

Waha'ula Heiau

The Regional and Symbolic Context of Hawai'i Island's "Red Mouth" Temple

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I AM THE WAY INTO THE CITY OF WOE.
I AM THE WAY TO A FORSAKEN PEOPLE.
I AM THE WAY INTO ETERNAL SORROW.

SACRED JUSTICE MOVED MY ARCHITECT.
I WAS RAISED HERE BY DIVINE OMNIPOTENCE,
PRIMORDIAL LOVE AND ULTIMATE INTELLECT.

ONLY THOSE ELEMENTS TIME CANNOT WEAR
WERE MADE BEFORE ME, AND BEYOND THE TIME I STAND.
ABANDON ALL HOPE YE WHO ENTER HERE.

These mysteries I read cut into stone above a gate. And turning I said: "Master, what is the meaning of this harsh inscription?"

—Dante, *The Divine Comedy: The Inferno*

LIKE DANTE'S QUERY TO VIRGIL as they descended into the depths of Hell, archaeologists are forever doomed by their profession to stand beside ruined portals and miscellaneous piles of rubble and ask, "Why is this site here? What does it mean?" If we are lucky, along with the physical remains of the site itself, we may have recourse to inscriptions, historic documents, or oral histories. But even these might be fragmentary and their messages veiled. Too rarely do we have enough data to meaningfully assess the actual function of a site and the site's evolving role within the context of the society that shaped it. This task becomes even more difficult if the site or components of the site have at some point been imbued with special symbolism.

This article will attempt to unravel the meaning of one such site, that of Waha'ula

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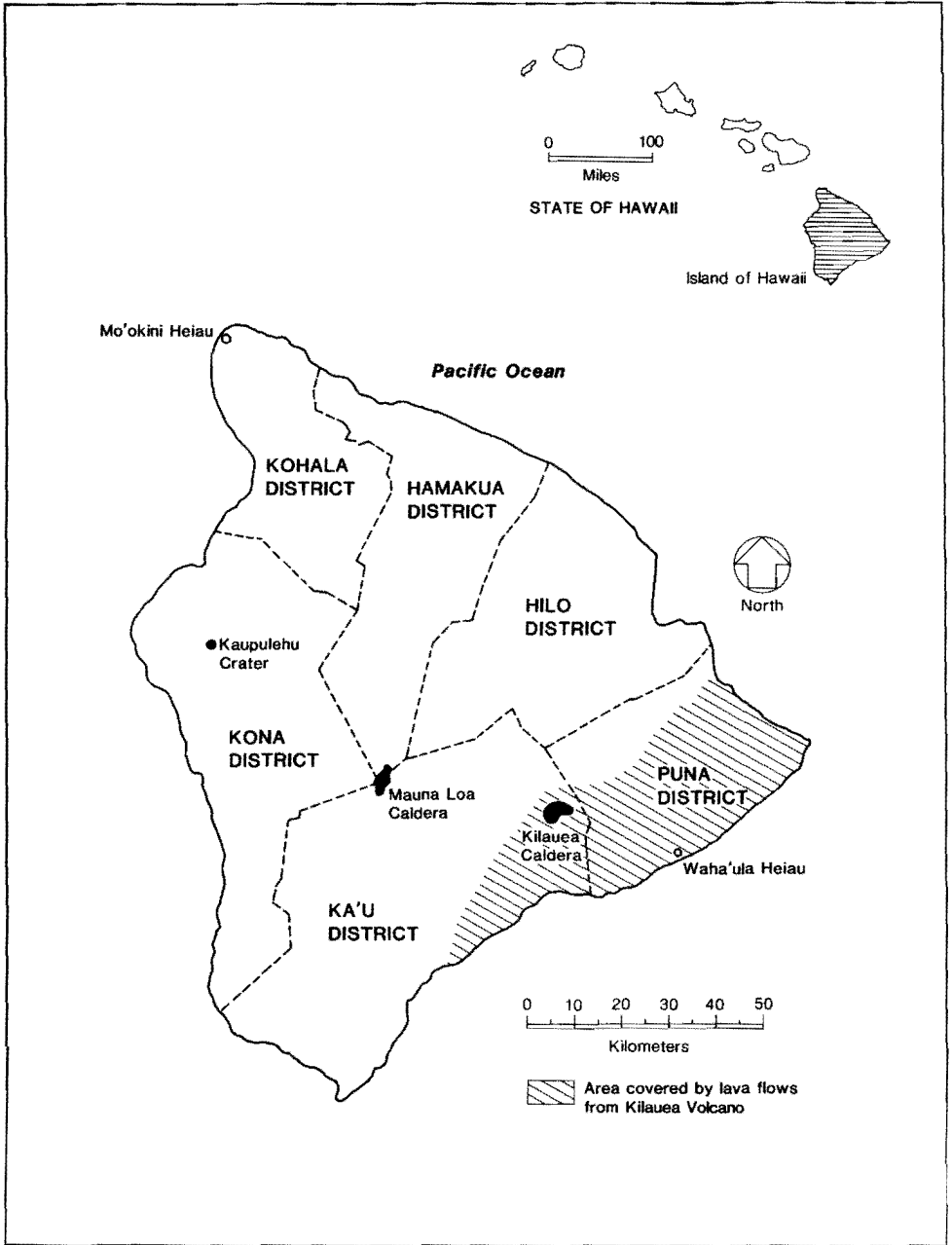


Fig. 1. Map of Hawai'i Island.

heiau on the Puna coast of the island of Hawai'i¹ (Fig. 1). Waha'ula is an important site for several reasons, not the least of which lies in its having been identified in oral histories as the setting for the first *luakini* (human sacrificial temple) in the Hawaiian Islands, purportedly established by the emigrant Tahitian priest Pa'ao around A.D. 1275. Along with the *luakini* came the *ali'i* and *maka'ainana* social orders, which strictly divided the populace into royalty and commoners, respectively. This division was enforced by the harsh sanctions of the *kapu* (taboo) system. It perhaps is significant that Waha'ula was the last *luakini* to be rededicated by Kamehameha in 1817, shortly before his death, and the last *luakini* to be dismantled by Liholiho in 1820, after the death of Kamehameha and the overthrow of the *kapu* system (Fornander 1969:35–36).

Using mythology, oral histories, and historic documents; aspects of the geology and environmental setting of Waha'ula; previous archaeological studies; and the results of an emergency rescue archaeology program conducted by the authors in June and July 1989², this article will explore how the archaeological record of Waha'ula *heiau* might reflect its seemingly unique position in Hawaiian culture history. It will also look at the ways in which this archaeological record might reveal aspects of the symbolic structure of traditional Hawaiian society.

THE SETTING

The southeastern coastline of the island of Hawai'i presents a rugged and mostly inhospitable appearance where the political districts of Ka'ū and Puna meet. The region is characterized by steep coastal cliffs rising 10 m or more above sea level; a broad coastal plain (2–4 km wide) comprised of bare tracts of smooth (*pāhoehoe*) and rough (*a'ā*) lava, along with intermittent patches of native dryland forest; and an undulating escarpment (or *pali*) rising more than 600 m from the inland edge of the coastal plain. The tracks of numerous lava flows are clearly visible down the sides of the *pali* and across the coastal plain. These remnant lava flows range in age from just a few minutes to hundreds or thousands of years. The originator of the lava flows is Kīlauea, the world's most active volcano, whose summit caldera is nestled a few miles inland behind the *pali*.

This landscape was once quite different. According to Handy and Handy:

One of the most interesting things about Puna is that Hawaiians believe, and their traditions imply, that this was once Hawaii's richest agricultural region and that it is only in relatively recent time that volcanic eruption has destroyed much of its best land (1972:542).

