

## Chapter 4

# Household Archaeology in Kīpapa and Nakaohu, Kahikinui

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### Introduction

Archaeology is a unique way of knowing about the human past. Unlike archival research or other historical techniques, archaeology takes the modern researcher physically into the houses and traditional spaces of old; it provides a potential means of understanding the organization and rhythm of ordinary lives in the past all over the world, for which we have no specific written documentation. For example, in a complex and varied society like that of pre-contact Hawai'i, there must have been much local and regional variation in cultural practices. One goal of the Kahikinui Archaeological Project is to document and seek to understand the daily life of the unique communities that once inhabited this *moku*. To this end, we have selected for study several structures in Kīpapa and Nakaohu Ahupua'a, using the approach and methods termed *household archaeology*. This chapter describes household archaeology, our methods, the preliminary results of our two seasons of work in Kīpapa and Nakaohu, and some of the questions we hope to answer through continued study.

### Household Archaeology

During the earlier part of this century, archaeology in Hawai'i was primarily an ancillary discipline to ethnography and ethnohistory, and all were part of an anthropological endeavor that sought to document traditional Hawaiian culture as it was presumed to have existed at the time of the first arrival of Europeans. During this period, archaeologists concentrated primarily on the study of known *heiau* sites and other large monuments such as fishponds, or on petroglyphs (Hiroa 1947). The discovery of radiocarbon dating in the late 1940s revolutionized the practice of archaeology worldwide, by providing a

means of giving “absolute” chronological dates to a site. Kenneth P. Emory took advantage of this new method and obtained the first radiocarbon date for Hawai‘i, from the rockshelter occupation at Kuli‘ou‘ou rockshelter, O‘ahu. The corrected age of A.D. 1004 ± 180 was older than he or other anthropologists had expected (Emory and Sinoto 1961), and inspired Emory and his colleagues to undertake an extensive program of excavations in Hawaiian sites during the 1950s. Emory’s work focused on chronological issues and on the definition of stylistic differences among certain artifacts, especially fishhooks (Emory, Bonk, and Sinoto 1959; see also Kirch 1985).

In the 1960s a new approach in archaeology, which asked different kinds of questions about the archaeological record, began to be applied in Polynesia (Green 1967). This “settlement pattern approach” was viewed as a way to move beyond questions of chronology, to the reconstruction of ancient systems of social and political organization. Settlement pattern archaeology involves documenting all of the sites—no matter how small or seemingly unimportant—on a landscape, in order to determine their interrelationships and gain insight into the organization of the community as a whole. It was this approach that Peter Chapman, inspired by the work of Roger Green in Mo‘orea (Society Island) and elsewhere, began at Kahikinui (see Kirch, Chapter 1, this volume). Chapman ambitiously began a survey of two *ahupua‘a*, Kīpapa and Nakaohu, and although his work was never published, his data form the foundation of the University of California at Berkeley’s Kahikinui Archaeological Project (K.A.P.).

Settlement pattern archaeology is designed to answer questions at a broad regional scale, that of the community and the polity. The distributional patterns of structures and sites across a landscape give testimony to the social and political structures of the society that once occupied and organized the land. If, however, we are interested in more of a *micro*-scale, such as the daily practices of Native Hawaiian *maka‘āinana* in Kahikinui, a different archaeological approach must be applied. The method and theory of household archaeology is designed to retrieve information about the organization of a society at a smaller scale *within* a community, the scale at which individual family units lived. In a real sense, household archaeology might also be called “family archaeology.”

Household archaeology is still a relatively new approach within the field of archaeology as a whole, and its methods and theory are therefore still developing (see Blanton 1993; Kent, ed., 1990; Wilk and Rathje, eds., 1982). Like settlement pattern archaeology, household archaeology is concerned with spatial patterning of human activities—as evidenced in the material remains they left behind—but at a *micro* rather than *macro* scale. Household archaeology requires

close attention to detail, to the distribution of such mundane things as fire pits, discarded food remains, and the waste flakes left by stone tool working on the floors of ancient houses. It requires extensive excavation of house floors to expose complete spatial patterns, and not just limited test pits. In areas such as Hawai‘i where much daily activity may have taken place outside of the confines of house walls, it requires excavating seemingly “vacant” spaces between structures.

Household archaeology is still a new approach in Polynesia and Hawai‘i, although there have been important applications in New Zealand (Sutton 1990), the Cook Islands (Walter 1993), and on Moloka‘i in the Hawaiian Islands (Weisler and Kirch 1985). One of the aims of our Kahikinui Archaeological Project has been to apply and develop the methods of household archaeology. As we shall explain, this is also essential in order to interpret the thousands of stone structures identified by archaeologists in their settlement pattern surveys, and in its own right as a way to open a window on the daily lives of those *maka‘āinana* who once claimed Kahikinui as its *kupa o ka ‘āina*.

## Traditional Households in Hawai‘i

Before turning to archaeological evidence from ancient Kahikinui households, it is important to review what has been recorded about the traditional households of *ka po‘e kahiko*. Most of our information comes from a limited range of sources. The first of these are written descriptions by early European visitors, beginning with Cook’s expedition and continuing over the next few decades (after the abolition of the *kapu* system, in 1819, the organization of Hawaiian households and houses began to change in certain significant ways). As firsthand eyewitness descriptions, these accounts are very significant, yet we must be careful about the potential biases of culturally-uninformed Western observers. Second, we have the accounts of several Native Hawaiian scholars of the mid-nineteenth century (most notably Kamakau [1976] and Malo [1951]) who wrote from personal experience and cultural perspective about houses, households, and daily life. Yet these accounts are brief, and also tend to represent an *ali‘i* or chiefly perspective. Third, there are later, twentieth-century efforts by both *haole* and Native Hawaiian scholars to synthesize a picture of Hawaiian domestic life. These include Brigham (1908), Handy and Pukui (1958), Hiroa (1957), and Forster (1960), whose researches are invaluable, yet to a large extent dependent on the first two groups of evidence.

As an example of the first category of evidence, we may turn to the account of La Pérouse, who in 1786 was the first European to enter and describe a Maui house, at Keone‘ō‘io in Honua‘ula, not too distant from Kahikinui. The

French explorer's journal reads as follows:

On our walk we came upon four small villages [households, *kauhale* ?] of 10 to 12 houses; they are built and roofed with straw [presumably *pili* grass] and resemble [*sic*] those of our poorest peasants, the roofs are coupled, the door is usually situated at the gable end, it is only 3 1/2 feet in height and anyhow can open. Their furnishings are merely mats which, like our carpets, make a very clean floor on which these natives sleep. Their only kitchen utensils are gourds of a large size to which they give the desired shape when they are still green; they varnish them and paint various designs on them in black (Dunmore, ed., 1994:89).

