, e.g. most references to Poholua indicate that it is one of the upland 'ili, but one claim for the 'ili (LCA 8092) gives its dimensions as 2780 by 200 fathoms, about the same size as Lahuiki, which suggests that it was a mauka-makai strip (the actual award for this claim is in two parcels and both are in the upland section).

The distribution of 'ili shown in Figure 1 represents the most internally consistent configuration which could be reconstructed, and is generally comparable to what is known for leeward 'ili patterns (Cordy and Kaschko 1980). There is nothing in the data to suggest discontinuous 'ili ('ili lele).

Two 'ili (Kameneo and Maunalei) are referred to in one testimony (LCA 8691) as "ku", i.e. 'ili kupono, or 'ili which were independent of the local supervisory hierarchy. However, there is no corroboration of this in other records. Since the 'ili of Lahuiki was separated from the ahupua'a in the division of lands, it was probably an 'ili kupono (cf. Cannelora 1974: 4).

Land Distribution in 1848 and After

After years of concern about land disposition, the Hawaiian Privy Council appointed a commission to work out the division of lands among the King and 245 chiefs of Hawaii, which was accomplished over a period of months in 1848. It is unfortunate that the manner in which decisions were made is unknown (Kuykendall 1968).

In the case of Kukuipahu, all of the land testimony indicates that the royal konohiki (as opposed to the local konohiki) at the time of the Mahele was Leleiohoku, who was preceded by Kalanimoku who had been awarded the land by

Kamehameha I. Although Leleiohoku received much land in Kohala, Kukuipahu was awarded to Kekauonohi who had, according to the land records, no tie to this Kohala land (she also received Pu'uepa and Pahoia).

The King retained the 'ili of Lahuiki, but later surrendered it to the government (Indices of Awards 1929).

A total of 18 kuleana claims in the ahupua'a are recorded, but only six were actually awarded. The one award in Lahuiki (LCA 8894) involved a claim for much of the land area in the 'ili, but only one 13-acre parcel was granted. The majority of the 'ili was sold as two grants in 1852 (Grants 750 and 751). Thus, in 1852, 116 acres were held as kuleana, 136 acres were held as grants, one small parcel was still held by the government (later sold in 1862 as Grant 2848), and the remaining 2460 acres were held by Kekauonohi.

There appear to be distinct differences between the claims for kuleana and the actual awards. The 18 kuleana claims generally requested four to six parcels, but of the six claims which were awarded, one was for three parcels and the other five involved only one or two parcels. It has not been determined what difference there was in the actual acreage between claim and award.

In a number of instances, claims made in the Native Register are stated (in the English translation) as if the whole 'ili is being claimed (many state "I have an 'ili..."). It is not clear to what extent this is a function of wording, although in one case, the claimant goes on to note the size of his 'ili (LCA 8090). At any rate, in the Native testimony in which an individual's claim is supported by two witnesses, the wording refers to specific parcels within 'ili rather than to the 'ili as a whole.

As far as can be determined, all of the LCA claims are made by residents of Kukuipahu, although not necessarily by residents who have been there all their lives. Some specify that they have been in the ahupua'a for a given number of years (all for more than ten years), suggesting that there was some degree of mobility between ahupua'a.

It is not clear why such a large number of claims was rejected. The testimony for awarded and unawarded claims is virtually the same, i.e. "the land has been cultivated". There is no evidence for a local konohiki (lordland) "conspiracy" in land claims. The konohiki appear as witnesses in several claims by native tenants; no comments appear in the testimony, as they do in some other areas, which would indicate

problems between claimants and konohiki.

The names of seven possible konohiki have been extracted from the testimony. Four made claims and only two of these received land, although one was the largest of the kuleana awards (LCA 8709 for 35 acres). One possible konohiki did make a claim for 688 acres, but this was not awarded.

The mystery concerning unawarded claims is deepened by the fact that the two major grants in Kukuipahu did not go to individuals who had made kuleana claims. Only one of the three names involved in the two grants appears in the kuleana testimony as a witness, and this only once. Interestingly, this one witness did not testify for a claim in Lahuiki, within which he received a grant four years later.

All property in Kukuipahu went to Hawaiians except for a small piece of government land in Lahuiki which went to H. Christensen in 1862.

Land Use and the Patterns of Claim Distribution

Two aspects of claim distribution are considered here: land use and the location of parcels. Of the 18 LCA claims, 17 involve "cultivated" land; one claim is for a houseplot only. Of the 17 claims involving cultivated land, 12 also refer to houseplots. Thus, the majority of claims are for three to six parcels of agricultural land and a separate parcel in which is located a houseplot with one to three houses.

There are three patterns to parcel distribution among the agricultural claims. First, in 12 cases, parcels in any given claim fall within the same 'ili. The second pattern involves parcels of a claim which fall within several different 'ili; this is characterized by three claims in the lower section of Kukuipahu. Each of these claims has parcels in several 'ili which are clearly defined in the testimony (in what is reconstructed to be geographic order). For example, LCA 8724 has a parcel in each of the following 'ili: Paehala, Kameneo, Maoloha, and Kupapaulau. These parcels may have been in a line along an elevation contour; descriptions of areas surrounding each parcel indicate that they were not actually contiguous.

The third pattern involves two upland claims, in each of which a parcel is crossed by several 'ili. 'Ili names are unique to each claim, thus obscuring the overall upland pattern, which is clearly distinct from the lowland pattern. Some

testimony suggests that there was a road separating the upland and lowland areas.

Houselots were located inland as well as at the coast and agriculture is mentioned in both areas as well. However, there is little information in the records relating to actual agricultural practices. There is one mention of "gardens" and another of "farms"; there are only two references to plants, taro in one case and kou in the other. The rainfall requirements of dryland taro are such that this plant must have been grown only near the upper end of Kukuipahu; kou, on the other hand, is a coastal plant. There is no reference to sweet potato, which was probably the primary cultigen of these dryland fields, at least in the early 1800s.

As discussed below, much of Kukuipahu was cultivated from the coast inland, unlike areas further south which had a non-arable, intermeidate zone between the coast and the inland areas of good rainfall.

Land Use, Settlement Pattern, and the 1848 Occupation

While there is reference to cultivated land in the testimony, it is not clear how much land was actually being worked in 1848. There is reference, however, to "idle" land within the claims, and a number of references to "idle" land around claims. The term "idle" suggests that the land had been cultivated but was not being farmed at the time.

An impression is created that much of the land was out of production, a condition possible because of the problems of depopulation and cattle damage to crops. Many of the cultivated parcels being claimed may well have been fenced for protection against cattle; although there are no statements to this effect for Kukuipahu, such was the case in the Lapakahi area to the south (Newman 1970). The one LCA parcel which is located in the survey area is walled (site K-47, LCA 8697).

The population of the ahupua'a was recorded as 319 in 1835 (Kumu Hawaii). In 1848, 18 individuals made kuleana claims; two of the claims specify the number of "farms" (that is, field plots), one for 25 and one for 30. This is approximately one third of the farm land of an 'ili (determined from archaeological data). If the claims are primarily for extended family support, then the number of 'ili and the number of families represented by claims are internally compatible.

That is, approximately three families could be supported by one 'ili; the 18 families implied by the 18 claims would thus

require six 'ili.

Comparatively, there are seven major agricultural 'ili, plus upland land. It is not certain if the people obtaining grant land were local residents, but if so, the equation would be more nearly balanced.

Finally it should be noted that there are seven local konohiki mentioned in the testimony, corresponding (with one overlap) to six of the 'ili of Kukuipahu. This would run counter to the general statement that a konohiki represents an entire ahupua'a. However, Kukuipahu is larger than most ahupua'a within Kohala and may have been moving toward segmentation into new, smaller ahupua'a.

The Archaeological Pattern

The land records indicate that a substantial portion of the ahupua'a was or had been under cultivation. The archaeological data support this information (Figure 2). The massive field system which sweeps across the leeward slopes of Kohala reaches the coast within the ahupua'a of Kukuipahu in the vicinity of site K-47; other fragments near the coast include sites K-86 and K-94. From these areas, the fields of Kukuipahu certainly stretched continuously inland to the edge of the mountain forest, although much has been subsequently destroyed. In addition to the dry field systems of the slopes, there were also gully run-off agricultural systems such as that found at K-51.

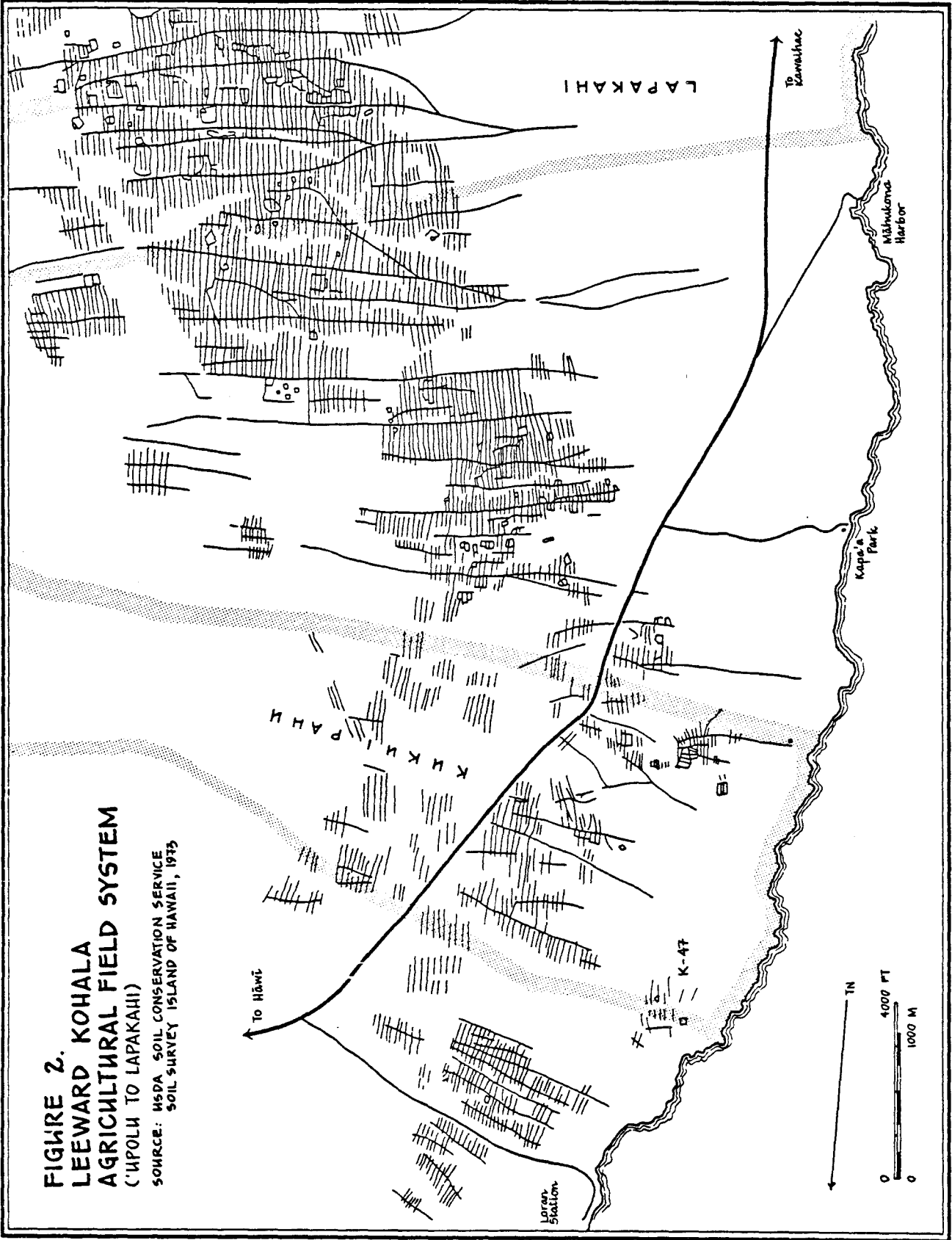
The narrow strips of field areas demarcated by mauka-makai trails are not well-illustrated in the Kukuipahu remains because of recent destruction, but they can be clearly seen in the fields to the south. These subdivisions were probably related to 'ili, as can be seen by the form of the 'ili of Lahuiki (see Figure 1).