That the Waha'ula area supported a substantial population at historic contact is demonstrated in the following excerpt from Ellis, based on observations made in 1823:

The population of this part of Puna, though somewhat numerous, did not appear to possess the means of subsistence in any great variety of abundance; and we have often been surprised to find the desolate coasts more thickly inhabited than some of the fertile tracts in the interior. . . .

When we had passed Punau, Lcapuki, and Kamomoa [3 km west of Waha'ula], the country began to wear a more agreeable aspect. Groves of coca-nuts ornamented the projecting points of land, clumps of kou-trees appeared in various directions, and the habitations of the natives were also thickly scattered over the coast.

At noon we passed through Pulana, where we saw a large *heiau* called Wahaura, Red



Pl. I. Aerial photograph of Waha'ula heiau, October 1967, looking makai. Courtesy of the U.S. National Park Service.

Mouth, or Red-feather Mouth, built by Tamehameha, and dedicated to Tairi, his war-god. Human sacrifices, we were informed, were occasionally offered here.

Shortly after, we reached Kupahua [3 km east of Waha'ula], a pleasant village, situated on a rising ground, in the midst of groves of shady trees, and surrounded by a well-cultivated country (1979:190–191).

Waha'ula heiau is situated on the coast 20 km east of the Ka'ū district boundary. This temple complex once consisted of at least five enclosures of various sizes that were perched on the top of a prominent, flat ridge of 'a'ā, at an elevation of approximately 12–15 m above sea level (Pl. I). The complex rises several meters above the elevation of the surrounding terrain. The 'a'ā flow is at least 1500 years old and may date to as early as 10,000 years B.P. (Holcomb 1987:Fig. 12.5). A possible sixth temple structure, along with adjacent Ka'ili'ili and Poupou-Kauka villages, was situated on a mixture of 'a'ā deposits and younger pāhoehoe flows, some 5–6 m below the top of the 'a'ā ridge. The pāhoehoe deposits are estimated at approximately 500–750 years B.P. (A.D. 1200–1450). The location and extent of dated lava flows in the vicinity of Waha'ula are depicted in Figure 2.

The younger pāhoehoe provided a substrate suitable for native dryland scrub forest species such as 'ākia (*Wikstroemia*), lama (*Diospyros*), and alahe'e (*Canthium odoratum*); the older 'a'ā lava permitted the flourishing of species such as 'ōhi'a lehua (*Metrosideros*), kukui (*Aleurites moluccana*), wiliwili (*Erythrina sandwicensis*), and milo (*Thespesia populnea*). A stand of hau (*Hibiscus tiliaceus*) was situated immediately inland from Waha'ula heiau. All of these species had various cultural uses, and in

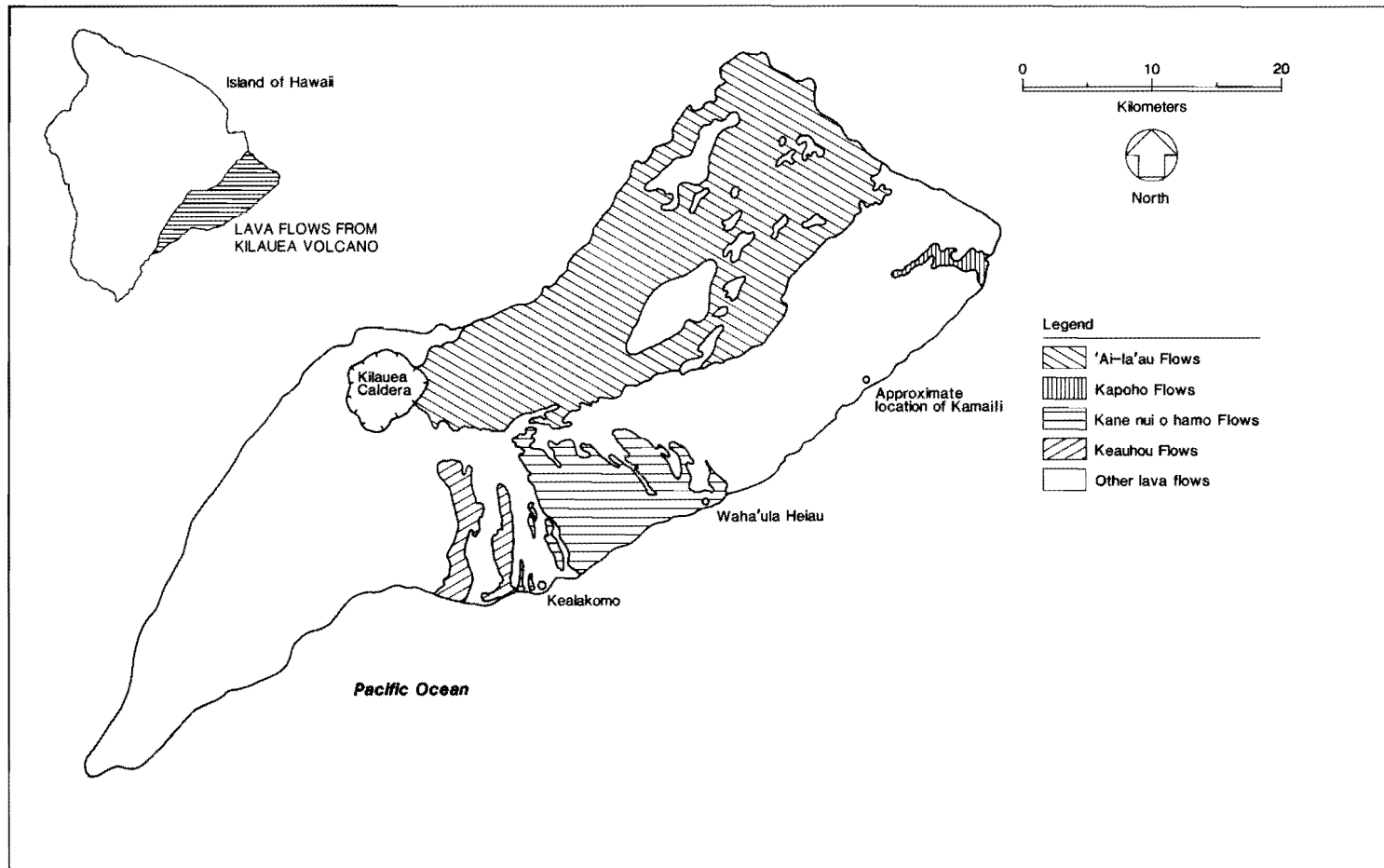


Fig. 2. Map of selected Kilauea Volcano lava flows. (Adapted from Holcomb [1987]).

particular *lama* and *'ōhi'a lehua* were important for construction and for providing materials for *heiau* activities. The porous *'a'ā* and cracks or depressions in the *pāhoehoe* also provided a suitable substrate for *niu* (coconut, *Cocos nucifera*), *'ulu* (breadfruit, *Artocarpus altilis*), *hala* (pandanus, *Pandanus odoratissimus*), and other tree crops. Also both the *'a'ā* and *pāhoehoe* could be manipulated to facilitate the growing of *'uala* (sweet potatoes, *Ipomoea batatas*) (Carter and Somers 1990; Handy and Handy 1972:129; Ladefoged et al. 1987; Lyman 1846–1847³).