This is certainly a useful account (despite the bias of the French nobleman's comparison with "our poorest peasants"), yet it leaves out so much that one might wish for. Surely every house was not identical? Where were the hearths and cooking ovens? How many people lived in these little "villages"? These and a thousand more questions cannot be answered from La Pérouse's text, or from those of other early European observers.

Let us turn then to the accounts of traditional households authored by Native Hawaiian authorities of the nineteenth century. Foremost among these scholars was David Malo, born in 1795 at Keauhou, Kona, and a member of the famous first class of students at Lahainaluna Seminary, established in 1831 (Chun 1993). In his invaluable *Mo'olelo Hawai'i*, Malo (1951:118-24) devoted a short chapter to "The House—Its Furniture and Its Construction." (The Hawaiian text and a translation are also given in Brigham [1908:76-79, 122-23].) Most of the account deals with the technical aspects of house construction, thatching, the rites of dedication, and furnishings (as does the similar account by Kamakau [1976:95-108]). With regard to *variation* in styles of houses and households among the Hawaiian population, and to *functional* differences between houses within a household (*kauhale*), Malo's text is vital but brief. Let us quote it in full:

16. People who were of no account (*lapuwale*) did not follow this practice. They went in and occupied their houses without any such ceremony.

Such folks only cared for a little shanty, anyway; the fireplace was close to their head, and the *poi* dish conveniently at hand; and so, with but one house, they made shift to get along.

17. People who were well off, however, those of respectability, of character, persons of wealth or who belonged to the *alii* class, sought to do everything decorously and in good style; they had separate<sup>1</sup> houses for themselves and for their wives.

18. There was a special house for the man to sleep in with his wife and children (*hale noa*), also a number of houses specially devoted to different kinds of work, including one for the wife to do her work in (*hale kua*). There was the *halau*, or canoe house; the *aleo*, a kind of garret or upper story in which to stow things; also the *amana*, consisting of three houses built about a court.

19. This way of living corresponded with what the Hawaiians regarded as decent and respectable (Malo 1951:122).

While in contrast to La Pérouse's text we now have an "insider" cultural account, even more questions leap to mind. What, for instance, was the "*amana*," described only elusively as "three houses built about a court"? No such definition of *amana* appears in the definitive Pukui and Elbert *Hawaiian Dictionary*.<sup>2</sup> Clearly, not all Hawaiians of Malo's day lived the same kind of existence, or why else would he make such a point of differentiating the habits of the *lapuwale* from those of *po'e ko'iko'i*? In Malo's writing we get a clear indication of the importance—under the *kapu* system—of maintaining separate facilities for men and women. It is evident that Hawaiian households consisted of clusters of functionally-different structures. Yet we are given no details, no hint of the range of variation in daily practice. To Malo, such was probably mundane and self-evident, not worthy of his time. Would that we could interview the great scholar today!

Our third category of established evidence comes from those twentieth century researchers who attempted to systematize these earlier accounts together with their own observations of Hawaiian culture. None of these later works could be more important and influential than that of the

<sup>1</sup> At this point, Malo's 1898 editor, Nathaniel B. Emerson (son of missionary parents and a fluent Hawaiian speaker) inserted a lengthy footnote regarding the necessity of "a number of houses, the chief motive being to separate the sexes entirely from each other while eating," an aspect of the *kapu* system. Emerson goes on to enumerate such houses, including the *mua*, *hale noa*, *hale 'āina*, *hale kua*, and *hale pe'a*. It must be kept in mind, however, that Emerson was here writing from his own experience and knowledge, gained from his childhood in at Kawailoa, O'ahu.

<sup>2</sup> One of us (PVK) has observed a repeated pattern of three closely adjacent house foundations in parts of southeast Maui, as for example, at Waia'ilio in Kanaio Ahupua'a. Could this possibly be what Malo's reference to the *amana* is about? We are reminded also of the Russian explorer Golovnin's description that "each Sandwich Islander has to have three houses, cabins, or huts, depending on his status: one is used to sleep in, one for the men to eat in, and one for the women to eat in" (Golovnin 1979:178).

collaborative team of E. S. Craighill Handy and Mary Kawena Pukui, whose study of *The Polynesian Family System in Ka'u, Hawai'i* remains a classic (Handy and Pukui 1958). Handy, an anthropologist with experience in the Marquesas, Tahiti, and other parts of Polynesia, drew upon Pukui's vast knowledge as a *punahale* child raised in rural Ka'u, to jointly author the most detailed and nuanced account of traditional Hawaiian household life. Their text is too extensive to quote at length here, but let us provide a sampling:

Within the *'ohana* the functional unit is the household. One term used for household was the word *hale*, house. In inquiring about the number of "families" or domiciles in a given locality, one would ask "*Ehia hale la?*" (How many houses?) *'Ohua* was a term that signified retainers or dependents in the household. . . . The household included members of the family proper of all ages plus attached but unrelated dependents and helpers. The *po'o* ("head") or functional head of the domicile was not necessarily the senior member; it was and is specifically the member who assumes responsibility and makes decisions (1958:5)

Every Hawaiian household had a group of houses instead of a single house as it is today. A group of such houses was called a *kauhale*.

It used to be customary, in inviting people to come to one's dwelling, to say, "*E ho'i kakou i kauhale,*" or "Let us go to [our] *kauhale*." A person accustomed to go from house to house is said to be: "*ma'a i ka hele i kauhale.*" This word, *kauhale*, was used for a dwelling place until recent times when it changed to *ka hale*, the house, to fit the modern residence (1958:7).

Handy and Pukui devote several pages of their text to a discussion of the various kinds of functionally-differentiated structures that constituted a *kauhale*. These included the following:

- ***Mua***. "The *Mua* or men's eating house was a sacred place from which women were excluded. It was the place where the men and older boys ate their meals and where the head of the family offered the daily offerings of *'awa* to the family *'aumakua*. Here men and family gods ate together, and that was why women, who were periodically unclean, were not allowed to enter here" (1958:9).
- ***Hale 'Āina***. "The women had their own eating house, the *hale 'āina*. Here the women, girls and small boys ate together. . . . There were prayers in the women's eating house for the family *'aumakua* to bless their food and to come and partake, but the presenting of offerings belong to the men in the *mua* (1958:9).