The one "kuleana" Land Commission award falling within the coastal area of Kukuipahu is LCA 8697. This LCA is represented by the predominantly agricultural complex of site K-47, a well-preserved set of complicated features. This award was made to Kainoa and is described as "aina mahiai", that is, farm land. A second parcel to this claim is for a houselot; its location could not be identified.

One of the most obvious settlement forms along the leeward coast is the houselot, a low-walled rectangular compound with an interior house platform. This is probably a historic pattern established early in the 19th century; virtually all references to houselots in the land testimony of that century refer to the

FIGURE 2.
LEeward KOHALA
AGRICULTURAL FIELD SYSTEM
('UPOLU TO LAPAKAHI)

SOURCE: USDA SOIL CONSERVATION SERVICE
SOIL SURVEY ISLAND OF HAWAII, 1975



house areas as fenced. A number of these occur in the Kukuipahu area (e.g. see Section II, Figure 18).

It is of value to note that the distribution of enclosing wall complexes and houses along the coast does not seem to match the 'ili pattern. For example, Lahuiki, as mapped, cuts across a complex (K-53) and does not clearly include any houses. Among other explanations, it is possible that there were separate coastal 'ili which formed habitation clusters, and some references in land testimony indicate that this may have been the case (e.g. the 'ili of Maunalei).

"Trails" and "roads" are used as common reference points throughout the land testimonies (e.g. for LCA 8950-B and 8697-B). Fragments of trails remain in Kukuipahu (e.g. K-94) and are even better represented in areas to the south. Further, the old road between the windward side and Māhukona, which separates the upland and lowland areas of Kukuipahu, was probably in existence at the time of the testimonies.

The two important archaeological features which receive no mention in the testimonies are burials and temples, which in several instances could have been used as points of references for boundary descriptions. In particular, the heiau which has been recently referred to as "Kukuipahu" is located in the upland area in the vicinity of numerous land claims. What may be a historical reference to this temple is found in J. Remy's journal (1858), in which he refers to an upland heiau in Kukuipahu by the name of Ku'upapaulau. This name corresponds with an 'ili name, but the location of the heiau does not match the reconstructed location of the 'ili. Various possibilities may account for this discrepancy and the probability remains strong that Ku'upapaulau is the original name of the heiau now called Kukuipahu.

THE AHUPUA'A OF NIULI'I: A COMPARISON

Niuli'i, one of the largest ahupua'a in the windward kula gulches, offers an interesting contrast to Kukuipahu. Both are mentioned in the legend of Kapunohu (see Section I) as centers of political power in the district; both appear historically as central places in their respective environmental zones.

This brief review of the Niuli'i land data, based primarily on Land Commission award claims and testimonies, is offered for comparison with the more detailed discussion of the Kukuipahu case.

The Nature of Land Units

As in Kukuipahu, the primary land unit in Niuli'i appears to be the 'ili, of which there are 27 named ones in the ahupua'a. They are organized into non-linear areas, contrasting sharply with the long, narrow, mauka-makai strips of the leeward side; some 'ili appear to be discontinuous, i.e. 'ili lele (Figure 3).

However, the boundaries of the named land units are indistinct. Where some Register claims refer to whole 'ili: "I am writing my claim for land which is named Nae..." or "I have an 'ili, named Kaha...", witness testimonies generally specify, or at least imply, that claims are a part, rather than all, of a land unit.

Further, 'ili are referred to as part of boundary descriptions for claims: "mauka, Waiahole ili land, Kohalawaho, Kalainau ili land, makai, the konohiki's land, Hamakua, Paepae, an ili land".

Of the 27 named land units, four are referred to as 'ili kupono and ten are 'ili lele. In the latter case, the inference is drawn from claim descriptions of mauka and makai parcels; i.e. where multiple parcels of a claim in a single 'ili are located both at the coast and inland, with other named land units in the intervening area. This is particularly true for claims to the 'ili of Ulupa'aloa (LCA 8701), Paemilo (LCA 8702), and Waiahole (LCA 8747).

Land Distribution in 1848

During the Mahele, Niuli'i was awarded to Leleiohoku and claimed by him through LCA 9971. Eighteen other claims for Land Commission awards were made (although only 18 are listed in the Indices of Awards). Sixteen of these were awarded; the disposition of the remaining two is unclear.

In claims and testimonies, 15 names (other than Leleiohoku) are mentioned as konohiki; at least five were konohiki at the time of the land division. These names appear in the land data, either to provide some historical continuity to the claim (e.g. "This land was from Kamehameha I to Umi, and from Umi to Upai, and from Upai to Kiaimoku who has it at this time...") or the actual basis for the claim (e.g. "It was from Uale to Naihe, from Naihe to Mokuha and Mokuha to me...").

Two konohiki also acted as witnesses for several claims. One of them, Kukeanue, also made his own claim (LCA 8702) in

which he described:

I have the 'ili of Paemilo. There are three sections of land; the first is 145 long and 132 wide, the second is 243 and 80 wide, the third is 236 long and 60 wide. My people occupied it from Kalaiopu to Kamehameha I, II, and III, then to Leleiohoku and from him to Malo, from Malo to Kukeanue. I have been a konohiki for nine years (Native Register, Vol. 8, p. 24).

Land Use, Settlement Pattern, and the 1948 Occupation

Land data indicate a range of agricultural activities in the ahupua'a. A total of 292 wet kalo patches are mentioned, as are five gardens, four planting farms, three hala trees, two potato fields, a cultivated pasture, a coconut grove, and a banana lot. As in Kukuipahu, there are references to idle land, although not to a comparable extent as on the leeward side.

Although it has been suggested that irrigation fields were developed on the inter-gulch kula slopes (see Section I), the land data are inconclusive in this regard. With the exception of fields in LCA 8715, all wet kalo patches are located in parcels adjacent to streams. However, these parcels generally extend over the edges of gulches onto the kula slopes. Late 19th century maps show 'auwai on the kula slopes.

Thirty houselots are described in the claims and testimonies. They appear to be scattered throughout the ahupua'a. There is no clear separation between parcels for agricultural use and parcels for houselots.

The 1835 census (Kumu Hawaii) notes a population of 300 in the ahupua'a of Niuli'i, approximately the same as in Kukuipahu.

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Appendix 3.

EXCERPT FROM TUGGLE AND GRIFFIN 1973

RESEARCH AND THE FUTURE STATE PARK

Anthropological research, illumination of cultural heritage, and interpretive park development are all inter-woven activities. Only through the cooperative efforts of the people engaged in such work, with the support of the general public, can any state or other entity hope to save its past from destruction and loss. Public interest in Hawaii seems to strongly favor stepped-up production of information relevant to Hawaii's unique and complex heritage. Archaeologists have traditionally been among those most concerned with preservation and presentation of the past and its values and messages. And it is archaeology, in conjunction and with the support of colleagues in the natural sciences, history, and the humanities that will pull together the knowable from the past for the use of the future.

Archaeology is the science that manipulates the residues of past activities and peoples in and on the earth in order to describe once living cultural systems. Archaeologists are not always concerned with "building" cultural heritage or providing agencies with interpretive information. They, as scientists, are attempting to explain the range of variation in culture and the change in culture over time. Generally the results are couched in terminology that has been developed by archaeologists to help them cope with the empirical world.

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When archaeologists' audiences change and a direct return of knowledge to the supporting society is called for, language and presentation must change. But it is important for the audience to understand the basis of theory, method, and biases that archaeologists use to do their work. In other words, we must be clear on how archaeologists can make the statements they do, and to judge what is and is not the untested product of imagination or ethnocentric beliefs.

Archaeological data do, however, reflect much of past cultural systems, if only we ask questions and seek answers. All the materials we dig from the ground or find scattered upon it were once components of the behavioral system of a group of people, people living patterned lives. It is in the patterns of archaeological junk that we hope to reconstruct the no longer existing patterns of behavior. For example, the seasonal round of economic activities should leave traces in the form of food wastes, agricultural plots, tools, and storage facilities. Ideological systems may be evidenced by the patterning on *heiau*, *ko'a*, and associated artifacts and architectural features. Burial patterning may indicate social systems, ranking and differential access to economic goods.

For *interpretation* we may rewrite the anthropology to a "broader picture" of the culture, and the change undergone over time, in a style satisfying to a general audience. But only after the research can the picture be presented.

The Lapakahi *ahupua'a* provides a unique opportunity in Hawaii for the comprehensive reconstruction and interpretation of Hawaiian culture. The extensive archaeological remains and the archaeologically controlled time depth allow the interpreter to focus on the evolution of a complex system of settlement, population expansion, and resource acquisition. The architectural changes alone ensure success in offering an interesting, informative park.

Assuming the continuing treatment of the *ahupua'a* as a whole unit, we would recommend a temporal division system in the initial partition leading to foci for interpretive restoration. These might be:

1. Colonization of the Leeward coast (ca A.D. 1300)
2. Expansion, stratification (A.D. 1500-1800)
3. Contact and abandonment (ca A.D. 1778 to 1900)
4. Archaeological excavation (1968-present)

Five guiding concepts could be utilized. These are (1) the total *ahupua'a*: a native category entailing various territorial, social; and economic considerations; (2) integration of the population expansion and culture change model with the restorations by temporal division; (3) the man-environment relations study begun by Newman and continued today; (4) placing the interpretation within the context of Kohala and the whole island; and (5) employing "living" archaeology as a means to enhance public knowledge of this science.

The field systems, habitation and work areas, trails, and environment provide the potential for a remarkable park reconstruction. We suggest that the final element for a "total" archaeological park would be actual ongoing archaeology. A novel, interesting, and informative means of park display

could be the seasonal maintenance of a small crew of archaeologists conducting excavations. The public could observe archaeologists in the process of doing the work of information production. Tourists have long been drawn to "digs." Besides being interesting in itself, an excavation, with living, working bodies, is a change from observation of static materials. The expenditure, if confined to summer months, would be slight for a small crew of laborers and one or two supervisors. Local high school students could provide part of the labor pool, ensuring local dispersal of needed monies. There is enough archaeology to be done to engage such an "exhibition" for many years to come.

Appendix 4.