A final critical resource at Waha'ula was the presence of a sizable pool of potable water, called *'Ilea* by the local inhabitants, which was deeply hidden in a *pāhoehoe* lava tube fracture called *Wai-pouli*, or “dark-water” (Emory et al. 1959). This tidal-influenced pool was situated immediately north of the eastern end of the *'a'ā* ridge on which Waha'ula was perched.

Between 20 June and 7 December 1989 the Waha'ula area was overrun by a series of lava flows from the Kupaianaha vent along the east rift zone of Kīlauea Volcano. These flows were part of the same eruption that since its beginning in 1983 has destroyed at least 174 homes in the Puna District. The lava has covered an area presently (October 1990) estimated at more than 72 km², and at least 14,500 known archaeological features and probably several times as many actual features (Somers 1991). Also an 8-km-long continuous stretch of new coastline, averaging about 100–200 m in width, has been added to the island from just west of Ka'ili'ili Village to a point at Kaimū Beach, east of the former town of Kalapana.

There is, however, an important exception to this continuous stretch of new coastline—the sea cliffs at Waha'ula *heiau*. The Kīlauea eruption has covered most but not all of the Waha'ula complex, thus forming a *kipuka*, or small oasis, in the sea of fresh lava. This distinction will be discussed below.

THE ARCHAEOLOGICAL RECORD

Waha'ula *heiau* is one of the most discussed traditional religious sites in the Hawaiian archipelago. In addition to the brief notation by Ellis cited above, Waha'ula was described by Lyman (1846–1847; 1924:105) in 1846; briefly by Fornander (1969:35–36), who visited the site in 1869 and possibly earlier; by an anonymous source in the early 1870s, quoted in the Hawaiian-language newspaper *The Hawaiian* (in Emory et al. 1959); by Hitchcock (n.d.) sometime before 1890; by Stokes (n.d.) in 1900; by Thrum (1908a, 1908b); by Beckwith (n.d.) in 1914; by Kekahuna and Kelsey in 1952, in the newspaper *The Honolulu Advertiser* (cited in Emory et al. 1959); by Emory et al. (1959), who described the site and its environs at great length; by Ladd (1968, 1972), who performed the first actual archaeological excavations at Waha'ula and the first ever on a *luakini*; and by Ladefoged et al. (1987). In addition to these written descriptions a number of maps have been produced in varying detail, including a pre-1890 map by Hitchcock; a 1900 map by Stokes (who in 1902 put together a scale model of one of the *heiau* structures, which still stands in the main exhibit hall at the Bishop Museum); a 1951 map by Kekahuna; a 1959 map by the Bishop Museum for the Emory et al. study; and a 1967 map by Wingate, prepared in conjunction with the studies by Ed Ladd.

As might be expected, data from these varied sources contain inconsistencies, the discussion of which lies outside the scope of this article. Likewise, the archaeological record of Waha'ula is far too rich and varied for other than a brief synopsis here.

The reader should also note that analysis of field work carried out in 1989 is still ongoing; the descriptions and interpretations presented in this article might differ slightly from the final report. For simplicity's sake the archaeological record is here described in the present tense. The reader, however, should bear in mind that most of the features, including all of adjacent Ka'ili'ili and Poupou-Kauka villages, are now covered by a mantle of fresh *pāhoehoe* lava up to 30 m thick.

The General Character of Waha'ula

Waha'ula *heiau* (Fig. 3) includes all of those features that lie on the leveled top of an old 'a'ā flow. This is a large area roughly 500 m wide, *makai-mauka* (i. e., from the "ocean" toward the "mountains," respectively; in this particular case from south to north), and 500 m long, east-west, paralleling the shoreline. The various remnants of the temple structures are clustered in the *makai*-western corner of this 25-ha parcel, which is the highest portion of the 'a'ā ridgetop.

There are five well-defined structures present at Waha'ula, which heuristically have been labeled "Structures A-E" (Fig. 3). Also two poorly known structures are present in the *makai*-western portion of the 'a'ā flow (described by Emory et al. 1959:78 and here labeled Structures G-H). A third (Structure I) is present in the *mauka*-eastern portion of the 'a'ā flow. The remnants of several additional and possibly early structures have been detected in and around Structures A-C. Structure F, situated in a shallow ravine *mauka*-west of Structure E, might also be associated with Waha'ula as noted below. The National Park Service has done stabilization and repair work on Structures A and C, and possibly B, the extent of which is not entirely clear. However, the descriptions below focus on only those aspects of the structures that are believed to be original.

Waha'ula *heiau* can be divided roughly into four "precincts." These are the western precinct, containing Structures D-H; the central precinct, containing Structures A-C; the eastern precinct, a large tract of land lacking definable structures, other than structure I, that comprises the eastern three-quarters of the 'a'ā ridge; and the *mauka* precinct, which includes that portion of the 'a'ā flow to the north of the ridge containing structures A-E and I.

These divisions are not necessarily arbitrary. For example, the western and central precinct are clearly separated by the low remnants of a *makai-mauka* wall that spans the entire breadth of the ridgetop, running near to the eastern wall of Structure D. On the other hand, there is no recognizable barrier between the central and eastern precinct, which is distinct simply because of the large number of pits and mounds scattered across its surface and because of the absence of structures. The eastern precinct is separated from Poupou-Kauka Village by a low wall immediately adjacent to the village; one or more walls separate the western precinct from Ka'ili'ili Village. The coastal cliffs form a natural division on the *makai* side of Waha'ula, and the *mauka* edge of the western, central, and eastern precincts is distinguished by a series of at least two partially artificial terraces. Low, nearly indiscernible walls are present where the ridgetop and the first terrace meet and along the lower edge of the second terrace. A substantial geologic fault and the resulting crack in the lava formation run parallel along the second terrace, with other parallel sets of faults/cracks being both *mauka* and east of the first. The fault/crack on the second terrace is quite deep in places and has been partly filled artificially with 'a'ā rubble and occasional