- ***Hale Noa***. "Everybody slept in the *Hale Noa* (House freed of *kapu*), where no restrictions were placed on the men and women sharing it together. This house was for sleeping and no eating was permitted there" (1958:9-10).

The *hale noa* was divided into a sleeping place and a sitting or walking place. The sleeping place was raised and covered with finer mats. When unused for sleeping, no one was allowed to walk, sit or play on it. It was *kapu* (1958:10).

- ***Hale Pe'a***. "The women had another house that was built near but not too close to the other houses of the *kauhale*. This was the *hale pe'a*, a small comfortable thatched house where the women of the family retired when menstruating and remained until the period was completely over" (1958:10).

- ***Halau***. "A fisherman had a *halau* or long thatched house where he kept his canoe, fishnets, and other paraphernalia. *Kapu* were enforced there also, for no women were permitted to handle the large nets, or was anyone allowed to step over the lines, hooks or nets" (1958:11).

- ***Hale Papa'a***. "An inland dweller would have a house to keep his implements and store his crops until needed" (1958:11).

- ***Hale Kuku***. "*Tapa* makers had a thatched shed, called a *hale kuku*, where they pounded the inner bark of *mamaki* (*Pipturus* spp.) or *wauke* (*Broussonetia papyrifera*) into *tapa* cloth" (1958:12).

- ***Hale Kahumu***. "There was also the *hale kahumu* (*kahu-umu*), a thatched shed where cooking was done in bad weather and cooking materials were stored. The men had one, and the women had theirs, until the *kapu* on eating was abolished [1819]. In good weather, cooking was done in outdoor *imu*, one for the men and one for the women; but in rainy weather, or if there was not a quantity of cooking to do, the *hale kahumu* was the place to go. Some of these were small but many were large enough to include the storage of the utensils and implements" (1958:12).

- ***Kamala***. "A temporary house . . . was called a *kamala*. It was tent shaped . . . the rafters came right to the ground" (1958:13).

Handy and Pukui's account of the *kauhale*, of which we have only quoted the essentials, is by far the most detailed available. Yet it is also evident that Handy and Pukui were describing a system that neither had observed or experienced firsthand; as they say, the term *kauhale* had long since given way to *ka hale*, the single Western-influenced structure, "to fit the modern residence." Their account of the traditional *kauhale*



was an amalgam of oral traditions passed down to Pukui by her *kupuna*, and of earlier written accounts researched in the Bishop Museum Library and archives by Handy. While an “idealized” *kauhale* might include all of the various functionally-specific house types listed above, there is no reason to believe that all *kauhale* were, indeed, ideal. Just as in our own modern society there is a much variation in individual family living arrangements, it is likely to have been so in pre-contact Hawai‘i.

Hence we come back to the potential contribution of archaeology for writing a fuller history of the Hawaiian household—the *kauhale*—so central to the daily life of *maka‘āinana* and *ali‘i* alike. There are so many questions concerning the *kauhale* for which—despite the valuable records of early explorers, Native Hawaiian writers, and twentieth-century scholars—we still have no answers. For example, how did the *kapu* system and especially the ‘*ai kapu*’ prohibition on cooking and eating together by men and women actually operate, especially among *maka‘āinana* rather than *ali‘i*? To what extent were the households of *ali‘i* and *po‘e ko‘iko‘i* distinguished from those of *maka‘āinana*? There is also the question of change over time, for Hawaiian culture and society were not static. While all Polynesian societies have some form of *tapu* system, in Hawai‘i this was more elaborated in connection with the development of a ranked stratification of the chiefly classes (Kirch 1984). When did this elaborated *kapu* system come into effect, and when did it begin to influence the physical layout of *kauhale* clusters? Archaeology may never be able to answer all of these questions, or to answer them to our full satisfaction, but it does have the potential to expand our knowledge of the daily household lives of *ka po‘e kahiko*.

## Methods

As mentioned earlier, any settlement pattern study needs to be augmented by a program of subsurface excavations, both to determine the age (chronology) of the various structures, and to determine their previous functions. After all, how can one be sure of patterns of use of any specific structure without investigating its interior? In the Kīpapa-Nakaohu survey area, we have now recorded more than 1,300 individual stone structures (see Chapter 2, this volume). The functions of some of these may be evident because of their large size or unique form, as in the case of certain *heiau*. But the large majority of sites consist of simple, stacked-stone windbreak walls, terraces, or enclosures of various sorts, all of which could have been used in a variety of ways, ranging from *mua*, to *hale noa*, to *hale pe‘a*, to *hale kahumu*, and so forth. Only through careful excavation and study of the interior and exterior spaces of these structures can their former functions be

determined with accuracy. The idea of household archaeology, however, is more than simply “digging in houses;” it is an investigation of the space of the family, the fundamental unit of Hawaiian daily life. It involves far more extensive excavations of each structure than would normally be conducted because the goal is to understand the full range of activities that took place in the household and their distribution within that space.

The first step in constructing a research plan for household archaeology in Kīpapa-Nakaohu was to examine our survey data for potential evidence of household organization. Drawing upon the ethnohistoric and ethnographic sources referred to above, we began with the assumption that the pre-contact inhabitants of Kahikinui had lived in *kauhale* or “household clusters,” which would be made up of more than a single structure. When we studied our maps of site distribution it became clear that in some places, particularly along the crests of ridges, structures were grouped together in sets of threes and fours. Our working hypothesis was that such groups of closely-associated structures had once comprised individual *kauhale*.

The next stage was to select several of these clusters for initial testing. Since we had already located more than 1,000 structures in the project area, we choose the first places to be tested on the basis of variation in structural form, and for variation in geographic location (coastal and upland). Our first tests were conducted during the summer of 1995, and consisted of placing six test pits, none larger than 1 m square, in six different structures (Kirch and Van Gilder 1996:49-50, table 1). The structural forms that we tested included two linear shelters, two rectangular enclosures, an L-shaped shelter, and a C-shaped shelter. In all sites there was some indication of a cultural deposit (usually under some depth of post-occupation windblown sediment), but the cultural content within these deposits varied considerably. Some sites had a great deal of charcoal, while others had none. Similar variation was evident in animal bone and shellfish remains, in *kukui* (*Aleurites moluccana*) nut fragments, in basalt flakes, and in coral. For example, an upland rectangular enclosure (Site 44) had 60.7 g of charcoal, 8 pieces of animal bone, and no shellfish remains in a small test pit, whereas a coastal rectangular enclosure (Site 335) had no charcoal and only 1 fragment of fish bone, but 6.3 g of marine shells. Thus here are two structurally-similar sites (both rectangular enclosures) with very different subsurface contents. Their original functions were probably quite different, and only excavation would make this evident. Based on these initial test results, we were able to plan for more extensive excavations, and a true application of the methods of household archaeology, during our 1996 field season.