BIBLIOGRAPHIC REFERENCE FOR HISTORICAL MAPS OF NORTH KOHALA

DATE	AREA	SURVEYOR	REPOSITORY & REFERENCE NO.	NOTES
1860	Pololu	Wiltse	State Survey GRM 53	earliest map of Pololu; shows some houses and sand hill near mouth of valley
1861	Kahei to Upolu	Wiltse	State Survey GRM 51	general map of government lands
1862 (?)	Pu'uepa	unknown	State Survey GRM 930-931 (?)	ahupua'a
1872	Ka'auhuhu	Wiltse	State Survey GRM 57	shows spring; homesteads
	Kalala 2/Pu'u Hue	Wiltse	State Survey GRM 370	Kohala Ranch Lands
1874	North Kohala	C. J. Lyons	State Survey GRM 337	sketch of govt lands
	Niuli'i	J. F. Brown	State Survey GRM 649	shows LCAs; 1550 acres; vegetation
1879	Kohala	C. J. Lyons	State Survey GRM 639	shows RR line, extent of sugar fields, 1"=2000'
	Kohala	C. J. Lyons	State Survey GRM 573	
	Kohala	C. J. Lyons	State Survey GRM 1214	triangulation map of North Kohala
1880	Makapala	M. D. Monsarrat	State Survey GRM 1937	Lunalilo Estate Subdivision; shows houses, LCAs
1881	Māhukona	Emerson	State Survey GRM 921	shows LCAs, harbor facilities; 1"=100'
	Hālawā	J. M. Lydgate	State Survey GRM 959-960	section of ahupua'a; good detail
1884	Forest Reserve	C. J. Lyons/ W. E. Wall	State Survey GRM 1027	
1885	North Kohala	J. D. Browne	State Survey GRM 1077	general map
	South Kohala	W. A. Wall	State Survey GRM 1080	general map
	North Kohala	J. F. Brown	UH Archaeology Lab	1"=12 chains, shows LCAs, some vegetation
1887	Lāhikiola	J. S. E	State Survey GRM 1424	
1888	Waiapuka Tunnel	L. Cabot	State Survey GRM 1424	plan view & cross-section
1889	Hualua	J. S. E	State Survey GRM 635	shows old roads
1893	Pololū to 'Iole	Kanakanui (from Lydgate survey)	State Survey GRM 1704	
1894	Niuli'i to Lamaloloa	Kanakanui (from Lydgate survey)	State Survey GRM 1705	
	Kahena to Waikā	Kanakanui (from Lydgate survey)	State Survey GRM 1706	
	Road to Waimea	W. W. Brunner	State Survey GRM 1740	
1897	'Āwini	A. B. Loebenstein	State Survey GRM 1876	govt lands, named grantees

DATE	AREA	SURVEYOR	REPOSITORY & REFERENCE NO.	NOTES
1898	Honokāne	W. A. Wall (traced by J. Iao)	State Survey GRM 2473	Boundary Certificate 172; for Bishop Estate
	Pu'unui and Ki'iokalani	A. B. Loebenstein	State Survey GRM 2150	Boundary study
1902	Honokāne to Waipi'o	W. E. Wall	UH Archaeology Lab	Hawaii Territorial Surveys compiled by C. J. Lyons; 1:24,000
1903	Kokoiki and Pu'uepa 2	J. H. Moragne	State Survey GRM 2195	shows cane land, mostly mauka section
1904	Makapala	A. B. Loebenstein	State Survey GRM 2281	Lunalilo Estate subdivision; portion named by C. F. Hart; conveyance bk pages shown; 1:3600
	Pololū	S. M. Kanakanui	State Survey GRM 2247	shows 'ili of Pa'u; houses, terraces, dune
	Niuli'i	A. B. Loebenstein	State Survey GRM 2290	shows plantation, taro fields, houses, stores, LCAs; 1:3600
1905	Makapala	unknown	State Survey GRM 2328	shows school lot, java plum along govt road to mauka; good detail
1906	Hāwī	S. M. Kanakanui	State Survey GRM 2366	shows govt lands
	Kahei	S. M. Kanakanui	State Survey GRM 2390	shows homesteads
1908	'Āwini	O. L. Sorenson	State Survey GRM 2456	ahupua'a
1909	Forest Reserve	S. M. Kanakanui	State Survey GRM 2475	
1910	North Kohala Pao'o to Pololū	J. Iao	State Survey GRM 684	tracing of GRM 1704, 1705, 1706; LCAs; grants
1913	Kohala	USGS	UH Archaeology Lab	Topographic, 15' series; 1:62,500
1914	Pololū	Pierce	UH Archaeology Lab	shows front of valley
1914-1916	Ka'auhuhu	Johnson	State Survey GRM 2579	shows homesteads
1918	Hālawā	E. W. Hockley	State Survey GRM 2632	shows Halawa School
1919	Honokāne Nui	F. Koelling	UH Archaeology Lab	portion of ahupua'a; LCA 7713; 1:2400
1920	'A'amakāō	Office of County Engineers	County Survey L-528	shows quarry site, rice field on Puwai'ole Stream; 1"=50'
1923-1926	Kohala Forest Reserve	W. E. Wall/ E. W. Hockley	State Survey GRM 2738-2739	shows southern leeward and windward ahupua'a; 1:12,000
1925	Union Mill	unknown	UH Archaeology Lab	shows fields, lots, reservoir, including land in Nunuluniu and Puuokumau; 1:3600
1926	Pololū and Mākanikahio	C. L. M.	State Survey GRM 3044 (?)	shows place names, old dwelling, taro lo'i
1928	Island of Hawaii	W. E. Wall		Hawaii Territorial Survey; shows govt lands, homesteads; 1"=10,000'

DATE	AREA	SURVEYOR	REPOSITORY & REFERENCE NO.	NOTES
1929	North Kohala	Wright, Harvey, Wright (compilers)	UH Archaeology Lab	shows LCAs, grants; 1:12,000
1930	Ka'auhuhu	C. L. M.	State Survey GPM 3011	shows homestead road
	Forest Reserve	C. L. M.	State Survey GRM 2860	Pu'ukapu homestead-- 1st series
1931	Māhukona	Coast & Geodetic Survey	Lyman House 76.73.64	harbor and approaches; 1"=5000'
	Kahua Ranch	unknown	UH Archaeology Lab	shows ranch lands, paddocks, ahupua'a boundaries; 1:24,000
1932	Union Mill	Survey Dept.	UH Archaeology Lab	1:12,000
	Kohala Sugar Co.		UH Archaeology Lab	1:12,000; sugar lands
	North Kohala	J. B. Mann	UH Archaeology Lab	1:12,000; land grants
	Kohala Ditch	F. Koelling	UH Archaeology Lab	shows ditch, springs, falls, pump; 1:1200
1933	Kehena Ditch	Kohala Ditch Co.	Lyman House 76.73.653	1"=1000'; Kehena Water Co., Ltd.
1934	Waiapuka	F. Koelling	UH Archaeology Lab	taro patches in LCA 10490 (Union Mill property); 1"=50'
1935	North Kohala	Tax Map Bureau	UH Archaeology Lab	shows land grants; 1:2000
	North Kohala	unknown	UH Archaeology Lab	shows land grants; 1-12,000
1941	Kohala Mill	CE Dept.	Lyman House 76.73.650	Kohala Sugar Co.; 1"=50'
1942	Māhukona	F. Koelling	Lyman House 76.73.646	map of harbor area for Mahukona Terminals; 1:600
1943	Kapa'au	C. L. M.	State Survey GRM 3070	shows hospital site
	North Kohala	Survey Dept.	Ld. Ct. App. 1332-1116	shows land grants; 1:12,000
1944	North Kohala	USGS	UH Archaeology Lab	1:12,500; topographic; 250' contour intervals
1947 (ca.)	Keokea Park	unknown	L-522 County Survey Office	shows coconut grove at bay, possible rice field in park area, RR; survey for proposed park; 1"=100'
1953	Kalala	F. Koelling	State Survey GRM 3008	Water Co. map
1954	Ka'auhuhu	C. L. M.	State Survey GRM 4058	homestead--3rd series
1957	Mahukona Quad	USGS	general distribution	1:24,000; topographic; 40' contour intervals
	Keawanui Quad	USGS	general distribution	"
	Hawi Quad	USGS	general distribution	"
	Honokane Quad	USGS	general distribution	"
1961	Union Plantation	C. Keawe	Lyman House 76.73.643	Union section of Kohala Sugar Co.; 1"=400'

DATE	AREA	SURVEYOR	REPOSITORY & REFERENCE NO.	NOTES
1962	North Kohala	USGS	general distribution	1:250,000; 250' contour intervals; whole island in two sections
	North Kohala	Kohala Sugar Co.	UH Archaeology Lab	1:12,000; field map of Kohala Sugar Co.
1969	'Iole	C. Keawe	Lyman House 76.73.645	topographic; portion of Bond Estate; 1"=20'
1972	North Kohala	---	Div. of State Parks, DLNR	1:24,000; shows ahupua'a, roads, trails, fencelines, State and HHL properties; draft
1980	North Kohala	---	Div. of State Parks, DLNR	1:24,000; land ownership, including ranches; draft
n.d.	North Kohala	C. J. Lyons	State Survey GRM 635	field map
	North Kohala	unknown	State Survey GRM 894	shows grants, LCAs
	North Kohala	J. M. Lydgate	State Survey GRM 1215	triangulation
	North Kohala	Webster	State Survey GRM 268	sugar plantation
	North Kohala	unknown	State Survey GRM 659	
	'Iole	J. M. Lydgate	State Survey GRM 961	Kamehameha deed to Elias Bond
	Hāwī	C. V. E. Dole	State Survey GRM 2063	shows govt. roads
	Ka'auhuhu	R. O. Neal	State Survey GRM 2570	homestead map revised
	Hualua	unknown	State Survey GRM 336	shows houses
	Hualua	S. M. Kananui	State Survey GRM 2366	shows fenceline, house, cistern
	Ulupa'alua-Waiapuka-Makanikahio-Niuli'i	unknown	State Survey Office, Hilo - DI C20	with letter referring to Bishop Estate survey by Koelling 1923
	Kohala Ditch Co.	F. Koelling	State Survey GRM 3009	blueprint
	Hawi-Niuli'i Road	FERA engineers	Hawaii County Survey Office-L525	survey for new road, shows old road and all buildings; 1"=100'
	Kohala Forest Reserve	unknown	County Survey L-526	portion of forest reserve mauka of Niulii and Halawa Plantations; 1"=1000'
	Hālawā	unknown	Lyman House 76.625 a, b,c	topographic; Niuli'i side of Hālawā

NOTE: State Survey = State Survey Office, Honolulu.
 County Survey = Hawaii County Survey Office, Hilo.
 Lyman House = Lyman House Museum, Hilo.
 GRM = General reference map.

Appendix 5.

BACKGROUND OF THE RESEARCH AND ANNOTATED BIBLIOGRAPHY FOR THE DISTRICT OF NORTH KOHALA

The district of North Kohala has not lacked for documented descriptions of community life, from the casual observations of early explorers and transients to government documents such as tax records and license applications to reports on archaeological surveys and excavations. These provide a variety of information from which inferences on land use, settlement, and demographic changes can be made.

For lack of an adequate harbor, few explorers made landings in Kohala, but, in later years, missionaries and a few adventurous travellers passed through the district leaving a few random entries in diaries and journals for the historical record. These accounts range from Cook's observations in 1779 to Cheever's and Bates' notations in 1854.

King (in Handy and Handy 1972: 528), sailing with James Cook on his third voyage, and Menzies (1793), surgeon and naturalist with George Vancouver, were the only Europeans to actually walk through the district in the 18th century. Their observations were limited to brief statements about the general environment, including descriptions of agricultural fields, barren areas, and settlements. However, the problem for present research purposes is a lack of specificity about locations. Neither King nor Menzies notes their point of origin or the route of their travels. Cook's log entry (in Kamakau 1961: 98) suggests he had anchored off of Pololū Valley, although his anchorage has been interpreted later as offshore of the village of Kukuipahu on the leeward coast.

Missionaries of the American Board of Commissioners for Foreign Missions arrived in Hawaii in 1820. In 1823, Rev. William Ellis became the first European to travel by land around the island of Hawai'i. The diary of his two-month journey contains a wealth of information on agricultural practices, populations, and settlements, although they are interspersed among missionary-oriented interpretations and moralizing (Ellis 1969). Within the decade, other missionaries arrived in Kohala, but only stayed briefly (Bishop 1925, 1929; Mission Station Reports 1822-1830). Again, their journals provide only glimpses of the native population, settlement, and land use, and lack the details for analytical use.

With the arrival of resident missionaries in the mid-1800's, however, regular and detailed descriptions of the district were recorded in annual mission station reports and in personal journals and letters. Although flavored with moral undertones, the station reports detail the progress of Christianization in Kohala, with listings of the number of church members, excommunications, births, marriages, and deaths, as well as the financial condition of the mission and social problems in the district. Father Bond of Kohala (Damon 1927) is a compilation of station reports, letters, and journal excerpts relating the history of Elias Bond's efforts in the district.

Also during the transitional period of the mid-19th century, the workings of the growing government bureaucracy resulted in increased documentation of land awards and transactions, taxation, censuses, and business efforts. While many land grant deeds and awards simply stated the name of the awardee and the location of the parcel, others elaborated on the use of the land and the presence of houses, as well as occasional descriptions of neighboring parcels.