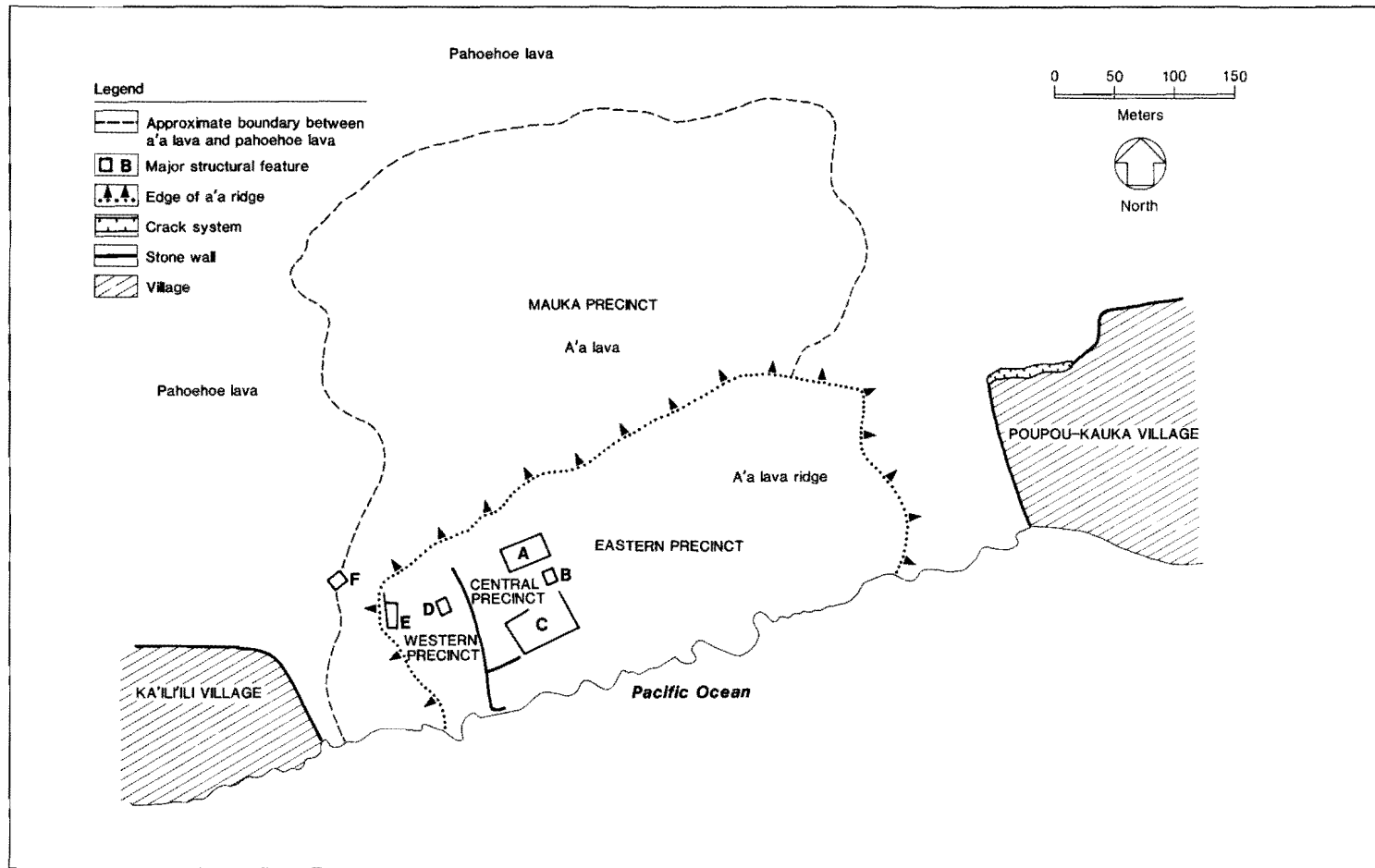


Fig. 3. Map of the Waha'ula heiau complex.

waterworn cobbles. Low walls, deep cracks, or the steep edge of the 'a'ā flow separate the *mauka* edge of the *mauka* precinct from the younger *pāhoehoe* flows; in fact, the entire 'a'ā flow is bounded by low walls or natural barriers.

Feature Descriptions

There are thousands of archaeological features present in the confines of Waha'ula and its four heuristic precincts. The major features are briefly summarized below.

STRUCTURE A

This is the best preserved enclosure at Waha'ula, exhibiting walls averaging 2 m in thickness and standing to a height of nearly 2 m around most of its circumference. The overall size of this feature is 22 × 42 m (924 m²). The *mauka* wall is slightly longer than that toward the ocean.

Structure A contains four distinct internal platforms fashioned from waterworn cobbles and chunks of 'a'ā, variously shaped and one or two cobbles in height. Feature 1 in the *mauka*-eastern corner is rectangular and well shaped, 5 × 18 m in dimension. The Feature 1 platform contains five post or image holes running down the center of the long axis and an impressive, centrally located flat slab of stone over 1 m wide, 1.75 m long, and 35 cm in thickness.

Feature 2 is a low, distinctly oval-shaped platform of stone, 3.5 × 11.5 m in dimension. As with Feature 1, Feature 2 exhibits a row of at least four post or image holes running down the center of the long axis.

Feature 3 is a circular-appearing paving of waterworn cobbles, which encompasses an area nearly 6 m in diameter. However, some evidence shows that the original paving was square, measuring approximately 4 m on each side.

Feature 4 is a complex platform that occupies the whole of the western wall of Structure A. This platform averages about 4 m in width and is 18.5 m long. A rectangular stone-lined pit, 2 × 3 m in dimension, occupies the central part of the platform, with one side of the pit being formed by the west wall of Structure A. Substantial semicircular indentations are present at either end of the platform, with the space created by the indentation measuring roughly 2 × 3 m. The outside edges (*mauka* and *makai*, respectively) of these semicircular indentations appear to be inclined ramps leading to the top of the platform. Approximately 1 m east of the end of each ramp are pits about 80 cm in diameter, the probable locations of wooden images.

Feature 5, a large mound of stone outside the *makai* wall of Structure A, appears to be a wall fragment associated with a former entrance to the structure. This wall was perhaps part of an antechamber or L-shaped entryway (the latter is depicted in Stokes' original 1902 model of this structure). Within the fabric of the *makai* wall itself, about 3 m west of this entrance, is a large foundation stone of bright red volcanic cinder, which contrasts greatly with the surrounding black and dark brown 'a'ā chunks (Fig. 4). Two smaller, but still sizable, red cinder stones are clearly visible near the basal center of the west wall and east wall, respectively.

Charcoal, apparently recovered from the central pit in Feature 4, has been radiocarbon-dated at 185 ± 150 years B.P. (Carter and Somers 1990:Table 4). This dating yields a two-sigma calibrated date range of A.D. 1420–1950 (Klein et al. 1982).