Since we were applying a household archaeology approach it was necessary that we choose sites likely to have

been associated together in a meaningful way for a family in the past. For our 1996 work, we selected three clusters of structures (including those which had been tested in 1995), and planned to excavate significant portions of every structure making up each cluster. We began by clearing the structures of lantana and other vegetation, taking extensive photos, and making detailed maps at 1:50 scale. A grid of 1 x 1 m squares was then laid across each site for control during excavations. Excavation was done carefully with hand trowels and brushes, with the materials in each grid unit kept together and their depths below ground surface and datum carefully recorded. All of the earth was sieved through nested screens of 1/4- and 1/8th-inch mesh, and all cultural materials such as charcoal pieces, fragments of marine shell, waterworn pebbles, and so forth were meticulously recorded and bagged by grid unit and depth. All of these materials have subsequently been cataloged and the information organized in a computerized database (Paradox for Windows 4.0), which will allow us to analyze this material more readily.<sup>3</sup> Few formal artifacts were found despite the extent of our excavations, but to the archaeologist, the scraps of shell and charcoal and their distribution patterns are actually more important than finding a finished adz or fishhook. Our strategy was to open up large portions of the floor of structure at a time, so that we could see how patterns developed on the structure floor.

Since our goal was to research *intra*-site organization—in order to understand what kind of activities took place within a household cluster—we had to excavate large areas of every structure and keep careful records of soil color and texture, groupings of cultural remains, and of features such as ovens, hearths, or pits, anything that might give us a clue as to what kinds of things people were doing in that structure. One of the most common household features we encountered were “combustion features,” places where fires had been ignited. We use the general term combustion feature so as not to bias our interpretation of the functions of such features. Some certainly functioned as *imu* or earth-ovens, while others are more formal and stone-lined, and were probably *kapuahi* hearths. But other combustion features do not fall readily into either of these Native Hawaiian categories, and may represent cultural practices that are not well documented. Whenever possible, the materials which were found within a combustion feature were kept separate from all others; this includes charcoal which will be identified to botanical species to see what specific woods were being burned, and for radiocarbon dating.

## Preliminary Results

In the following pages, we now present some of the preliminary results of our studies at three household clusters or *kauhale* in Kīpapa and Nakaohu Ahupua‘a. Because the detailed studies of fish bone, shell, charcoal, basalt flakes, and other materials from these sites are still in progress, our statements and conclusions should be considered tentative. We have given names to each cluster according to their relative topographic positions: on the coast (Nakaohu Kai Cluster), in the mid-elevation zone (Kīpapa Waena Cluster), or in the higher uplands (Kīpapa Uka Cluster). The locations of these clusters are indicated on Figure 4.1. A summary of the structures within each *kauhale* cluster is given in Table 4.1.

### Kīpapa Waena Cluster

The Kīpapa Waena cluster lies astride a prominent ridge of aa lava a short distance east of the *mauka-makai* jeep road in Kīpapa. From this ridge the terrain steeps down steeply on three sides, with a large deep swale immediately *makai*, which was probably an excellent location for gardening. A small “valley” to the west of the site is occupied today by a grove of *wiliwili* trees. The cluster consists of four distinct stone structures (741, 742, 752, and 1011), all much closer to each other than to any other sites in the vicinity. Site 742, the highest in elevation on the ridge flat, is a linear shelter or long windbreak wall. A low wall of single course stone slabs comprises Site 741. Site 752 is a substantial stone-faced terrace located just below 742, on the ridge crest. Finally, Site 1011 is a small C-shaped shelter surrounded by a low wall and located on a natural terrace below Site 752.

The wall of Site 742 is of substantial construction, including several large, fine pahoehoe slabs, and approximately 10.5 meters in length (Figure 4.2). Located on the top of the ridge, it has the most sweeping view of the surrounding area, and indeed from here one can see the Luala‘ilua coastline, as well as *mauka* towards Pu‘u Pane. After clearing, it was evident that the linear wall protected a substantial flat area in its lee, where we concentrated our excavations. This area contained numerous small combustion features of relatively informal construction (Figure 4.3), typically concentrations of small, fire-altered stones set in a shallow, basin-shaped depression (thus not a true *imu*). They were probably small hearths of some kind, most likely for warmth and light, but possibly also for cooking of some kind (e.g., roasting). Further

<sup>3</sup> By mutual agreement with the Department of Hawaiian Home Lands and Ka ‘Ohana O Kahikinui, after analysis all of these excavated materials and samples will be curated in the Maui office of the State Historic Preservation Division, pending their ultimate disposition, possibly at a cultural center to be constructed within Kahikinui itself.