Tax records were kept systematically from 1855. The kinds of taxes changed over time and suggest changing priorities and patterns of subsistence: in the kind of tax and items being taxed; in whowas being assessed; in ownership of land; in the concept of land divisions; and in land use. In 1855, taxes were assessed on men, boys, and on the ownership of mules, horses, and dogs; taxation districts were organized by ahupua'a. The taxable population was largely Hawaiian. Land use was sometimes described as lo'i or kula, but was usually unspecified. By 1890, real estate and personal property were being taxed. Assessments were made by both ahupua'a and by plantation and the taxable population was highly mixed. Records indicate that ownership of land had shifted from primarily individual to corporate. Land use was distinguished among cane, taro, rice, pasture, and forest; no references to lo'i or kula were made.

Censuses were made through the Board of Education in the 19th century. Information organized by district, island, and kingdom were categorized by occupation, nationality, sex, age, and marital status. After annexation by the United States at the turn of the century, censuses were made by the Federal government and no longer included such detailed data.

Licenses and applications for businesses were made to the Minister of the Interior of the kingdom; license ledgers include license fees, types of businesses, names of applicants, and the locations of the businesses. They indicate concentrations of commercial efforts and, over time, the development of urban centers.

Although Thrum (1907) and Emory (1924) made early reports of archaeological remains in Kohala, systematic research was not initiated until the 1960's. Primarily oriented toward contracted surveys, research areas were delimited by the boundaries of development areas. The major surveys were carried out on the leeward coast (Bonk 1968; Soehren 1964, 1969).

In 1968, a major research project was begun at Lapakahi on the leeward side. Coordinated among the University of Hawaii-Manoa, University of Hawaii-Hilo, and the Division of State Parks, Outdoor Recreation, and Historic Sites, the project extended for three summers and laid the foundation for the development of the first historical park in the State. Research was directed toward Hawaiian adaptation to the leeward environment. Extensive surveys were carried out along the coast; limited survey of the upland area was supplemented by the analysis of aerial photographs. Excavations were done primarily in the coastal hamlet of Koai'e and in habitation sites in the uplands.

In 1972, partially as an off-shoot of the Lapakahi project, a three-year investigation of prehistoric settlement and agricultural growth was begun in the windward valleys of the northeast coast. Surveys were carried out in the valleys of Pololū, Honokāne Nui, Honokāne Iki, and 'Āwini and on the ridges separating the valleys. Excavations were dug in selected sites in Pololū and Honokāne Nui.

With proposed developments on the leeward side, contract archaeology is again becoming a significant activity (Sinoto 1979a, 1979b; Schilt and Sinoto 1980).

Cultural resource inventories have also been carried out (Loo and Bonk 1970; DLNR 1972; Beggerly 1978) but these have dealt primarily with descriptions of specific known sites such as Mo'okini Heiau, Waiapuka Tunnel, and Kuapalaha Heiau.

The following annotated bibliography is a compendium of resource material for North Kohala. Included is the standard bibliographic data, as well as a description of the information contained in the reference and the location of a repository. Where possible, reference numbers (e.g. from Hamilton Library, University of Hawaii-Manoa) are also given.

ANNOTATED BIBLIOGRAPHY
FOR THE DISTRICT OF NORTH KOHALA,
ISLAND OF HAWAII

- Ambrose, W.
1968 Review of Pearson, Richard J. (ed.), Excavations at Lapakahi, North Kohala, Hawaii Island. Asian Perspectives. Vol. 11, pp. 187-188.
- The sequences presented by Conner and Winter for the construction of walls are criticized as not clearly based on sufficiently convincing data. Small's conclusion that rubble-filled and stacked walls at one complex are contemporaneous appears based more convincingly in the Koaie evidence. Newman's plan for computer-correlated forms is praised.
- Hamilton Library, Pacific Collection, University of Hawaii-Manoa. Honolulu. (Pac D5 514 A87)
- Arlas, Caren
1973 Site 4727: A Domestic Habitation in the Upland Area of Lapakahi. In Lapakahi, Hawaii: Archaeological Studies, Tuggle and Griffin (eds.). Asian and Pacific Archaeology Series. No. 5, pp. 147-180. Honolulu.
- The data produced through excavation of a C-shape, Site 4727, in upland Lapakahi are discussed. These include 19 firepits, a lined cupboard, and evidence for three occupational phases, and additionally, a carbonized sweet potato recovered in a firepit of probably pre-Contact age.
- Hamilton Library, University of Hawaii-Manoa. Honolulu. (GN871 A84 no.5)
- Barwicke, Laura
1973 Site 4141: A Burial Complex in Coastal Lapakahi. In Lapakahi, Hawaii: Archaeological Studies, Tuggle and Griffin (eds.). Asian and Pacific Archaeology Series. No. 5, pp. 213-229. Honolulu.
- The article reports excavation of several burial platforms which formed components of Site 4141, and concludes that the site may initially have served as a habitation area, with platforms for burials and/or religious purposes added later. Occupation probably spanned prehistoric to historic periods.
- Hamilton Library, University of Hawaii-Manoa. Honolulu. (GN871 A84 no. 5)
- Beck, Sigrid
n.d. History of Kohala. Manuscript.
- Brief history of Kohala. There are some minor discrepancies between Beck's data and other sources. There is no bibliography or publication date. 12 pages.
- Lyman House Museum Library. Hilo.
- Beggerly, Patricia
1974 Prehistoric Occupation of the Pololu Valley Dune, Hawaii. Senior Thesis, Honors Program, University of Hawaii-Manoa. Honolulu.
- This paper is a summary of the excavation of Site 10-03-4916 at the southern end of Pololu Dune. A paucity of midden and artifacts associated.
- Department of Land and Natural Resources, Div. of State Parks, Outdoor Recreation, and Historic Sites. Honolulu.
- 1978 Partial Inventory of Archaeological Resources, North Kohala, Hawaii, December 1978. Manuscript.
- The best known sites and site complexes in North Kohala, outside of the Lapakahi, Pololu, and Honokane areas, are inventoried as to current condition and importance. Recommendations are made for conservation. Sites include prehistoric heiau, canoe road, a trail, coastal habitation and fishing clusters, and Kamehameha III's birthplace, as well as several additional historic sites.
- Department of Land and Natural Resources, Division of State Parks, Outdoor Recreation and Historic Sites. Honolulu.
- Bevacqua, Robert
1973 Coastal Adaptation: The Investigation and Interpretation of Site 4050. In Lapakahi, Hawaii: Archaeological Studies, Tuggle and Griffin (eds.). Asian and Pacific Archaeology Series. No. 5, pp. 181-191. Honolulu.
- Excavation of a U-shape, Site 4050, is described, and midden, artifacts, and structural elements summarized. Site 4050 is a canoe shed, containing a long cupboard in one wall for the storage of canoe-related equipment.
- Hamilton Library, University of Hawaii-Manoa. Honolulu. (GN871 A84 no.5)
- Bond, Elias
1857-
1904 Memoranda. Manuscript. In The Journal Collection, 1819-1900.
- Four bound volumes contain Reverend Bond's personal diary-type record of his activities and observations concerning the mission property and his home in North Kohala from 1857 through 1890. In October 1891, the journal is continued by his daughter until 1904. Most frequent notations by Reverend Bond record the dates of unusual weather, kona storms, earthquakes, volcanic eruptions, seasonal planting, cattle branding, visitors and building repairs or new construction.
- The Hawaiian Mission Children's Society. Honolulu.
- Bond, Elias and I. Bliss
1838-
1863 Kohala Station Reports - Hawaii Island. Manuscript. In Mission Station Reports, 1822-1865.
- Originals and typescript copies of the annual reports are available for the period 1838-1863. Bliss submitted the early reports, 1832-1841. Later reports are by Bond. Routine topics include the status of mission

programs as well as the government schools. Church membership statistics are always provided along with general comments on morals, industry, education and licentiousness. Bond's reports, covering a twenty year period, also contain comparative observations. His views on the conditions determining the prosperity and decline of Hawaiian residents in North Kohala serve essentially as a form of documentation on cultural conflict and change.

The Hawaiian Mission Children's Society. Honolulu.

Bond, Emma R.
1923 Kohala Girls School. The Friend. July. Honolulu.

A brief article concerning the history of the Kohala Girls School.

The Hawaiian Mission Children's Society. Honolulu.

Bond, Kathryn L.
1878? History of Commission or Government Schools of Kohala Up to 1878. Manuscript.

Original typed manuscript presenting a historical survey of government schools.

Lyman House Museum Library. Hilo.

Bonk, William J.
1968 The Archaeology of North and South Kohala - from the Ahupua'a of Kawaihae to the Ahupua'a of Upolu: Coastal Archaeology Surface Survey. Hawaii State Archaeological Journal.

Reconnaissance survey involved on-foot coverage of 12 mile strip of leeward coast with small crew. Article describes structures and other sites not previously described by Soehren, as well as modern impacts at several sites, primarily those due to garbage disposal and pothunting. Development of historic park at Lapakahi, to include both coastal and upland settlement components, is recommended.

Hamilton Library, Hawaiian Collection, University of Hawaii-Manoa. Honolulu.

1974 Chinese Fraternal Society Sites on the Island of Hawaii. Papers in Ethnic and Cultural Studies, No. 1.

A concise history of the development of Chinese fraternal societies in China, Singapore, Hawaii and California is given, followed by recommendations for future planning for all society buildings on the Island of Hawaii, and descriptions of some structural components of these halls. In the case of the Tong Wo Society Hall in Halawa, several pages of photographs and sketched details are presented. The Lok Shin Hall in Halawa is briefly described.

Department of Anthropology, University of Hawaii. Hilo.

n.d. Archaeology of North and South Kohala from the Ahupua'a of Kawaihae to the Ahupua'a of Upolu: Coastal Archaeology Surface Survey. Manuscript.

Reconnaissance survey involved on-foot coverage of 12 mile strip of leeward coast with small crew. Report summarizes distribution of archaeological sites along coast, describing structures and other features not previously reported. This manuscript was the draft of Bonk 1968.

Department of Land and Natural Resources, Division of State Parks, Outdoor Recreation, and Historic Sites. Honolulu.

Bowles, S. P.
1973 Kohala Water Resources Management and Development Plan, Phase I. Preliminary Findings and Conclusions.

The plan was instigated by closing of Kohala Sugar Company. Discussion of water resources, demand potential and critical water-related problems; includes selected bibliography of Kohala water resource publications. 29 pages. Appendix E: Kohala Ditch Company, Limited - general history, engineering features, maintenance and discharge data.

Hawaii State Library. Honolulu.

Bowles, S. P., J. F. Murk, A. Y. Akinaka and C. S. May
1974 Kohala Water Resources Management and Development Plan, Phase II.

Bush, R. I. and A. Gerakas
1963 The Kohala - Hamakua Region General Plan, Island of Hawaii. Manuscript.

Prepared for Planning and Traffic Commission, County of Hawaii.

County of Hawaii, Department of Planning. Hilo.

Callan, Dennis
1973 Some Dietary Preferences of a Hawaiian Population: A Statistical Study of Covariation of Shell Midden. In Lapakahi, Hawaii: Archaeological Studies, Tuggle and Griffin (eds). Asian and Pacific Archaeology Series. No. 5, pp. 115-126. Honolulu.

The report summarizes statistical findings which suggest a strong negative correlation between cowry frequencies and total midden weights for the excavated area reported. Callan uses "frequencies" to mean percentage of total weight - not numbers.

Hamilton Library, University of Hawaii-Manoa. Honolulu. (GN871 A84 no. 5)

Chang, Deborah L.
1973 Factors which Possibly Account for the Inactivity and Seeming Resignation (Apathy) of Kohala People with Regards to their Future. Manuscript.

This analysis was written for University of Hawaii course IS 311 and concerns sociological background of Kohala community faced with imminent closing of Kohala Sugar Company. Brief historical section. 132 pages.

Bond Memorial Library. Kapa'au.