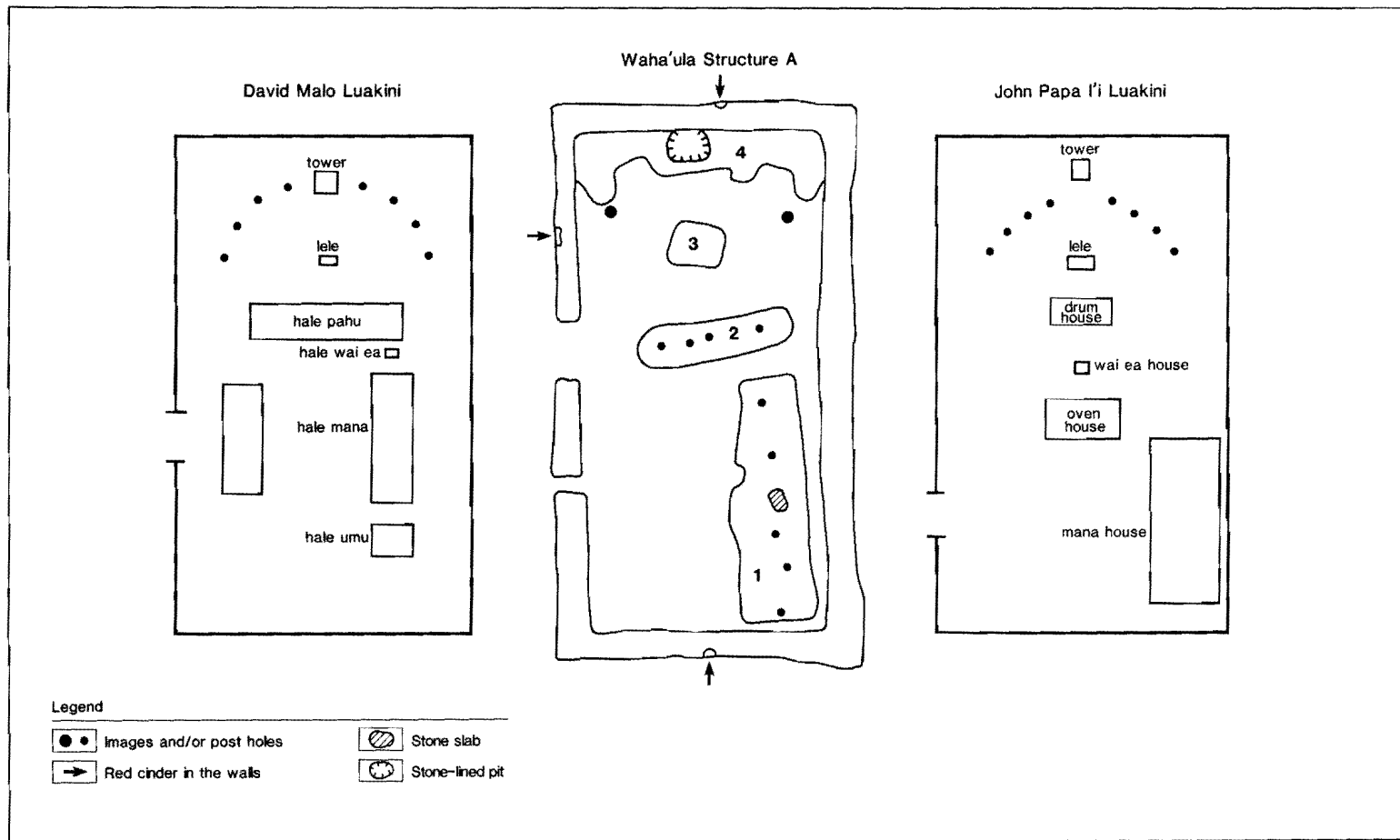


Fig. 4. Comparison of Waha'ula Structure A with Valeri's (1985) reconstructions of the *luakini heiau* described by John Papa I'i and David Malo.

STRUCTURE B

This structure is square, measuring roughly 9 m on each side (81 m²), with walls averaging about 1 m in thickness and standing to an average height of 1.5 m. The eastern portion of the interior of the structure contains a low stone platform that is nestled against the *makai*-eastern corner of the structure. A possible stone upright may once have been situated in the center of the long axis of the platform near the *makai* wall of the structure. The entryway into the structure is in the approximate center of the western wall.

Like Structure A, Structure B contains at least one large chunk of red cinder that is clearly visible on the exterior of a wall, in this case the *mauka* wall. In addition to the cinder, the interior of the *mauka* wall contains two conspicuous reddish-orange *pāhoehoe* cobbles, one of which is waterworn (Fig. 5). These cobbles are about 25 cm in diameter and have been set into the center of the wall 90 cm apart from one another, each measuring 1 m above the floor of the structure and approximately 50 cm below the top of the original wall.

A charcoal sample from the testing of the Structure B platform yielded a radio-carbon age of 420 ± 60 years B.P. (Carter and Somers 1990:Table 8). This dating yields a two-sigma calibrated date range of A.D. 1400–1525 (Klein et al. 1982).

STRUCTURE C

This large enclosure is situated in the *makai* portion of Waha'ula's central precinct, approximately 50 m from the edge of the sea cliffs. The structure is somewhat poorly preserved; the majority of the *mauka* wall is missing, with only a few faint traces discernible along its entire center. The overall size of the original structure would have been approximately 38 × 54 m (2052 m²), with the orientation of its long axis similar to that of Structure A. The few remaining well-preserved wall segments are consistently greater than 2 m in thickness, and some wall sections stand in excess of 2 m in height.

At one time Structure C undoubtedly contained several interesting internal features, but these have been largely obscured by stone-robbing and other post-abandonment events, including possible sweet-potato pit agriculture along the *mauka* wall. The remnants of a small stone platform, 2 × 4 m in dimension, abut the central portion of the eastern wall of Structure C, and at about 2 m *mauka* a low, narrow wall abuts the Structure C east wall and extends some 4 m to the west. In the western portion of the structure, what appears to be a stone-lined pathway running east-west can be traced for nearly 15 m. Stone-lined pits more than a meter in diameter are seemingly attached to opposite walls at either end of the alignment. Stone walls or alignments also extend perpendicularly from the pathway walls. A cluster of stone-lined pits, the largest of which is greater than 4 m in diameter, is situated near the *makai*-western corner of Structure C; a possible row of stone-lined pits stretches *mauka*-*makai* near the eastern wall.

The *makai* wall of Structure C is especially massive, and it appears to have served both as a retaining wall (the natural slope of the top of the 'a'ā ridge is toward the ocean) and as a support for a number of images that are hypothesized based on several large exterior niches. This *makai* wall consisted of a footing and at least two terraces, with the base of the alleged niches being the top of the first terrace level. The footing for the *makai*-eastern corner of Structure C appears to have been particularly large and well constructed, and this may have served as the customary means of ascending the terraces.

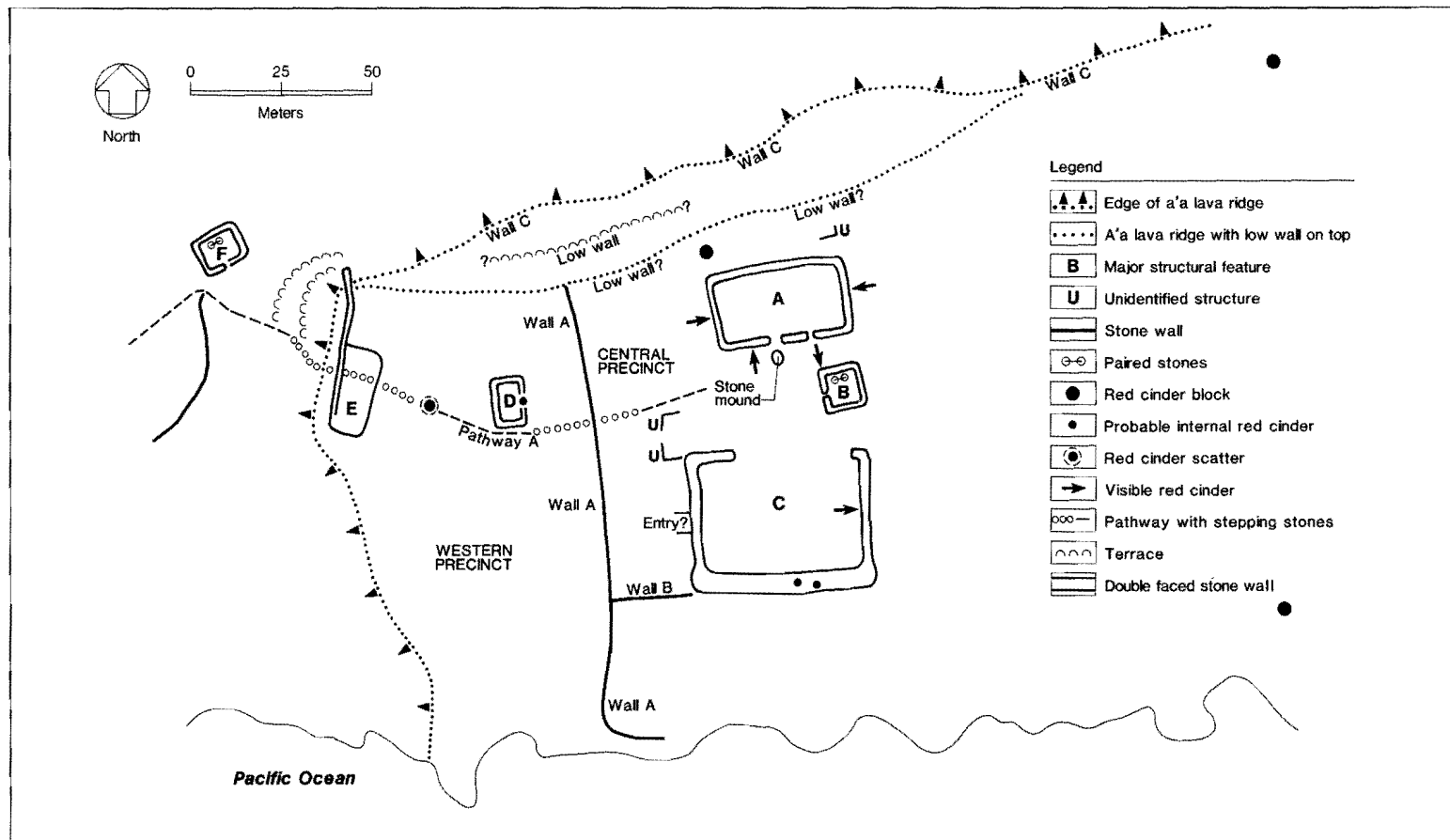


Fig. 5. Map of the central and western precincts of Waha'ula heiau depicting the distribution of red cinder and paired stones.