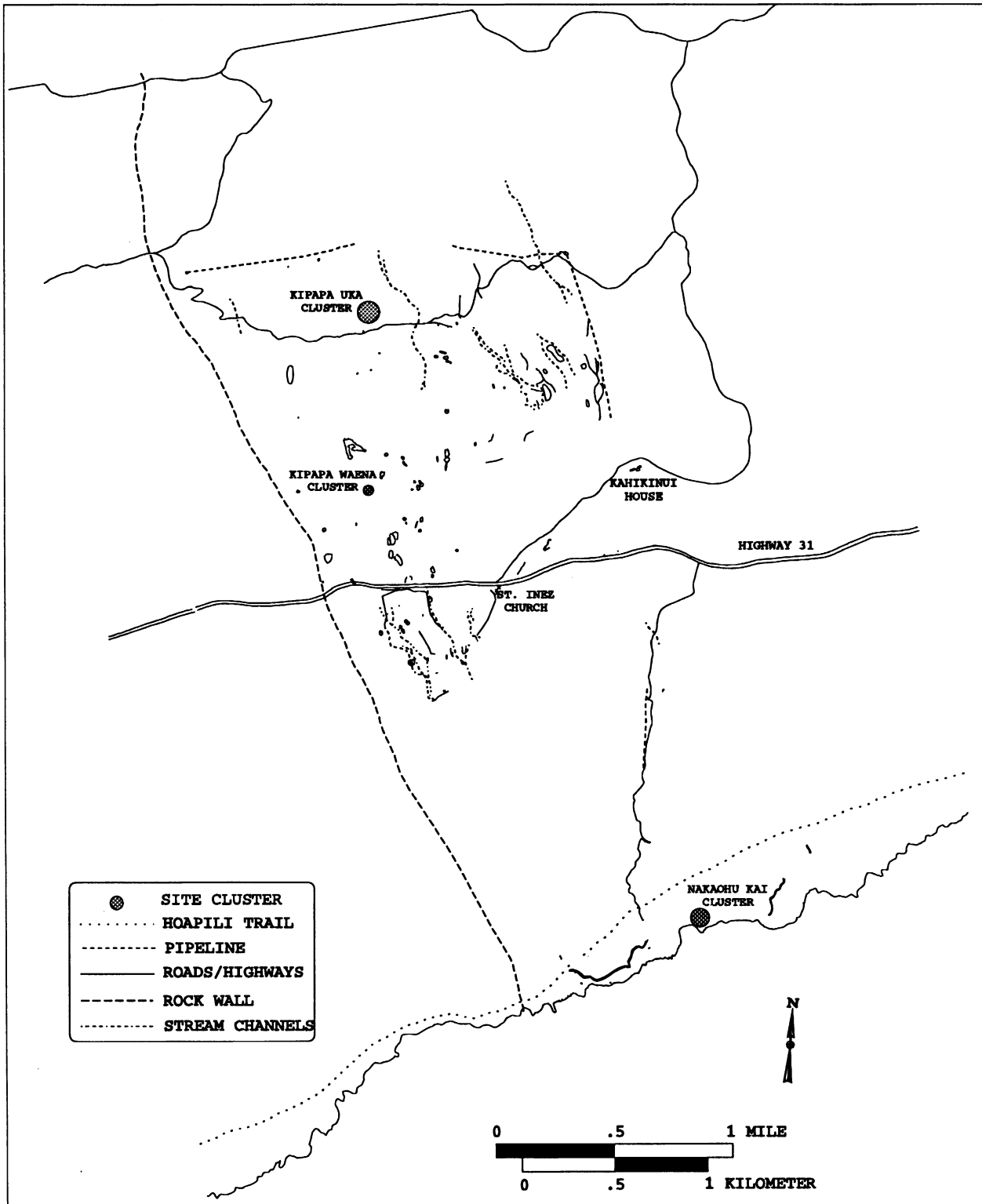


Figure 4.1 Locations of household clusters discussed in Chapter 4.

Table 4.1 Kīpapa-Nakaohu site excavations, 1996.

Cluster and Site Number	Site Type	Dimensions (m)	Excavated area (m)	Features
Kīpapa Waena Site 742	Linear shelter	10.5 x 6	28	Multiple small informal hearths; Slab-lined niche
Site 752	Stone-faced terrace	14.5 x 6	20	Two slab-lined hearths; internal pit; Cupboard; Exterior <i>imu</i> area
Site 1011	C-shaped shelter	4 x 3.5	8	Well-defined exterior <i>imu</i>
Kīpapa Uka Site 44	Rectangular enclosure	6 x 6	13	Slab-lined hearth; Lava tube cupboard
Site 45	Linear shelter	17.5 x 6	13	Two slab-lined hearths
Site 46	U-shaped enclosure	8 x 7.5	8	Partially stone-paved interior
Site 48	L-shaped shelter	4.5 x 2	5	No features
Nakaohu Kai Site 331	Linear shelter	8.5 x 5	4	One combustion feature
Site 334	Rectangular enclosure	12.5 x 6	3	No features
Site 335	L-shaped shelter	11.5 x 5.5	4	No features

analysis of their contents will help us determine their probable use. Site 742 is also notable for the presence of numerous flakes of fine-grained basalt, some bearing ground edges or facets, and therefore indicating that they were derived from the process of re-sharpening stone adzes.

Of special interest was a small carefully-constructed niche defined by stone slabs, located in the northeast corner of the structure (Figure 4.4). Inside the niche were two small waterworn stones. We believe that the position of this feature in the northeast corner is quite significant, for the northeast is also the ritually prominent location in most Kahikinui *heiau* (see Chapter 2, this volume). Samuel Kamakau, in his discussion of ancient religious practice, wrote that “the *heiau ipu-o-Lono* constantly maintained by the populace was the *hale mua*, the men’s eating house, which every household had” (1976:133). Although Kamakau does not describe a stone-lined niche, he does discuss the sacred gourd or *ipu kua’aha* (*ipu ’aumakua*) containing “food” and “fish” (*’ai* and *i’a*, things of the land and of the sea), with an *’awa* root tied to its cord handle. Kamakau says that this sacred gourd was variously kept on a “hanging post, the wall, or the rack,” or perhaps as in this case, in a special niche. The presence of this special niche, plus the physical location of Site 742 at the highest part of the cluster, and the evidence for stone-tool working (a presumably male activity) are all evidence that this structure may have been the *mua* for this *kauhale*.

Heading south down the ridge, there is a steep drop

of several meters to the terrace of Site 752. The north wall of this structure is comprised of the natural outcrop, modified in places by a stacked stone wall. A small niche is present in this rear wall, possibly having been used as a cupboard but nothing remained in its interior. The south terrace facing is substantial and well constructed, almost 2 m high in places. The east side of this rectangular structure is partially built up into the slope of the ridge, while the south and west sides have little or no visible rock walls. The natural terrace surface has been substantially added-to and built-up with stone fill to create a larger living space. This site had a significantly deeper deposit of cultural materials than that at 742, including the traces of a possible pit in the center of its floor.

Perhaps the most remarkable discovery at Site 752 was that of two rectangular, slab-lined hearths set close to each other in the eastern half of the main terrace (Figure 4.5). Each hearth contained charcoal and food related refuse. The cultural deposit in the living floor of this terrace yielded a range of food remains and a few simple artifacts (such as coral files and a hammerstone). The most likely interpretation of Site 752 is as the *hale noa* or main dwelling house, for this *kauhale*. The two hearths, sitting side by side in the house may represent individual women’s and men’s cooking facilities, as would be consistent with adherence to the *’ai kapu*. If so, however, we are faced with a seeming contradiction in terms of the ethnohistoric accounts, for most sources suggest that these cooking places were in separate structures (e.g., Malo



Figure 4.2 View of Site 742.

1951:27). Here, perhaps, we have a glimpse into local domestic practices that varied from what has been described in the literature. Although written sources indicate that cooking by the two genders took place in different buildings, that may not have been the way that local *maka'āianana* in Kahikinui chose to interpret the *kapu*, opting instead perhaps for physically separated *kapuahi* within a *hale noa*.<sup>4</sup> As we shall see, a similar set of dual hearths was also uncovered at Kīpapa Uka Cluster (see below).