- Choy, Peggy
1973 Analysis of an Upland Agricultural Feature in Lapakahi. In Lapakahi, Hawaii: Archaeological Studies, Tuggle and Griffin (eds). Asian and Pacific Archaeology Series. No. 5, pp. 147-166. Honolulu.
- The author summarizes findings produced during excavation of selected pits and trenches within an enclosure which was apparently agricultural in nature and was superimposed on a previously existing field system with trails. The enclosure may have been intended for animal exclusion; there are no signs of habitation within the enclosure. Sweet potato is suggested as the chief crop.
- Hamilton Library, University of Hawaii-Manoa. Honolulu. (GN871 A84 no. 5)
- Cluff, Debbie F.
1963 An Analysis of the Fishhooks from the Archaeological Excavation of the Koaie Fishing Village, Kohala, Hawaii. Manuscript.
- The author describes a typological and stratigraphic analysis of all fishhooks recovered during the 1968 excavations by the University of Hawaii Summer Field Training Program. An attempt is made to document change in the fishhooks' forms through time, and to relate these changes to cultural developments in Hawaii.
- Department of Land and Natural Resources. Division of State Parks, Outdoor Recreation and Historic Sites. Honolulu.
- Conde, J. C.
1971 Narrow Gauge in a Kingdom: The Hawaiian Railroad Company, 1878-1897. Felton, California.
- A history of the Hawaiian Railroad Company which operated between Māhukona and Niuli'i in North Kohala.
- Hawaii State Library. Honolulu.
- Connor, Douglas R.
1968 A Surface Survey of the Area Near the Koaie Village Nucleus, Lapakahi. In The Archaeology of North Kohala: Excavations at Lapakahi - Selected Papers, Pearson, R. J. (ed.). Hawaii State Archaeological Journal. 69-2, pp. 10-64. Honolulu.
- Conner describes 55 archaeological features located north and south of Koaie in the coastal strip and diagrams seven structural types recognized. Sites include habitation and possibly other platforms and enclosures, burials, one probable heiau, one probable fishing shrine, salt pans, and probable pens. The author concludes that core-filled walls are associated with an earlier period than are layered walls.
- Department of Land and Natural Resources. Division of State Parks, Outdoor Recreation and Historic Sites. Honolulu.
- Cordy, Ross
1973 The Platforms of Features 20, 271, and 1222 in Koaie Hamlet. In Lapakahi, Hawaii: Archaeological Studies, Tuggle and Griffin (eds.). Asian and Pacific Archaeological Series. No. 5, pp. 71-86. Honolulu.
- The article reports data recovered during excavations of the three features. Fe 20 appears to be a cooking area without houses, based on relatively heavy midden contents and on the presence of firepits. Fe 1222 comprised five platform layers, the uppermost two with house fills; these platforms were used for eating (midden present) and presumably working. Fe 271 contained two platform areas, each with two platforms; one contained a house platform on its upper platform. As with the platforms in Fe 1222, both eating and working are suggested for Fe 271's platforms generally.
- Hamilton Library, University of Hawaii-Manoa. Honolulu. (GN871 A84 no.5)
- Damon, Ethel
1923 Father and Mother Bond. The Friend. July, pp. 164-165. Honolulu.
- A brief article concerning Elias and Ellen Bond.
- The Hawaiian Mission Children's Society. Honolulu.
- 1927 Father Bond of Kohala. The Friend. Honolulu.
- This history of Elias Bond, Protestant Missionary to North Kohala, is a compilation of his letter and station reports from his residency in Kohala through the second half of the 19th century.
- Hawaii State Library. Honolulu.
- Davidson, Janet
1972 Review of Pearson, R. J. (ed.), Archaeology on the Island of Hawaii. Journal of the Polynesian Society. Vol. 81, No. 3, pp. 400-401.
- Newman's article regarding Hawaiian cultural adaptations and his speculative sequence, and Soehren's reconnaissance report, are briefly and uncritically mentioned.
- Hamilton Library, Pacific Collection, University of Hawaii-Manoa. Honolulu. (Pac GN2 P7)
- Department of
1972 Land and Natural Resources, Division of State Parks, Outdoor Recreation and Historic Sites
North Kohala: Preservation Master Plan for Historical Resources (or: North Kohala: Preservation of Historic Resources). Manuscript, preliminary draft.
- This draft, for public review, briefly describes pre- and post-Contact sites in North Kohala, presents historical information dealing with Kamehameha, and discusses plans to make Kamehameha-related and other sites available to the public.
- Hamilton Library, Hawaiian Collection, University of Hawaii-Manoa, Honolulu. (Hawn DU 629 K63 H34)

- Emory, K. P.
1924 Conditions for Ethnological Field Work in Kohala and Hamakua, Hawaii. Manuscript, Bernice Pauahi Bishop Museum, June. Honolulu.
- The report is an account of a brief survey to assess the potential for ethnological field work. Emory notes archaeological features encountered on leeward coast between Māhukona and Kawaihae.
- Bernice Pauahi Bishop Museum, Department of Anthropology. Honolulu.
- Environmental Communciations, Inc.
1976 Kohala Community Development Plan for the County of Hawaii. Manuscript, draft only.
- The volume covers Kohala's resources in a comprehensive manner, including both natural and cultural features. Maps and figures are very useful.
- Department of Land and Natural Resources, Division of State Parks, Outdoor Recreation and Historical Sites. Honolulu.
- Ferdon, Edwin N.
1968 Review of Newman, T. S., The Archaeology of North Kohala: A Program Report on Archaeological Research. Asian Perspectives. Vol. 11, pp. 192.
- The reviewer summarizes briefly the theoretical framework discussed by Newman and expressed interest in the possibility that historic period data at the site may provide information regarding European impacts on native life.
- Hamilton Library, Pacific Collection, University of Hawaii-Manoa. Honolulu. (Pac DS 514 A78)
- Gardner, Mary L.
1922 Kohala in Retrospect. The Friend. August. Honolulu.
- One page article about Gardner's arrival in August 1899 in Kohala as a new teacher for Kohala Girls School; was written as a result of a revisit more than 20 years later.
- The Hawaiian Mission Children's Society. Honolulu.
- Green, R. C.
1971 Reviews. Journal of the Polynesian Society. Vol. 80, No. 1, pp. 138-139.
- The author briefly describes, and praises, the Pearson volume, without making any substantive additions. Newman's report is mentioned very briefly.
- Hamilton Library, Pacific Collection, University of Hawaii-Manoa. Honolulu. (Pac GN2 P7)
- Griffin, P. Bion, T. Riley, P. Rosendahl, and H. D. Tuggle
1971 Archaeology of Halawa and Lapakahi: Windward Valley and Leeward Slope. New Zealand Archaeological Association Newsletter. Vol. 14, No. 3, pp. 101-112.
- The authors summarize findings for Koaie and upland Lapakahi for the 1968-1970 seasons, and compare settlement patterns briefly with those found at Halawa, Molokai. A sequence of events, structural and sociocultural, is presented for coastal and upland Lapakahi.
- Hamilton Library, Pacific Collection, University of Hawaii-Manoa. Honolulu. (Pac DU400 N49)
- Hall, Jack
1896 Kohala's Gay Nineties. Manuscript.
- A collection of anecdotes concerning life in Kohala in the 1890's. The author, originally from Great Britain, was a plantation supervisor.
- Library, University of Hawaii. Hilo.
- Hansen, Arthur R.
1963 Kohala Sugar Company, 1863-1963. Manuscript.
- This centennial report for Kohala Sugar Company presents a history of the development of sugar in the district. Includes historical photographs.
- Hawaii State Library. Honolulu
- Hansen, Violet
1956 Notes of Mahukona Landing Area, North Kohala. Manuscript, Bernice Pauahi Bishop Museum, April. Honolulu.
- Brief notes concerning archaeological features in the area around Mahukona landing.
- Bernice Pauahi Bishop Museum, Department of Anthropology. Honolulu.
- Hart, C. F.
n.d. Diary 1886-1917. Manuscript.
- This is a diary of Niulii Plantation operations covering the period from 1886 to 1917. Author may actually be Robert Hall, plantation manager. Of note - author records purchases of land as result of natives going into debt. "Maikai deeded 4 1/2 acre lot of the Lunaililo land and 1 1/2 Kaili piece to C. F. Hart for the tune of \$407.00 that being the amount of his indebtedness on the Lunaililo lands mortgaged. The two above pieces taken at a valuation of \$350.00 and he paying into office \$57.00 in cash and receiving his mortgage cancelled" (p. 25; November 23, 1887). Xerox of original diary - handwritten - extremely difficult to read.
- Lyman House Museum Library. Hilo. (633.61H)

- Hind, John
1958 A Brief History of Robert R. Hind's Entry into the Sugar Business and its Continuance Under the Management of His Son, John. Manuscript.
- History of Hind family in sugar business, especially John's role, appears to be justification for requesting (or complaining?) about receiving same or less than other beneficiaries of R. R. Hind.
- Bond Memorial Library. Kapaau.
- n.d. Kohala in 1873 and 20 Years Thereafter. Manuscript.
- Vignettes of Kohala history from 1873 to 1893; includes personal view of district and significant events and personalities.
- Bond Memorial Library. Kapaau.
- Kailihalapia, John William
1849 Letter from a Native Christian. The Independent. Vol. 1, No. 12, p. 1. February 22. New York.
- Letter from native teacher in Bond's congregation to the New York Independent, a religious newspaper, describes seven month long drought. Lo'i are drying up. Chinese sugar man next to Bond's is planning on leaving Kohala in 1848. Letter is dated: Halaula, Kohala, December 8, 1847. Written in Hawaiian, translated by Bond.
- Lyman House Museum Library. (NS Box #4)
- Kaschko, Michael W.
1973 Functional Analysis of the Trail System of the Lapakahi Area, North Kohala. In Lapakahi, Hawaii: Archaeological Studies, Tuggle and Griffin (eds.). Asian and Pacific Archaeology Series. No. 5, pp. 127-144. Honolulu.
- This report and accompanying maps and figures trace and discuss trails surveyed by the author in upland Lapakahi. Two types of trail function are suggested by the varying data: boundary trails which separate land divisions, and smaller access trails which are found within a land division. The tracing of remaining trails, particularly in the coastal areas, is recommended as a means for establishing land divisions or tenure units, as well as social and economic pathways.
- Hamilton Library, University of Hawaii-Manoa. Honolulu. (GN871 A84 no. 5)
- 1976 Survey of Prehistoric Trails in Selected Areas of Leeward North Kohala, Island of Hawaii. Manuscript.
- Major trails are located and described for Kona, Paoo and Kapaloa ahupua'a, with emphasis on upland agricultural region.
- Kelso, Donald
n.d. Notes on the Marine Ecology at Koaie Hamlet, Kohala, Hawaii. Appendix J. In Hawaiian Fishing and Farming on the Island of Hawaii in A.D. 1778, Newman, T. S. Department of Land and Natural Resources, Division of State Parks, Outdoor Recreation and Historical Sites. pp. 281-287. Honolulu.
- The fieldwork completed by Kelso focuses on corals and sea urchins, and determines which species of each dominate the area tested at each of five offshore stations located along a line extending seaward from the beach at Koaie.
- Department of Land and Natural Resources, Division of State Parks, Outdoor Recreation and Historic Sites. Honolulu.
- Kennedy, Joseph E.
1973 Lapakahi Burials: Typology and Change. In Lapakahi, Hawaii: Archaeological Studies, Tuggle and Griffin (eds.). Asian and Pacific Archaeological Series. No. 5, pp. 245-256. Honolulu.
- Five of Bowen's* ten types of Hawaiian disposals of the dead were recognized in Lapakahi, varying in chronology: monument, burial, cist, heiau and house. Four types not described by Bowen are described for Lapakahi: crypt/monument combination, coffin, canoe, and platform/monument combination. A chronology is suggested for Bowen's types.
- *Bowen, Robert N. 1961 Hawaiian Disposal of the Dead. M. A. Thesis. University of Hawaii-Manoa.
- Hamilton Library, University of Hawaii-Manoa. Honolulu. (GN871 A84 no.5)
- Kohala Midget
1914 The Midget Story. Pamphlet, The Midget Press. Kohala.
- This is a history of the Kohala Midget - up until 1914. Purpose was to show example of press capability and tell history at the same time. 18 pages.
- Bond Memorial Library. Kapaau.
- Kohala Sugar Company
n.d. Company Records. Microfilm.
- The thirteen reels cover ledger sheets and payrolls for the company, under various names: Kohala Sugar Company, Niulii Mill and Plantation, Union Mill Company, Kohala Ditch Company, Kehena Water Company, Kohala Land Company, Homestead Plantation Company, "Hawi Banpo Book", and occasional illegible names.
- Hamilton Library Microfilm Collections, University of Hawaii-Manoa. Honolulu. (Set 5395 Reels 1-13)
- n.d. Annual Reports. Vols. 1897/ 1898-1920 and 1921-1940. Manuscript.
- Each report summarizes assets, debts, improvements, takeovers, etc., for the year. Plantation activities are occasionally described: e.g. billiards playing, a Filipino festival.
- Hamilton Library, Hawaiian Collect, University of Hawaii-Manoa. Honolulu.