Structure C also has red cinder set into its walls, in this case a chunk conspicuously set into the base of the interior center of the east wall, and chunks set into the center top and face of the *makai* wall. The *makai* wall stones are presently exposed by wall fall, but originally they must have been hidden from view within the wall core.

No discernible entryway could be found for Structure C, and this might indicate that access was gained through the now-missing *mauka* wall. However, two exterior walls, approximately 5 m apart, abut the central portion of the western wall of Structure C. These walls could be traced for only a few meters to the west. Given the location and orientation of these two walls and the fact that the long axis of the interior pathway is almost directly in line with the center of the gap between the two walls, this could represent the original entrance into the structure, a possibility reinforced by the fact that the exterior area immediately west of the structure has been well leveled and contains a variety of stone-lined pits.

A charcoal sample from Structure C yielded a radiocarbon age of 450 ± 200 years B.P. (Carter and Somers 1990: Table 4). This dating provides two-sigma calibrated date ranges of A.D. 1245–1675, 1710–1805, 1855–1875, or 1925–1950 (Klein et al. 1982).

STRUCTURE D

This is a modest-sized enclosure situated in the western precinct of Waha'ula. Structure D is the most poorly preserved of the five structures on top of the 'a'ā flow at Waha'ula, with none of its walls surviving to their original height and only a few segments exhibiting the original width. Structure D is squarish in appearance, approximately 10×12 m (120 m^2) in dimension. The walls are approximately 1 m in thickness.

Only two internal features could be discerned in this structure: low, somewhat amorphous platforms attached to the center of the *mauka* and *makai* walls. The *mauka* platform measures roughly 2×3 m; the possible platform on the ocean side of the structure measures roughly 1×2 m. The entryway for this feature is possibly along the west wall.

As with Structures A–C, Structure D exhibits one chunk of red cinder set into the basal center of the east wall. This stone originally may have been hidden from view inside the wall core; in fact, all walls are so deteriorated that it is impossible to determine the presence of such stones in the other walls without excavation.

STRUCTURE E

This structure is situated on the *mauka*-western corner of the western precinct, 41 m west of Structure D and 93 m west of Structure A. Structure E is one of the most complex structures at Waha'ula and is comprised of a series of terraces and pavements of various kinds and sizes. The main component of the structure consists of three terrace levels that occupy a space approximately 9 m wide (east–west) and 22 m in length (*mauka*–*makai*); the structure thus covers an area of approximately 200 m^2 . However, two sets of semiformal terraces abut the lower *makai* end of the structure and a third abuts the western side; together these six terraces create an impressive complex covering nearly 400 m^2 .

The enclosure wall of this structure appears to have originally been between 1.0–1.5 m in height and about 1 m in average thickness. Curiously, the western wall extends *mauka* for a distance of about 25 meters from the edge of the structure itself,

which suggests that the wall served both as a structural member of this enclosure and as a barrier along the *mauka*-western margin of the western *heiau* precinct. The wall extends over the top of the ridge and down to the fault/crack that follows the second lower terrace level on the *mauka* side of the 'a'ā ridge. The east wall of Structure E is low and poorly defined along much of the second and third terrace levels, and it is possible that this portion of the structure was partly open rather than enclosed with a high wall. No red cinder chunks were observed in the walls of this structure.

The upper terrace of Structure E is actually a rectangular platform 4 × 6 m in dimension, abutting the *mauka*-eastern corner. The second terrace covers a large area (9 × 11 m) and consists of a layer of crushed 'a'ā onto which several stone pavings and alignments have been placed. These stone features are fashioned from large and small waterworn cobbles, broken slabs of *pāhoehoe*, crushed 'a'ā, and several examples of fragmentary and nearly complete *papamū* game boards, these being flat *pāhoehoe* slabs with rows of pecked depressions, which served as the playing surface for the checkers-like game of *kōnane*. Included in these features is a "stepping-stone" path that crosses the width of the structure near the *mauka* (upper) end of the second terrace. This path averages about 1 m in width and is formed from *pāhoehoe* slabs and waterworn cobbles. It enters Structure E through a formal small doorway in the west wall and exits the eastern side of the structure through an opening nearly 3 m wide. A somewhat circular stone paving, approximately 3 m in diameter, is situated in the interior of Structure E, occupying the *makai* portion of the eastern entryway. One or two grinding stones are also associated with this platform.

The lower, or third, of the three main terraces of Structure E contained a low rectangular paving or platform of stone about 3 m wide (*mauka*-*makai*) and 5.5 m long (east-west). There were a couple of small pits within this terrace level (and also on the other terraces), and a large number of pits were observed to the east and *makai* of the structure. The exterior pits appeared to be agricultural in nature, but some of the pits, especially those inside the structure, may have had other functions.

Three radiocarbon samples were analyzed from test pits placed into each of Structure E's three terrace levels. The resulting radiocarbon ages are 160 ± 60, 170 ± 60, and 280 ± 60 years B.P. (Carter and Somers 1990: Table 8). The respective two-sigma calibrated date ranges are A.D. 1645-1950, 1640-1950, and 1480-1665.

STRUCTURE F

This structure is situated off the top of the 'a'ā ridge at Waha'ula, approximately 45 m *mauka*-west of Structure E and some 75 m from the nearest habitation structure in Ka'ili'ili Village. Structure F is notable for its isolation from other structures, the general excellence of its construction, and its good state of preservation. The structure is rectangular, 11 × 16 m (176 m²) in dimension, with the long axis east-west, roughly paralleling that of Structures A and C.

The walls of Structure F average slightly more than 1 m in thickness, and the original wall height appears to have been approximately 1.5 m. This structure seems to use broken *pāhoehoe* slabs to a much greater degree than is exhibited in Structures A-E, but this might simply represent the expedient use of locally available stone; Structure F is situated along the boundary of the *pāhoehoe* flow. No red cinder chunks were observed, but several large, flat waterworn cobbles are situated in conspicuous locations, embedded into the interior face of the structure. These include

two paired sets: one set located near the center of the *mauka* wall, the other situated in the western corner of the *makai* wall. A single large stone is also set in the center of the *makai* wall. The entry into Structure F is through the east wall, but there is some evidence of an earlier entryway in the center of the *makai* wall.

Other internal features in Structure F include two pits, two probable post holes, and a partially enclosed platform situated in the *makai*-central portion of the structure, which contains a centrally positioned slab-lined hearth. The platform is about 3.5 × 8 m (with the long axis east-west) and is composed of 'a'ā chunks and small waterworn cobbles and pebbles; a substantial percentage of the 'a'ā is of an oxidized red color, although the red is not nearly so bright as the color of the previously noted cinder stones.