The smaller, western half of the Site 752 terrace was also excavated, and revealed an area that appeared to have been used for construction of large earth ovens or *imu*. A deep deposit of very dark brown and unusually red earth (from burning) was found behind a large boulder that seems to have been set upright to serve as a windbreak. An enormous amount of charcoal was recovered from this area, much of it in large

pieces. The excavation profiles showed the outlines of a series of intersecting pits, indicating repeated use of the area for such ovens.

The third structure which we excavated is Site 1011, a small C-shaped enclosure. The interior of the C-shape lacked any features, but immediately to the west in a flat, terraced area was a single, very large earth oven. The shape of the oven was well preserved, and had been outlined with large stones, and the interior was filled with layers of ash and charcoal. The site is south (downslope) of 752, on a broad natural terrace overlooking a deep swale. The outline of the terrace appears to have been augmented with a low wall of stone defining a sort of yard-like space around Site 1011. Since we have an oven area in the western part of Site 752, this makes two oven spaces for the *kauhale* complex. Being downslope, perhaps this was the formal *imu* for the women of this household?

<sup>4</sup> It is important to note, however that these rectangular hearths in site 752 are not *imu*, as they do not have pits. While they seem to have been used for cooking, this must have been for roasting or broiling methods.



Figure 4.3 A small combustion feature exposed during the excavation of site 742.

To sum up, our current interpretation of the Kīpapa Waena Cluster is that the highest structure on the ridge, Site 742, functioned as the *hale mua* or men's house, while the 752 terrace supported the common dwelling house or *hale noa*, along with a possible men's *kahumu* or oven house on the western part of the terrace. Site 1011, at the lowest point in the cluster, was most likely to have been the women's *kahumu*. In virtually every Polynesian society, the vertical spatial axis is extremely important as an expression of rank, gender, and sacredness. Relative height is thus associated with maleness, seniority, and *kapu*, while relative lowness is associated with femaleness, junior status, and *noa*. Thus in Kīpapa Waena Kauhale, it would be culturally consistent for the *mua* to be at the top of the complex, and the women's cooking facility at the bottom. What was unexpected based on the available written sources, however, was the presence of twin stone-lined hearths within the presumed *hale noa*, perhaps representing a hitherto undocumented cultural practice of gender-differentiated secondary cooking spaces within the main dwelling house.

### Kīpapa Uka Cluster

The second cluster that we investigated was situated in the higher uplands (*uka*) and consists of four structures (Sites 44, 45, 46, and 48). These are aligned along a low pahoehoe ridge just *mauka* of the first east-west jeep cross road. The ridge lies just east of a good-sized swale which probably was a cultivation area (see Chapter 2, Figure 2.5). Site 46 is the highest in elevation with 48, 45, and 44 running down the ridge towards the south. These are a large U-shaped structure, a small L-shaped structure, a linear shelter, and a rectangular enclosure, respectively.

Site 46, sitting at the top of the ridge, is a U-shaped enclosure open to the south. Three low stone walls define a level area that had been at least partially paved with carefully-selected flat basalt slabs. Our excavations did not reveal any hearths or pits, and very little cultural materials, with the exception of a number of volcanic glass flakes. Given the higher elevation with regards to the rest of the household cluster, and the special care taken with the basalt paving, it is



possible that this structure was a *mua*. However, no altar or niche was found (as in Site 742), and this interpretation is tentative.

Slightly lower in elevation and offset to the east is Site 48, the function of which remains a mystery. It is a small L-shaped shelter, with virtually no cultural materials whatsoever, or any trace of internal features. Whatever activities took place there, they left no physical remains. The low wall defines a fairly small area so perhaps it was used for storage (e.g., a *hale papa'a* ?); another possibility is that it was a space for activities such as weaving which would not leave archaeologically visible traces.

Moving down the ridge, Site 45 is a linear windbreak shelter situated on a substantially built-up terrace. As at Site 752 in Kīpapa Waena, Site 45 had two stone slab-lined hearths (Figure 4.6) situated close to each other in the eastern part of the house floor. Again, we are of the opinion that these features

have some relation to the *'ai kapu*. However, we will need to determine whether the hearths date from the same period, and what type of food remains each contains, before we can assess the likelihood of this interpretation.

The lowest structure in this cluster, Site 44, is a four-walled rectangular enclosure with walls about 1 m high, which contained a great deal of cultural debris, such as scattered charcoal and animal bones. There was such an unusually large quantity of charcoal spread throughout the interior of the structure that we have considered the possibility that the wood and grass superstructure (i.e. walls and roof) may have burnt. Site 44 also had a single, centrally located slab-lined hearth containing a carbonized tuber of *'uala* (burnt sweet potato). The ridge on which this cluster is located is a *pahoehoe* flow with a lava tube underneath. In the northeast corner of Site 44, it appears that the inhabitants deliberately broke through the thin rock roof of the underground tube to create a small niche