- Loo, Virginia and Wm. J. Bonk
1970 A Historical Site Study and Evaluation of North Hawaii (with Specific References to the Districts of Hamakua North and South Kohala, North and South Hilo, and Puna. Manuscript.
- Eight sites or site areas in North Kohala were researched through available literature and then visited, examined, and evaluated in terms of the possibilities for their preservation. Each site was assigned a to one of three categories, consistent with National, State, County, and additional standards, as necessary. The eight sites/site areas include: Ho'olonopahu Heiau, Pololu; Kuapalaha Heiau, Makapala; Kamehameha Tunnel, Waiapuka; Statue of Kamehameha I, Kapa'au; Kamehameha 's Birthplace, Kokoiki; Mo'okini Heiau, Pu'uepa; Koai'e Village, Lapakahi; and Apa'apa'a I, Lapakahi.
- County of Hawaii Department of Planning. Hilo.
- Luscomb, Margaret K.L.
1974 Archaeological Walk-through Survey of Proposed Kawaihae and Kukuipahu Power Plant Areas, Island of Hawaii. B.P. Bishop Museum, Department of Anthropology. Honolulu.
- Archaeological remains, including platforms, walls, enclosures, possible burials, terraces, and a possible heiau, are reported for a small area of Kukuipahu which extends 3000 m (north-south) and about 300-350 m (mauka-makai) from the norther boundary of the ahupua'a at the coast.
- Department of Land and Natural Resources, Division of State Parks, Outdoor Recreation, and Historic Sites. Honolulu. (H-134)
- McKenzie, Phyllis
1973 Excavation of Two Rock Shelters and A Burial Mound. In Lapakahi, Hawaii: Archaeological Studies, Tuggle and Griffin (eds.). Asian and Pacific Archaeology Series. No. 5, pp. 201-212. Honolulu.
- The two rocks shelters (Sites 4893 and 4894) reprted here contained a considerable amount of midden, several artifacts, and, in the case of Site 4893, a firepit. It is suggested that Site 4894 was occupied earlier than 4893, and that both were used prior to or at Contact. Burial mound 4576, a component of Site 4724 (a loarge habitation complex) contained a male skeleton with a diseased leg, but no associated artifacts.
- Hamilton Library, University of Hawaii-Manoa. Honolulu. (GN871 A84 no.5)
- Mission Station Reports
1848 Extracts from Hawaii Island Station Reports 1848. Manuscript. Mission Station Reports, 1822-1865.
- This is a typescript copy of annual station reports for 1848 submitted by individual missionaries from all six stations on the island of Hawai'i and the Hilo Boarding School. Narrative accounts of the problems and prospects in each district regarding the common schools and church membership reveal similar conditions and missionary points of view. Bond's report on Kohala starts on page 9.
- The Hawaiian Mission Children's Society. Honolulu.
- Murabayashi, Edwin T.
1970 An Analysis of the Soils and Their Early Agricultural Implications in the Lapakahi Area of Kohala, Hawaii. In Hawaiian Fishing and Farming on the Island of Hawaii in A.D. 1778, Newman, T.S. Department of Land and Natural Resources, Division of State Parks, Outdoor Recreation and Historic Sites. Pp. 251-279. Honolulu.
- The report researches several problems of importance in archaeological analysis of the Lapakahi sites, using soils data.
- Department of Land and Natural Resources, Division of State Parks, Outdoor Recreation and Historic Sites. Honolulu.
- National Park Service (Department of the Interior)
1967 Survey No. HA-48, Historic American Building Survey. Site Plan.
- Survey consists of seven sheets of architectural drawings of the Bond house with site plans at a scale of 1 inch equals 400 feet. Tax key data are indicated. Project was recorded and financed by the Hawaiian Mission Children's Society and prepared by the Office of Archaeology and Historic Preservation (U.S. Department of the Interior).
- Hawaiian Missions Children's Society. Honolulu.
- Newman, T.S.
1968a The Archaeology of North Kohala: the Ahupua'a of Lapakahi (the Lapakahi Project). A Progress Report on Archaeological Research. Hawaii State Archaeological Journal 68-2. Department of Land and Natural Resources, Division of State Parks, Outdoor Recreation, and Historic Sites. Honolulu.
- This progress report summarizes some of the excavations carried out by the joint University of Hawaii-Hilo and University of Hawaii-Manoa field schools during the summer of 1968. It also summarizes procedures for field and laboratory work. Good photography of work in progress and of some of the artifacts.
- Hamilton Library, Hawaiian Collection, University of Hawaii-Manoa. Honolulu. (Hawn DU624 ALH35 68-2)
- 1968b The Lapakahi Project 1968: Possible Analyses of the Field Data. In Excavations at Lapakahi, North Kohala, Hawaii Island-1968, Pearson, R.(ed.)Hawaii State Archaeological Journal 69-1. Pp. 5-9. Department Of Land and Natural Resources, Division of State Parks, Outdoor Recreation, and Historic Sites. Honolulu.
- This report summarizes laboratory procedures and analysis which may prove useful in the processing of the Lapakahi 1968 material.
- Department of Land and Natural Resources, Division of State Parks, Outdoor Recreation, and Historic Sites. Honolulu.