Exterior Courtyard Walls, Paths, and Undefined Structures

As previously noted, a long wall (Wall A) separates the western precinct from the central precinct at Waha'ula. Wall A runs seemingly uninterrupted for a distance of about 155 m from the *mauka* edge of the top of the 'a'ā flow to 6 or 7 m from the edge of the sea cliff; at this point the wall then turns sharply to the east for slightly more than 20 m and stops. Immediately *makai* of this corner area the ground slopes steeply to the cliff, although a narrow terrace may be present directly below the wall.

Wall A is slightly less than 1 m in width and rises to an average height of 40–50 cm. The only opening observed through the *mauka*-*makai* wall is a formal entrance located near the *makai*-eastern corner of Structure D. This entry is part of a formal stepping-stone pathway that extends east-west; it is discussed below. The wall actually continues across the pathway and access across the wall is made by a single step on either side of the wall; the wall was only about 30 cm high within the entryway.

Only one other definitive courtyard wall (Wall B) was noted at Waha'ula: a wall connecting Wall A with the *makai*-western corner of Structure C. Excavation of the juncture of Walls A and B indicates that the latter was approximately 90 cm wide and that it abutted Wall A. The maximum observable height of Wall B is approximately 25 cm, and both walls appear to have been constructed on the top of the previously prepared courtyard surface. The courtyard space bounded by Walls A and B and by Structure C has been leveled and filled with small fragments of crushed 'a'ā and small waterworn pebbles known as 'ili'ili, which occur in abundance along the shore next to Ka'ili'ili Village (and from which the village presumably gets its name). The 'ili'ili surface might extend *makai* of Wall B but does not appear to extend west of Wall A.

Two other sets of exterior wall fragments were found in the central precinct area. The first set includes two corners of a poorly defined structure that partially abuts the *mauka*-western corner of Structure C. These corners are approximately 12 m from each other, forming a wall that parallels the west walls of Structures A and C. Little else is known about these walls and an isolated wall corner, about 14 m west-*mauka*-west of the *mauka*-east corner of Structure A. The *makai* wall of this undefined structure appears to be roughly parallel to the *mauka* wall of Structure A (although slightly angling toward Structure A as one moves west), with a distance of approximately 8–9 m between the two structures. Like the undefined structure

next to Structure C, the one near Structure A is poorly understood due to the limited time for study.

Only one formal pathway (Pathway A) could be defined at Waha'ula, which as previously described bisects Structure E, runs *makai* of Structure D, and then crosses Wall A. It presumably extended to somewhere between Structures A and C but was not well defined in this area. To the west, after exiting Structure E, the path appears to wind down the 'a'ā ridge toward Structure F. Near Structure F another pathway (Pathway B), delineated by filled-in cracks in the *pāhoehoe*, extends to Ka'ili'ili Village. There are no discernible paths in the eastern precinct of Waha'ula, with the exception of what might have been a path (Pathway C) running along the second, lower terrace *mauka*-east of Structure A toward possible garden areas.

One notable aspect of Pathway A is the presence of a roughly circular scatter of red cinder adjacent to the path halfway between Structures D and E. There are several dozen pieces of red cinder, with the largest fragments being 25–40 cm in diameter; most of the cinder is clustered in an area slightly less than 2 m in diameter. It is curious that a 3-m-diameter portion of the scatter, including half of the concentrated cluster, is devoid of the dark lichens that occur on the surrounding rocks. This might indicate some change in vegetative cover or possibly the product of burning sometime in the past.

PITS

One of the remarkable aspects of Waha'ula is the large number of pits that are scattered across the top of the 'a'ā flow. The locations of more than 100 pits were mapped during the rescue archaeology effort, a modest fraction of the total number of pits present. These pits range from small depressions less than a meter in diameter and 20–30 cm deep to stone-lined pits 1–2 m in diameter and pits in excess of 5 m in diameter and 2 m deep.

There are a large number of pits in each of the four heuristic precincts at Waha'ula; however, the largest concentrations seem to occur in three locations. The first concentration is in the *makai* portion of the western precinct, bounded on the *mauka* side by Structures E and F and by Wall A to the east. The area immediately west of the juncture of Walls A and B contains some especially large pits. The second, and larger, pit concentration is the area immediately adjacent to the eastern sides of Structures A, B, and C, extending to the east approximately 100 m. The final concentration occurs throughout the entire *mauka* precinct, which contains more than 4000 pits.

Many of these pits were likely used for agricultural purposes, as Thrum surmised:

This use of shore pebbles is also to be seen in many parts of the area outside the temple walls, where the once leveled "aa" formed its terraces and court yard. Its condition is now one of "hills and hollows," due to attempts at potato culture (1908b:51–52).

Given the considerable variety of pits present at Waha'ula, however, multiple functions are possible.

THE MEANINGS OF WAHA'ULA

Now would be a useful time to note Beckwith's (1970:1) distinction between *ka'ao* and *mo'olelo* in Hawaiian oral traditions. *Ka'ao* are stories of a fictional nature,

akin to tall tales. *Mo'olelo* are stories with a legendary or historical basis. Hopefully, this attempt to explain the Waha'ula phenomenon will err on the side of *mo'olelo*.

A number of questions of varying degrees of relatedness and abstraction suggest one or more answers: (1) What were the functions of Structures A–F at Waha'ula and when were these structures built? (2) What is the meaning of the red cinder and other unusual stones that are variously distributed at Waha'ula? (3) Who was Pā'ao? (4) What, if any, relationship existed between Pā'ao and Pele? (5) Where was Pā'ao's first *heiau* built? (6) What does "Waha'ula" mean? (7) Why did Pā'ao establish Mo'okini *heiau*? (8) Why was Waha'ula *heiau* used for so many centuries? and (9) What is the origin of the term *luakini*? Most of these questions could serve as the basis for lengthy papers in and of themselves, so only a few major points will be touched on here.

The Function and Dating of Structures A–F

Ascribing functions to the various observable structures at Waha'ula is a relatively easy task, but even this is no simple matter. The easiest structure to analyze and the one on which there is the most data is Structure A.

Every oral historical source points to this structure as being one of Hawai'i's "principal" *luakini* (in the sense of Valeri 1985:Table 4), designed for the commemoration of warfare (although on occasion it could have been used for other purposes—see Valeri 1985:172–188). Everyone who has studied the structure agrees with such an interpretation. The only interpretive differences that arise with respect to Structure A are those that involve determining the function of its internal features, identifying the original configuration of its entrance(s), and dating its construction.

The best way to approach Structure A's internal features is to compare them to Valeri's (1985:Figs. 4, 5) reconstructions of *luakini* as described by Malo (1951) and I'i (1983). Figure 4 depicts the three *luakini*, with Structure A reduced to the same general scale as that of Valeri's reconstructions. It is clear from this comparison that Structure A is most certainly a *luakini*, although there are some notable differences. Feature 1 in Structure A is obviously the *hale mana*, or house where images and cult paraphernalia are kept. Feature 3 is probably the location of the *kīpapa* pavement, where the *lele* altar stood and on which sacrifices were placed. The Feature 4 pavement would almost certainly have housed the 'anu'u, or temple tower, presumably in its center; perhaps the *luapa'ū*, or pit where the remnants of sacrifices were deposited, is represented by the depression present in the proximate center of the pavement, and thus would have been under the 'anu'u tower, as is suggested by Malo (1951:162). Small depressions immediately in front of the *mauka* and *makai* ends of the 'anu'u tower pavement are possible image pits. And it seems probable that Feature 2 was the *hale pahu*, or house where the ceremonial drums were kept.