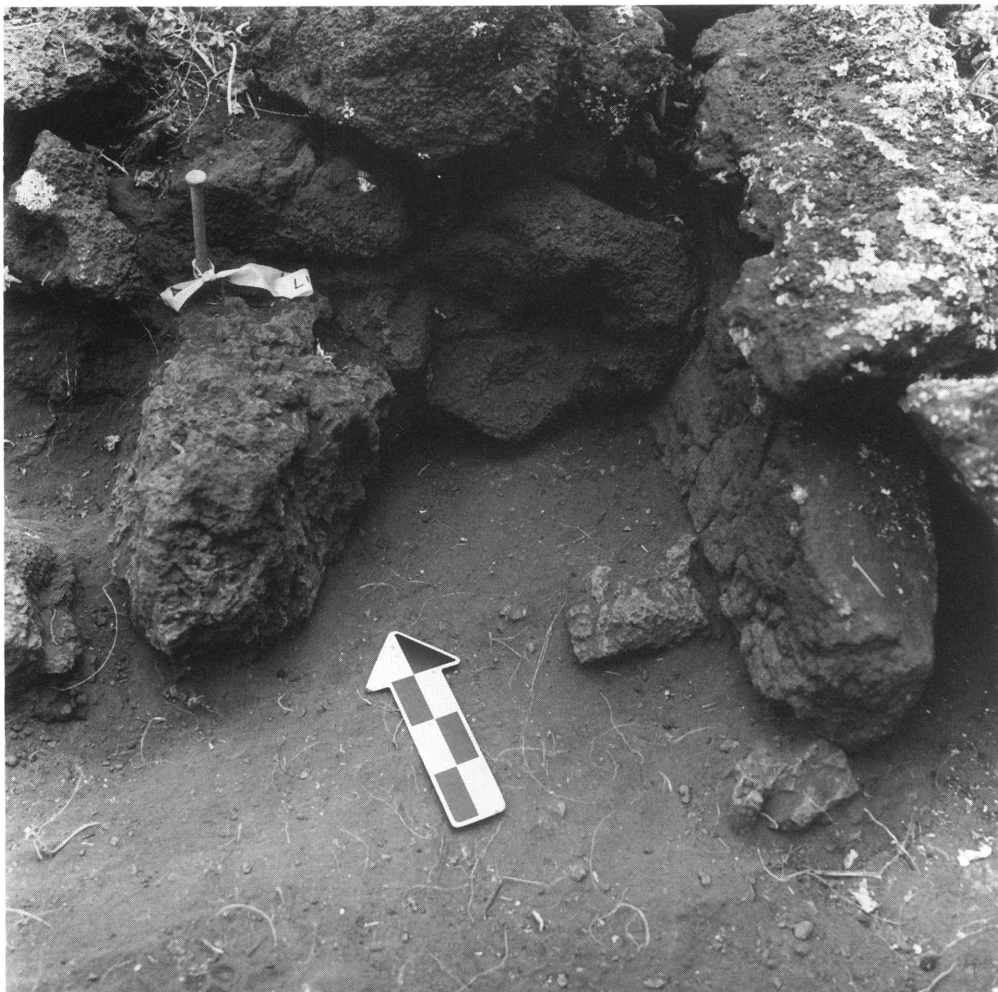


Figure 4.4 Pahoehoe-slab lined niche, situated in the northeast corner of site 742.

(or altar?) area within the house. Indeed, it appears that Site 44 was specifically built in this location so that this opening could be included in its northeast corner.

Our current interpretation of this complex is that Sites 44 and 45 seem to have been the everyday sleeping and cooking structures while 46 and 48, with virtually no cultural materials, may have been more specialized structures. It is possible that the larger of the two, 46, functioned as the *hale mua*, or men's house, of this household.

### Nakaohu Kai Cluster

The third cluster which we investigated is in the coastal sector of Nakaohu Ahupua'a. The cluster lies just inland from the imposing cliffs of Puhimake Bay, arranged along two aa lava ridges overlooking a small swale or depression (see Figure 2.6). Due to time limitations, we were unable to test several small rock shelters and C-shaped shelters

in the area that undoubtedly were spaces used by its inhabitants. At the furthest point *mauka* overlooking the entire cluster is a beautifully-preserved *ko'a*, or fishing shrine. A small rectangular enclosure with paving and internal space segmentation, its careful construction and many offerings of branch coral speak to the site's importance.

We excavated at three of the structures in this complex, Sites 331, 334, and 335. Interpreting the pre-European contact settlement patterns along the coast can be difficult, because it appears that these areas continued to be occupied after contact, and possibly well into the nineteenth century. This means that some structures were occupied both before and after European contact, others only before, and others only after. In some cases, excavations alone cannot answer this question, it requires the definitive assessment of radiocarbon dating. Since no radiocarbon dates have been processed for these sites yet, the interpretations which follow



Figure 4.5 View of Site 752 after excavation.





Figure 4.6 View of Site 45 after excavation.

represent our best assessment based on the architecture and nature of excavated remains at each of the sites. However, we suspect that Site 334 is an exclusively post-contact structure while Sites 331 and 335 are almost certainly pre-contact, but may or may not have continued to be used into the early nineteenth-century.

Site 334 is a large rectangular enclosure situated in the bottom of the low gully or swale that runs through the complex, and is protected from the wind by ridges on three sides (Figure 4.7). We suspected that this site had been occupied in the post-contact period because of its large size (12.5 x 6 m), unusually high walls, and well-defined rectilinear doorway at its south end. Such attributes are typically associated with nineteenth-century Hawaiian houses (see Brigham [1908] for many photographic examples). When we cleared the structure of lantana, the floor was covered with a mixture of

crumbled shell and coral, with some *'ili'ili* gravel evident. We also found a hammerstone and several large waterworn stones on the surface. We excavated a 1 x 3 m trench across the floor, revealing a thin cultural deposit reflecting only a single occupation phase. This deposit contained pieces of ceramic dishes, trade beads, and most notably, a broken slate pencil of the kind distributed by the Protestant missionaries during the 1820s.<sup>5</sup>

There is no evidence of a pre-contact occupation in Site 334, and we think it likely that the household which had occupied the other structures in the Nakaohu Kai Cluster built Site 334 to serve as their primary residence in the early nineteenth century. If we are correct in this interpretation, this is excellent archaeological evidence for the kind of shift from a multi-structure *kauhale* to a single *ka hale* as described by Handy and Pukui (1958), and resulting in part from the

<sup>5</sup> This slate-pencil may be significant, for an isolated, rectangular enclosure on a high rise a few hundred meters east of Site 334 is likely to have been an early nineteenth-century school house (see Chapter 2, this volume).



Figure 4.7 View of the post-contact stone walled enclosure, Site 334.

abolition of the *kapu* system.

Site 335 is a linear shelter that had been segmented into two separate sections or “rooms.” It is likely to have been one of the main living areas for the Nakaohu Kai household in pre-contact times, possibly a *hale noa*. Like all of the sites at the coast there was a fair distribution of crumbled shells and coral across the floor of the structure. The bend portion of a bone fishhook was also recovered from this site. No hearth-like features were identified in this structure, but due to time constraints our excavations at this site were more limited, and it is possible that such hearths are present in the unexcavated areas.

Site 331 is a linear shelter located on the ridge crest looking down over the rest of this household cluster. When we had tested Site 331 with a single 50 x 50 cm excavation unit in 1995 we found virtually nothing. However, we had previously noted the presence of many basalt artifacts such as broken pieces of adzes and flakes, scattered over the surface, and thus were perplexed when our subsurface investigations yielded

nothing. We returned to Site 331 in 1996, however, determined to figure out why there was such a disparity between the richness above ground and the poverty below. In fact, we soon discovered that we had managed to position our 1995 test unit over virtually the only empty section of the structure’s interior, reinforcing our point that household archaeology requires more extensive excavations than mere test pits.