- 1969 Cultural Adaptations to the Island of Hawaii Ecosystem: the Theory Behind the 1968 Lapakahi Project. In Archaeology on the Island of Hawaii, Pearson, R.J. (ed.). Asian and Pacific Archaeology Series. No. 3, pp. 3-14. Honolulu.
- The author discusses the effects of deforestation on the Hawaiian ecosystem, and briefly summarizes aboriginal cultural practices which contributed to deforestation. A speculative sequence of cultural adaptations to the marine and terrestrial zones of Lapakahi is presented.
- Hamilton Library, University of Hawaii-Manoa. Honolulu. (GN871 A84 no. 3)
- 1970a Hawaiian Fishing and Farming on the Island of Hawaii in A.D. 1778. Department of Land and Natural Resources, Division of State Parks, Outdoor Recreation, and Historic Sites. Honolulu.
- This report includes concise and comprehensive general environmental information regarding the Hawaiian Islands generally and North Kohala specifically. It focuses primarily on marine and land exploitation patterns suggested by historical and archaeological evidence for two Lapakahi sites: coastal Koai'e and upland Apa'apa'a I. Maps of still-existing field systems and of traditional land divisions are included, as well as maps of the archaeological sites which were excavated.
- Department of Land and Natural Resources, Division of State Parks, Outdoor Recreation, and Historic Sites. Honolulu.
- 1970b Makai-Mauka: Fishing and Farming on the Island of Hawaii in A.D. 1778. Ph.D. Dissertation. University of Hawaii-Manoa, Department of Anthropology. Honolulu.
- This dissertation provides the theoretical basis for the later Dept. of Land and Natural Resources publication (Newman 1970a). The author analyzes data recovered during the 1968 field season at Lapakahi to investigate marine and terrestrial exploitation patterns at Lapakahi.
- Hamilton Library, Hawaiian Collection, University of Hawaii-Manoa. Honolulu. (Hawn AC1 H3 no. 302)
- 1972 Two Early Hawaiian Field Systems on Hawaii Island. Journal of the Polynesian Society. Vol. 81, No. 1, pp. 87-89.
- Aerial and ground evidence for networks of rectangular fields paralleling the coast but inland, on Kohala Mts' west flanks, are summarized. Stone and earth field boundaries, rock cairns, garden areas and small enclosures are briefly described.
- Hamilton Library, Pacific Collection, University of Hawaii-Manoa. Honolulu. (Pac GN2 P7)
- Pearson, Richard J. (ed.)
1968 Excavations at Lapakahi, North Kohala, Hawaii Island - 1968. Hawaii State Archaeological Journal 69-2. Department of Land and Natural Resources, Division of State Parks, Outdoor Recreation, and Historic Sites. Honolulu.
- The monograph contains four student papers and a fifth by the field director of the 1968 field school excavation at Lapakahi. Subjects include laboratory analyses to be done; surface survey near Koai'e hamlet; trails in North Kohala; and various archaeological features at the coastal occupation.
- Department of Land and Natural Resources, Division of State Parks, Outdoor Recreation, and Historic Sites. Honolulu.
- 1969 Archaeology on the Island of Hawaii. Asian and Pacific Archaeology Series. No. 3. Honolulu.
- The collection of papers concerned with recent archaeological projects on the Big island includes two which deal with North Kohala. See Newman 1969 and Scenren 1969.
- Hamilton Library, University of Hawaii-Manoa. Honolulu. (GN871 A84 no. 3)
- Peterson, Jennie E.
1968 A Study of Trails in North Kohala. In The Archaeology of North Kohala: Excavations at Lapakahi, North Kohala, Hawaii Island - 1968, Pearson, R.J. (ed.). Hawaii State Archaeological Journal 69-2. Pp. 65-89. Department of Land and Natural Resources, Division of State Parks, Outdoor Recreation, and Historic Sites. Honolulu.
- This preliminary report on prehistoric and historic trail systems describes and maps those recognized during survey. Few were recognizably prehistoric, the great majority constituting cart and jeep trails (which may in some cases have been obliterated earlier trails). The author recommends further intensive survey in the area and comparisons with the trails documented in Honaunau.
- Rosendahl, Paul H.
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- This report summarizes the findings from three summers' archaeological investigations at Lapakahi, emphasizing data concerned with the agricultural area in the Kohala uplands. The author's doctoral dissertation (Rosendahl 1972) expands further on the theoretical framework for the research which is described here.
- Department of Land and Natural Resources, Division of State Parks, Outdoor Recreation, and Historic Sites. Honolulu.
- 1972 Aboriginal Agriculture and Residence Patterns in Upland Lapakahi, Island of Hawaii. Ph.D. Dissertation. University of Hawaii-Manoa, Department of Anthropology. Honolulu.
- The focus of this dissertation is agricultural land use in upland Lapakahi, considered together with residence patterns and with social organization which link the upland area with settlements at the coast. The results of three summers' archaeological research at Lapakahi sites contribute the data base for the research presented here.
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- 1974 Report on the Archaeological Walk-through Survey of a Coastal Portion of Kukuipahu, North Kohala, Hawaii Island. B.P. Bishop Museum, Department of Anthropology. Honolulu.
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- Department of Land and Natural Resources, Division of State Parks, Outdoor Recreation, and Historic Sites. Honolulu.
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1973 A Possible Sequence of Hawaiian Burials from Sites 4190 and 4195. In Lapakahi, Hawaii: Archaeological Studies, Tuggle and Griffin (eds.). Asian and Pacific Archaeological Series. No. 5, pp. 231-245. Honolulu.
- Six burials excavated in two structures are recorded here, and a sequence extending into the historic period is suggested. Two burials include historic artifacts. Others, including a tightly-flexed skeleton and a bundle burial, suggest pre-Contact features.
- Social Science Research Institute, University of Hawaii-Manoa. Honolulu.
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1980 Limited Phase I Archaeological Survey of Mahukona Properties, North Kohala, Island of Hawaii. Manuscript, B.P. Bishop Museum, Department of Anthropology. Honolulu.
- The monograph describes and maps sites recognized during initial surveys, discusses sites in the ahupua'a of Kaiholena in some detail, and draws comparisons between Kaiholena and Lapakahi. Kaiholena appears to predate significant European Contact, and coastal and intermediate zone remains suggest possible shifting residence patterns. The sites also appear to predate most of the Lapakahi finds, based on the absence of surface historic-period artifacts.
- Department of Land and Natural Resources, Division of State Parks, Outdoor Recreation, and Historic Sites. Honolulu.
- Shahrani, M. Nazif
1973 Socio-cultural Implications of Changing Patterns of Residential Features in Upland Lapakahi. In Lapakahi, Hawaii: Archaeological Studies, Tuggle and Griffin (eds.). Asian and Pacific Archaeology Series. No. 5, pp. 295-307. Honolulu.
- Habitation structure types include open C-shapes, closed C-shapes, box C-shapes, rectangular platforms, and L-shapes. These types are described for upland Lapakahi, and a tentative chronological sequence is suggested, which identifies platforms as superceding the other features. Temporary, or seasonal, dispersed habitation patterns are suggested for the study area.
- Social Science Research Institute, University of Hawaii-Manoa. Honolulu.
- Sinoto, Aki
1979a Archaeological Reconnaissance Survey of Mahukona Properties, North Kohala District, Island of Hawaii. Manuscript, B.P. Bishop Museum, Department of Anthropology. Honolulu.
- Thirty sites located in a zone approximately 150 to 400 ft asl (archaeologically described as intermediate between the coast and upland areas) are briefly described. Sites are primarily trails, shelters, cairns, and mounds.
- Department of Land and Natural Resources, Division of State Parks, Outdoor Recreation, and Historic Sites. Honolulu.
- 1979b Archaeological Reconnaissance Survey of a Proposed Road Corridor in the Kohala Estates Development, North Kohala, Hawaii. Manuscript, B.P. Bishop Museum, Department of Anthropology. Honolulu.
- The author summarizes the findings produced during reconnaissance survey in upland North Kohala. Fifteen sites represent probable agricultural structures and associated shelters, with the exception of several anu and a cluster of more than eight burial platforms. Further archaeological investigation is recommended.
- Department of Land and Natural Resources, Division of State Parks, Outdoor Recreation, and Historic Sites. Honolulu.
- Small, Gretchen
1968 Features on the Bluff overlooking the South Cove of Koai'e, Hawaii. In Excavations at Lapakahi, North Kohala, Hawaii Island - 1968, Pearson, R.J. (ed.). Hawaii State Archaeological Journal 69-2. Pp. 90-103. Department of Land and Natural Resources, Division of State Parks, Outdoor Recreation, and Historic Sites. Honolulu.
- Structural remains in a habitation area outside the nucleus of Koai'e, but close to it, include a stone-walled structure, core-filled walls, a terrace, a platform, and stacked walls. Primarily based on associated historic artifacts, these features are interpreted as contemporaneous, historic sites. Possible earlier occupation debris is also summarized for layers exposed through trenching.
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1932 Kohala Has a Ninety Year Old History. Manuscript.
- A brief history of the development of Kohala during the late 19th century and early 20th century, especially dealing with the sugar industry.
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- Smith, J.H., M. Noonan, and M. Bargion
1973 Lapakahi Coastal Excavations: 1970. In Lapakahi, Hawaii: Archaeological Studies, Tuggle and Griffin (eds.). Asian and Pacific Archaeological Series. No. 5, pp. 87-114. Honolulu.
- The authors summarize the findings contained in three structural complexes located north of Koai'e hamlet. Historic and prehistoric artifacts are listed for the three habitation complexes.
- Hamilton Library, Hawn Collection, University of Hawaii-Manoa, Honolulu. (GN871 A84 no. 5)
- Smith, K. and A. Schilt
1973 North Kohala: Agricultural Field Systems and Geographic Variables. In Lapakahi, Hawaii: Archaeological Studies, Tuggle and Griffin (eds.). Asian and Pacific Archaeological Series. No. 5, pp. 309-320. Honolulu.
- Known and postulated dryland and irrigated field systems are plotted against elevation, rainfall, and temperature curves, and against stream systems. Inferences are drawn regarding probable habitation areas (for the windward kula where sugar cultivation has destroyed much archaeological evidence), and regarding the ahupua'a as a social unit. Exchange of coastal for upland and forest items is suggested, as well as as exchange between wet and dry areas.
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- Soehren, Lloyd J.
1964 An Archaeological Reconnaissance of the Mahukona-Kawaihae Highway, Kohala, Hawaii. Manuscript, B.P. Bishop Museum, Department of Anthropology. Honolulu.
- Fourteen sites located along the path of the Mahukona-Kawaihae highway are reported, all interpreted as pre-Contact. At least eight are campsites; one or two may be graves, one is a burial cave and refuge; the rest are unclear as to function.
- Department of Land and Natural Resources, Division of State Parks, Outdoor Recreation, and Historic Sites. Honolulu.
- 1969 An Archaeological Reconnaissance of Parker Ranch Coastal Lands, North Kohala. In Archaeology on the Island of Hawaii, Pearson, R.J. (ed.). Asian and Pacific Archaeology Series. No. 3, pp. 15-24. Honolulu.
- One hundred and six sites are listed, and the major sites and features are discussed. Most sites are habitation structures; others include halau, heiau, and cairns, as well as salt pans. A few enclosures and platforms are of undetermined function.
- Hamilton Library, University of Hawaii-Manoa. Honolulu. (GN871 A84 no. 3)
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1977 Kohala Keia. Home Na'auao o Ka'u. Ka'u, Hawaii.
- This is a compilation of papers written by residents of Kohala who participated in a University of Hawaii-Hilo Continuing Education class. Papers present aspects of community life and history, including the sugar mills, plantation camps, the Bond Girls' School, and other topics.
- Hawaii State Library.
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1973 Analysis of Agricultural Features in Upland Lapakahi. In Lapakahi, Hawaii: Archaeological Studies, Tuggle and Griffin (eds.). Asian and Pacific Archaeological Series. No. 5, pp. 259-293. Honolulu.
- The author provides an interpretive, functional analysis of common structural feature types located in a study area between 800 and 1300 ft asl, and also describes in some detail the native plant families probably grown in the area prehistorically. Structures investigated include field system boundaries, rock piles, enclosures, terraces, "cupboards", and U-shaped structures. A tentative chronology is presented.
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- This compilation of available information lists, locates, and describes the heiau in North Kohala, including structures in Honokane, Pololu, Makapala, Halawa, Hapu'u, Halelua (2), Naohaku, Lamaloloa, and Pu'vepa.
- Hamilton Library, Hawaiian Collection, University of Hawaii-Manoa. Honolulu. (Hawn DU622 A4)
- 1907b Tales from the Temples: Part II, Heiau of Kohala. Thrum's Hawaiian Almanac and Annual for 1908. Pp. 58-69. Honolulu.
- The heiau known to have existed in Kohala are described in some detail. Historical information is included where available. See Thrum 1908a for list of heiau areas.
- Hamilton Library, Hawaiian Collection, University of Hawaii-Manoa. Honolulu. (Hawn DU622 A4)
- 1924 Heiaus (Temples) of Hawaii Nei. Thirty-second Annual Report of the Hawaiian Historical Society for the Year 1923. Pp. 14-36. Paradise of the Pacific Press. Honolulu.
- This general overview is concerned with the histories and current (at the time) condition of all heiau in the islands. It briefly summarizes historical and structural data for heiau at Kawaihae and for Mo'okini Heiau.
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Two years of research focusing on patterns of agricultural growth and land use in two windward valleys during pre-Contact times are proposed within a broad framework concerned with demographic and social change.
Department of Anthropology, University of Hawaii-Manoa. Honolulu.
- 1973 A Progress Report on Archaeology in Windward Kohala, January 1973. Report to the Department of Land and Natural Resources, Division of State Parks, Outdoor Recreation, and Historic Sites. Honolulu.
The report briefly summarizes the work completed during the 1972 University of Hawaii-Manoa field season in the windward valleys of Kohala. It discusses the potential importance of windward sites for the understanding of population change and the development of social complexity in Hawaii.
Department of Land and Natural Resources, Division of State Parks, Outdoor Recreation, and Historic Sites. Honolulu.
- 1974 An Interim Report on Archaeological Research in the Windward Valleys of Kohala, Island of Hawaii. Report to the Department of Land and Natural Resources, Division of State Parks, Outdoor Recreation, and Historic Sites. Honolulu.
The principal investigator for the University of Hawaii-Manoa windward valleys archaeological project summarizes the work done during the 1973 field season and discusses plans for the 1974 season. The most significant 1973 results include chronometric dates of AD 1500 for the Pololū Dune occupation and AD 1650 for sites in the central and upper valley of Pololū, and the discovery that most of Pololū was developed in dry rather than irrigation cultivation during prehistoric times.
Department of Land and Natural Resources, Division of State Parks, Outdoor Recreation, and Historic Sites. Honolulu.
- 1976 Windward Kohala - Hamakua Archaeological Zone, Island of Hawaii. Report to the Department of Land and Natural Resources, Division of State Parks, Outdoor Recreation, and Historic Sites. Honolulu.
Three summers of archaeological work in the windward valleys of Kohala and Hamakua are reported; drafts of detailed maps are provided. Habitation areas, irrigation terrace systems, dry agricultural fields, and swamp fields are described; occasional fortified ridges and heiau are also identified and described.
Department of Land and Natural Resources, Division of State Parks, Outdoor Recreation, and Historic Sites. Honolulu.
- Tuggle, H.D. and P.B. Griffin
1973a Lapakahi, Hawaii: Archaeological Studies. Editors. Asian and Pacific Archaeological Series. No. 5. Honolulu.
This collection of reports begins with a summary of lowland research in Lapakahi carried out between 1969 and 1970 (Tuggle and Griffin 1973b). Also presented are research reports completed for the Department of Land and Natural Resources, Division of State Parks, Outdoor Recreation, and Historic Sites, and selected student papers produced during the 1969 and 1970 field seasons. Subjects vary widely and include structural descriptions, a functional analysis of trail systems, an analysis of midden focusing on predominant shellfish species, a report on salt pans and salt production, and agricultural, sociocultural, geographic and hydrologic analyses of the study area.
Hamilton Library, University of Hawaii-Manoa. Honolulu. (GN871 A84 no. 5)
- 1973b A Summary of Lapakahi Lowland Research: 1969-1970. In Lapakahi, Hawaii: Archaeological Studies, Tuggle and Griffin (eds.). Asian and Pacific Archaeological Series. No. 5, pp. 1-68. Honolulu.
The report briefly describes the sites and features surveyed during the 1968 and 1969 seasons and summarizes data produced through excavations in Koai'e Hamlet and in the coastal area outside the complex in the 1969 research. The 1970 results are discussed in other papers in the volume. Dates are discussed and a model for population change in Lapakahi is presented. The report also suggests strategies for organization of the State Park at Lapakahi.
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This article analyzes the material from surveys and excavations in the windward valleys of Pololū and Honokāne Nui in the context of prehistoric settlement and agricultural growth. Chronometric dates from the late 16th century and stratigraphic data suggest a late and rapid settlement of these valleys.
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- Umebayashi, Colin
1973 The Relationship Between Water Resources and Archaeological Features in North Kohala. In Lapakahi, Hawaii: Archaeological Studies, Tuggle and Griffin (eds.). Asian and Pacific Archaeological Series. No. 5, pp. 321-325. Honolulu.
This article summarizes hydrographic data for North Kohala and attempts to correlate sites with specific types of water resources. Correlations are made with each of the 3 major agricultural zones in the district.
Hamilton Library, University of Hawaii-Manoa. Honolulu. (GN871 A84 no. 5)