Our excavations at Site 331 in 1996 recovered a significant number of basalt flakes, a small ashy hearth-like feature, and a greater quantity of pig bones than in any other site so far in our household excavations. Under the ‘*ai kapu*’ system, pig was traditionally a special food reserved for male consumption, and thus our interpretation of Site 331 is that it functioned as the *hale mua* for the Nakaohu Kai Cluster. This interpretation is supported by the site’s physical position at the top of the cluster, close to the fishing shrine. In both the Kīpapa Waena and Kīpapa Uka households, the structure that we have tentatively identified as being the *hale mua* was also the highest site in its cluster, and in two cases these structures are

also associated with basalt flaking debris. Thus far we have only these three households to compare, but as we continue to research the nature and patterning of family life in Kahikinui, we may find that within the household, sites of a more sacred or specialized nature were deliberately placed at a higher elevation than those used for more mundane tasks.

### Radiocarbon Dating

The cultural materials present in each of the excavated sites just described provide some indication of whether each is pre- or post-contact. For example, the high-walled rectangular enclosure at Nakaohu Kai (Site 334) yielded metal, glass, and ceramic objects that clearly date it to the first half of the nineteenth century. None of the other excavated sites yielded such post-contact materials, suggesting that they either dated prior to 1778-79 (the dates of Cook's fateful expedition), or at least before European contact had led to any influx of foreign material culture (such as trade goods which began to appear in significant numbers in Hawai'i with the advent of the Northwest Coast fur trade in the late 1780s and 1790s; see Kirch and Sahlins 1992). In order to gain a more precise idea of when these sites were occupied, we submitted three samples of charcoal (one from each cluster) for radiocarbon dating.<sup>6</sup> The results of radiocarbon analysis are presented in Table 4.2.

As can be seen in the table, one of the charcoal samples (from Site 44) yielded a "modern" age. This does not mean that the site is actually "modern," for it contained traditional Hawaiian cultural materials. Rather, this reflects the level of statistical error and uncertainty with radiocarbon ages that are very close to the present. Most likely, Site 44 dates to

the close of the eighteenth, or very early nineteenth century. The other two charcoal samples yielded valid radiocarbon ages of  $340 \pm 90$  and  $110 \pm 50$  years before present, when corrected for what is termed "isotopic fractionation" (the ratio of carbon-12 and carbon-13 isotopes). However, as can be seen in Table 4.2, each radiocarbon age has two or more possible "real" calendar ages associated with it. This is because the creation of carbon-14 in the upper atmosphere varies over time, and in recent centuries has fluctuated widely. Thus a given radiocarbon age may intersect the curve of calibration at two or more places. Each intercept has a different probability of being correct, as also seen in the table. In the case of the sample from Site 331, we believe that the most likely true calendar age is A.D. 1478-1648, which has a high statistical probability ( $p = .98$ ). In the case of Site 742, the most likely true calendar age is A.D. 1692-1729, because the other possible age ranges can be ruled out on independent archaeological evidence.

Although we have only dated three samples, and many more will be necessary to understand the chronology of households in Kīpapa-Nakaohu, these do begin to give us an approximate idea of when these sites were occupied. In terms of the general sequence for Hawai'i outlined by Kirch (1985), these households would span the very late Expansion Period and into the Proto-Historic Period. Initial radiocarbon dates from upland sites tested by Boyd Dixon (see Chapter 3, this volume) also date to this same general period.

### Conclusions

The landscape at Kahikinui offers a unique opportunity to learn about pre-contact Hawaiian history on many

Table 4.2 Radiocarbon dates from Kīpapa household clusters.

Sample Data	Measured <sup>14</sup> C Age	<sup>12</sup> C/ <sup>13</sup> C Ratio	Conventional Radiocarbon Age	Calibrated Age Ranges <sup>1</sup>
Beta-101451 Site 45, Unit J9	Modern ( $101.5 \pm 0.7$ o/oo)	-24.8	Modern	Modern
Beta-101452 Site 331, Unit S20	$310 \pm 90$	-23.1	$340 \pm 90$	A.D. 1454-1458 ( $p = .02$ ) A.D. 1478-1648 ( $p = .98$ )
Beta-101453 Site 752, Unit P4	$80 \pm 50$	-23.1	$110 \pm 50$	A.D. 1692-1729 ( $p = .26$ ) A.D. 1812-1901 ( $p = .62$ ) A.D. 1906-1922 ( $p = .12$ )

<sup>1</sup> Calculated according to Method B of CALIB (Rev. 3.0.3), at one standard deviation. Values given in parentheses are probability distributions.

<sup>6</sup> Once charcoal identification and analysis has been completed, we will be submitting a larger number of samples from these clusters, including at least one sample from each excavated site. The three dates reported here are thus only a preliminary indication of age.

scales. While much research has been done on archipelago-wide trends of historical development, little is known about *moku* and *ahupua'a* internal organization in specific areas; still less is known about the activities and patterns of individual households. The archaeology of the Hawaiian family is relatively new, and there is much to be learned.

The rich ethnohistoric record for Hawai'i has provided us with a starting point from which to understand household organization. Those records have limitations, though and tend to be regionally, temporally and class specific. At the time they were written, concern was more for documenting the exemplary lives of the *ali'i*, than those of the thousands of *maka'āinana*. Already our excavations at only three household clusters have yielded interesting and regionally specific patterning. In particular, the presence of dual, formal hearths in both Site 752 (Kīpapa Waena Cluster) and Site 45 (Kīpapa Uka Cluster), both of which appear to have been *hale noa* dwellings, provides an excellent example of a previously undocumented cultural practice.

The interpretations presented in this chapter represent

our preliminary findings only. Once more detailed lab analyses have been completed, we will be able to report in greater detail about the rhythms and patterns of daily life in ancient Kīpapa. The distribution of certain artifact types may allow us to reconstruct areas where particular activities regularly took place. For example, where did basalt tool making take place? Inside a house or outside? Did it vary from household to household? What was the function of the small flakes of volcanic glass that are found in very specific locations within household clusters? How did people dispose of refuse generated by daily living? Was pig, a food traditionally associated with men, consumed only in the *mua*? Do *mua* typically have ritual foci in their northeast corners, as at Site 742? How did men and women segregate their daily round of activities, according to the *kapu* system? What kinds of changes occurred in the layout, architecture, and organizational patterns of *kauhale* during the several centuries that Kahikinui was inhabited before Western contact, and what changes occurred later? These and many other questions will continue to orient our research in the years to come.