- U.S. Department of the Interior
1971a Pololu Valley and Waipio Valley National Wildlife Refuges. Engineering Land Acquisition Report LA No. 1 Procedure. Step III. U.S. Department of the Interior, Fish and Wildlife Service. September.
- 1971b Pololu Valley-Waipio Valley. LA Step II. Biological Ascertainment Report. U.S. Department of the Interior, Fish and Wildlife Service.
- Both of the above are evaluations of natural environments of Pololū and Waipi'o Valleys, with recommendations for development of wildlife refuges.
- Hawaii State Library.
- Watts, Jennifer Hunt
1973 Excavation of a Salt Pan Site and a Discussion on the Hawaiian Salt Producing Process. In Lapakahi, Hawaii: Archaeological Studies, Tuggle and Griffin (eds.). Asian and Pacific Archaeological Series. No. 5, pp. 193-200. Honolulu.
- The report concerns excavations of a C-shape, which was found to contain several small salt pans, a coral area of unknown function, two cupboards containing gourd fragments, and a firepit which may predate the construction of the enclosing wall of the C-shape. Salt was produced through evaporation in several salt pans as an experiment.
- Hamilton Library, University of Hawaii-Manoa. Honolulu. (GN871 A84 no. 5)
- Williams, J.N.S.
1919 A Little Known Engineering Work in Hawaii. Thrum's Hawaiian Almanac and Annual for 1919. Pp. 121-126. Honolulu.
- This article documents the presence and location of an irrigation tunnel excavated through the basalt substrate adjacent to Neue Stream in Waiapuka. It concludes that the work is historic. A diverting dam was built in the streambed, a side ditch added, and tunnel excavated by connecting 19 wells dug down to the level of the stream.
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1968 Koae Village: the Southern Platform Complex. In Excavations at Lapakahi, North Kohala, Hawaii Island - 1968, Pearson, R.J. (ed.). Hawaii State Archaeological Journal 69-2. Pp. 104-127. Department of Land and Natural Resources, Division of State Parks, Outdoor Recreation, and Historic Sites. Honolulu.
- Six building phases are described for a portion of the Koae cluster, beginning with a dwelling platform and associated well and windbreak wall, and terminating with the construction of a jeep road and the deposition of piles of rubble during that construction.
- Department of Land and Natural Resources, Division of State Parks, Outdoor Recreation, and Historic Sites. Honolulu.
- Withrow, Abbie
1968 Rational for the Occupation and Desertion of a Single Site in a Sea-oriented Settlement Pattern. Manuscript. Paper prepared for University of Hawaii-Manoa anthropology class.
- The paper discusses the importance of marine resources and a useable coastline for early Hawaiian settlement and describes offshore and coastline features which may have led to the establishment of a fishing village at Koae. A posited decrease in the variety of fish at present may have resulted partially from fresh water runoff into the sea from agriculturally modified slopes.
- Department of Land and Natural Resources, Division of State Parks, Outdoor Recreation, and Historic Sites. Honolulu.
- Yent, Martha
1979 Archaeological Survey of the Kohala Ditch Trail, North Kohala - Hamakua, Hawaii. Report to the Department of Land and Natural Resources, Division of State Parks, Outdoor Recreation, and Historic Sites. Honolulu. June 18.
- This letter report summarizes a four-day hiking survey along the Ditch trail, with recommendations to maintain vegetation cover and to discourage removal of rocks for campfires. Also recommends some subsurface testing.
- Department of Land and Natural Resources, Division of State Parks, Outdoor Recreation, and Historic Sites. Honolulu.
- No author
1860-
1895 Licenses. Department of the Interior, Kingdom (and Republic) of Hawaii. Public records, unpublished.
- The ledgers cover license fees collected businesses in North Kohala. Businesses include retail, awa, plantation, lapa'au, butcher, auction, salmon, victualizing, pork butcher, cake peddling, retail spirits, billiards, peddling, and merchandizing. Hotels were apparently not licensed; none are listed for the district.
- Hawaii State Archives. Honolulu.
- No author
1855-
1959 Tax Assessment and Collection Books for North Kohala. Public records, unpublished.
- Annual tax book entries showing amounts assessed and collected by name and location of taxpayer. Locations are by ahupua'a in the early years (1855-1865), but thereafter, are associated with mills, plantations, and ranches, and a few independent land owners. Around 1924, the location of taxable land is identified by tax map or tax key. Original tax books are available for the period 1855-1899. Later entries (1900-1959) are on microfilm. Tax records are in Hawaiian until 1890; real estate and personal property taxes first appear in 1859.
- Hawaii State Archives. Honolulu.

No author
1884-
1900

Ports of Entry - Mahukona. Public records, unpublished.

Four journal type account books concerning port operations at Mahukona. Custom duties and port handling fees are listed by vessel name and dates of arrival (and departure). Book III includes additional entries for 1889 through 1900 for passenger arrivals, a summary of exports by tonnage and value, as well as the fees paid for taxable imports.

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1924 Hawaii 1778-1920 from the Viewpoint of a Bishop. Paradise of the Pacific. Honolulu, T.H.

History of the Anglican Mission in Hawaii, with a chapter on Kohala.

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Appendix 6.

A HAWAIIAN OLI AND OTHER THEMES

FOR THE POLOLŪ LOOKOUT

by

H. D. Tuggle

The new Pololū lookout which is recommended in this study offers an excellent opportunity to present to the public, through displays and/or brochures, a number of themes concerning the history of Kohala. It offers an outstanding vantage of the windward valleys, the kula gulch area, and the mountain crest, and is a central place from which interpretation of the history and environment of these areas can be carried out.

Beginning with recent history, information can be presented on:

1. sugar: the fields around the lookout were covered in sugar cane until only a few years ago; sugar, which had been grown in the district for over a hundred years, played a critical role in the social and economic life in Kohala.
2. rice growing by Chinese in Pololū.
3. the Kohala Ditch: visitors can view the valleys and appreciate the remarkable task of bringing water to the sugar fields.
4. the ruins of the oldest Catholic church in Kohala: they are located mauka of the lookout and can be pointed out and described.
5. the church district of Father Bond: 'Āwini can be pointed out and the description by Father Bond can be presented.
6. Kamehameha in Kohala: the story of his birth on the leeward side can be followed by describing the area of his seclusion in the windward valleys, and subsequent activities in the area, including his possible role in the construction of Waiapuka Tunnel.

7. the voyage of Captain Cook along the windward coast.
8. the prehistory of the windward valleys as revealed by archaeology: information can emphasize the irrigation systems in the valleys and on the land-shelves which can be seen along the coast, including the use of the coastal waterfalls for water sources.
9. the traditional history: the ridge "forts" can be pointed out and the traditional stories described which detail the critical battles which took place there in the two centuries prior to European contact; the location of the lookout itself can be identified as being on the traditional boundary between Pololū and Makanikahio, and that near this spot was located a god of Kamehameha (see Section III, p. 33).
10. the Hawaiian world-view: there are probably few ways that significant aspects of the Hawaiian world-view can be presented to the general public, but one approach is offered through this view of the windward valleys in combination with a traditional Hawaiian oli (chant) describing these valleys in a multi-leveled use of language, one level of which is the comparison of the valleys with the folds of a pa'ū (skirt).

This mele was published by N. B. Emerson in 1909 (reprinted 1965) (Unwritten Literature of Hawaii). He saw the complex allusions in the topographic names, but he lost the full import by not recognizing that they refer to one locality, the valleys and cliffs of the coastline from the cliff at Pololū (Kupehau) to the waterfalls of Waipi'o.

(Translation)

Oli Pa-ú

Kakua pa-ú, ahu na kikepa!
 I ka pa-ú, noenoe i hooluu'a,
 I hookakua ia a paa iluna o ka imu.
 Ku ka hu'a o ka pali o ka wai kapu,
 He kuina pa-ú pali no Kupe-hau,
 I holo a paa ia, paa e Hono-kane.

Málama o lilo i ka pa-ú.
 Holo iho la ke ála ka Manú i na pali;
 Pali ku kahakó haka a-i,
 I ke keiki pa-ú pali a Kau-kini,
 I hoonu'anua iluna o ka Auwana.

Akahi ke ana, ka luhi i ka pa-ú:
 Ka ho-oio i ke kapa-wai,
 I na kikepa wai o Apua,
 I hopu 'a i ka ua noe holo poo-poo,
 Me he pa-ú elehiwa wale i na pali.

Ohiohi ka pali, ki ka liko o ka lama,
 Mama ula ia ka malua ula,
 I hopu a omau ia e ka maino.
 I ka malo o Umi ku huná mai.
 Ike'a ai na maawe wai oloná,
 E makili ia nei i Waihilau.
 Holo ke oloná, paa ke kapa.

Hu'a lepo ole ka pa-ú;
 Nani ka o-iwi ma ka maka kilo-hana.
 Makalii ka ohe, paa ke kapa.

Opuu ke ahi i na pali,
 I hookau kalena ia e ka makani,
 I kaomi pohaku ia i Wai-manu,
 I na alá ki-ola-ola.
 I na alá, i alá lele
 Ia Kane-poha-ka'a.

Paa ia Wai-manu, o-oki Wai-pi'o;
 Lalau o Ha'i i ka ohe,
 Ia Koa'e-kea,
 I kauhihi ia ia ohe laulii, ia ohe.
 Oki'a a moku, mo' ke kihi,

Mo' ke kihi, ka maláma ka Hoaka,
 I apahu ia a poe,
 O awili o Malu-ó.

He pola ia no ka pa-ú;
 E hii ana e Ka-holo-kua-iwa,
 Ke amo la e Pa-wili-wili
 I ka pa-ú poo kau-poku--
 Kau poku a hana ke ao,
 Kau iluna o Pala'a-wili,
 I owili hana haawe.

Ku-ka'a, olo-ka'a wahie;
 Ka'a ka opeope, ula ka pali;
 Uwá kamalii, hookani ka pihe,
 Hookani ka a'o, a hana pilo ka leo,
 I ka mahalo i ka pa-ú,
 I ka pa-ú wai-lehua a Hi'i-lawe iluna,
 Pi'o anuene a ka ua e ua nei.

Pa-ú Song

Gird on the pa-ú, garment tucked in one side,
 Skirt labelike and beauteous in staining,
 That is wrapped and made fast about the oven.
 Bubbly as foam of falling water it stands,
 Quintuple skirt, sheer as the cliff Kupe-hau.
 One journeyed to work on it at Honokane.

Have a care the pa-ú is not filched.
 Scent from the robe Manú climbs the valley walls--
 Abysses profound, heights twisting the neck.
 A child is this steep thing of the cliff Kau-kini.
 A swelling cloud on the peak of Auwana.

Wondrous the care and toil to make the pa-ú!
 What haste to finish, when put a-soak
 In the side-glancing stream of Apua!
 Caught by the rain-scud that searches the glen,
 The tinted gown illumines the pali--

The sheeny steep shot with buds of lama--
 Outshining the comely malua-ula,
 Which one may seize and gird with a strong hand.
 Leaf of ti for his malo, Umi stood covered.

Look at the oloná fibers inwrought,
 Like the tricking brooklets of Wai-hilau.
 The oloná fibers knit with strength
 This dainty immaculate web, the pa-ú,
 And the filmy weft of the kilo-hana.
 With the small buds the tapa is finished.

A fire seems to bud on the pali,
 When the tapa is spread out to dry,
 Fressed down with stones at Wai-manu--
 Stones that are shifted about and about,
 Stones that are tossed here and there,
 Like work of the hail-thrower Kane.

At Wai-manu finished, 'tis cut at Wai-pi'o;
 Ka'i takes the bamboo Ko-a'e-kea;

Deftly wields the knife of small-leaved bamboo;
 A bamboo choice and fit for the work.
 Cut, cut through, cut off the corners;
 Cut round, like crescent moon of Hoaka;
 Cut in scallops this shift that makes tabu:
 A fringe is this for the pa-ú.

'Tis lifted by Ka-holo-kua-iwa,
 'Tis borne by Pa-wili-wili;
 A pa-ú narrow at top like a horse,
 That's hung on the roof-tree till morning,

Hung on the roof-tree Ha-la'a-wili.
 Make a bundle fitting the shoulder;
 Lash it fast, rolled tight like a log.
 The bundle falls, red shows the pali;
 The children shout, they scream in derision.

The a'o bird shrieks itself hoarse
 In wonder at the pa-ú--
 Pa-u with a sheen like Hi'i-lawe falls,
 Bowed like the rainbow arch
 Of the rain that's now falling.

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