Noticeably absent from the interior of the *luakini* are any traces of the so-called *hale umu*, or oven houses, noted by I'i and Malo. Nor is there any trace of Malo's mysterious "house at temple entrance." Also missing is any definite trace of the *hale wai ea*, a tiny structure that housed consecrated water and cordage ('*aha*). However, as noted by Valeri (1985:240), the journals of the Cook expedition do not mention either a *hale umu* or a *hale wai ea* inside of observed *luakini*, thus the apparent absence of these features in Structure A might actually represent the typical situation. Alter-

natively, there might be some regional variation in *luakini*. For example, I'i's model for his *luakini* description is that of Papaenaena at Lē'ahi on O'ahu Island (McAllister 1976:71-74); Malo probably drew on his knowledge from *luakini* in Kona, Hawai'i, and perhaps those on Maui Island. Most or all *luakini* constructed or rededicated by Kamehameha would undoubtedly have exhibited general similarities because a single specialist would often be used for *luakini* design, and Kamehameha himself would have had a substantial say in the final design (Malo 1951:161).

There has been considerable confusion over the years as to the number and placement of entrances into Structure A. At present there is but a single entrance located along the eastern end of the *makai* wall, directly opposite the center of the *hale mana*. However, a noticeable depression is present just west of the center of the *makai* wall, exactly opposite the *makai* end of the *hale pahu*, and a substantial mound of stone is present immediately *makai* of the depression in the wall (Fig. 5). It appeared as if this mound might have been created by stones scavenged from the *luakini* wall. Based on a careful reading of Lyman (1846-1847) and Hitchcock (n.d.), it now seems certain that this depression in the *makai* wall was in fact the original main entrance into the *luakini*. For some presently unknown reason, this entryway was sealed between the time of Hitchcock's visit in the 1870s and that of Thrum (1908b) and Stokes (n.d.) at the beginning of this century. Testing of the Feature 5 exterior mound revealed what appeared to be the remnants of a wall extending *mauka-makai* from the original main entrance, perhaps representing a formal appendage to the entrance.

The purpose of having two entrances into the *luakini* is unknown, although two possibilities are suggested. First, the smaller eastern entrance may have been added after the *luakini* was dismantled. Second, the smaller eastern entrance may have represented a "private" entrance used by the king and/or the *kahuna* (temple priest) and his assistants. The larger central entrance has been noted by Hitchcock as "the place where sacrifices were performed," and in this respect it is of no small importance that the large red cinder foundation wall stone is a scant 3-4 meters to the west of the entrance. The possible significance of this association will be further explored below.

A final critical aspect of Structure A is its dating. Kamakau (in Emory et al. 1959), Fornander (1969:35), and most subsequent writers believe that Waha'ula was originally constructed by Pā'ao before A.D. 1300, although none of the earlier writers seemingly attribute the construction to Pā'ao. Both Ellis (1979:190) and Lyman (1924:105) explicitly state that Waha'ula was constructed by Kamehameha⁴; also Ellis explicitly and Malo (1951:6) implicitly seem to connect Pā'ao only with Mo'okini *heiau* in Kohala on the northern tip of Hawai'i. To further confuse matters, Kamakau (cited in Emory et al. 1959) notes that the name of the original *luakini* founded by Pa'ao was 'Aha'ula and not Waha'ula.

These seemingly irreconcilable stories are, in fact, internally consistent. 'Aha'ula and Mo'okini will be discussed below, but the first part of the puzzle, the construction of Structure A, can be readily explained. Ellis and Lyman attributed the construction of Waha'ula *heiau* to Kamehameha simply because it is probable that Kamehameha did build Waha'ula or at least Structure A. Ellis and Lyman might have pointed directly at Structure A when asking local inhabitants "Who built Waha'ula *heiau*?" The question is a reasonable one because the structure had been abandoned just a few years earlier, and was the only *luakini* structure at the site, and was therefore known as "Waha'ula" to the local populace. Had Ellis and Lyman

pointed to Structure C, on the other hand, they likely would have received a different response.

Kamehameha (through his son Liholiho) rededicated Waha'ula in 1817 (I'i 1983:137; Thrum 1908*b*:49). Given his intensive warfare activities in the 1790s and his probable need to enhance his position with the occupants of his then newly acquired Ka'ū, Puna, and Hilo districts, it would perhaps have been necessary for Kamehameha to rededicate or build *luakini* in these districts sometime in the mid-1790s. Also the term "rededication" might have commonly been used to refer to the construction of completely new buildings as long as they were erected within the confines of the original *heiau* boundaries.

One thing we can be fairly sure of (even if Kamehameha himself did not build Structure A), is that the Tahitian priest Pā'ao did not build Structure A. However, this fact does not preclude the possibility of Pā'ao or his immediate descendants having built a *luakini* elsewhere at Waha'ula or at least in the vicinity of Puna. In fact, such an argument is suggested below.

Structures B–F are less easy to decipher but can be assigned functional roles with some degree of likelihood. Structure B has been variously interpreted: Lyman (1846–1847) argued it was simply a small *heiau*, Hitchcock (n.d.) the place where sacrifices were made, and Stokes (n.d.) the house of a priest, or *kahuna*.

Based on its squarish shape, relatively small size, location near Structure A, position of its entryway, presence of the upright in the pavement, and paired red stones in the *mauka* wall, Structure B is probably not a temple structure, per se. More likely it was the house of the *kahuna nui* (high priest) in charge of the *luakini*, presumably Structure A. However, the fifteenth-century radiocarbon date from the interior platform indicates either the non-contemporaneity of the structure with Structure A or the possibility that Structure B had been used over a long period of time or was periodically remodeled.

Structure C, likewise, has been variously interpreted. Lyman (1846–1847) considered it to be the remains of a temple structure older than Structure A, a position also supported by Stokes (n.d.). Alternatively Hitchcock (n.d.), Thrum (1908*b*), and Kekahuna (1951) considered it an enclosure used by possibly minor priests.

Ed Ladd (1972), who extensively tested this structure, hypothesized that Structure C was the original Waha'ula temple and that it had been remodeled three times. Ladd matched periods of use and rededication noted in oral histories by I'i (1983), Fornander (1969), and others mentioned in Emory et al. (1959:31).

Circa A.D. 1275 Built by Pā'ao, priest from Tahiti

Circa A.D. 1500 Reconditioned by Imaikalani, chief of Ka'ū and Puna in 'Umi's time

Circa A.D. 1625 Functioned as a *luakini heiau* during the reign of Keākealani-wahine

Circa A.D. 1770 Reconditioned by Kalani'ōpu'u, king of Hawai'i

A.D. 1817 Functioned as a *luakini heiau* [reconditioned] during the reign of Kamehameha I

A.D. 1820 Idols and *heiau* houses destroyed by order of Liholiho, Kamehameha II.

Ladd suggests that Structure C was used during the period A.D. 1275–1625 and that Structure A was subsequently built sometime during the period A.D. 1625–1770. Later in this paper the calendrical dating of these three earlier use periods of Waha'ula *heiau* are reassessed.

The archaeological evidence overwhelmingly suggests that Structure C func-

tioned as a *luakini* before the establishment of Structure A. Certainly the large size, the complexity of internal features, the probability of exterior (and interior) image pits, the structure's placement near the sea cliffs, the presence of the courtyard and probable early entryway on the west, and the substantial effort that obviously went into its construction are indicative of its use as a *luakini*. The nature of the internal features and the overall size of the structure are (with a slight stretch of imagination) remarkably similar to that of Mo'okini *heiau* (Thrum 1908b:59).

Although Ladd's view that Structure C is an early *luakini* is well founded, his belief that Structure C was Pā'ao's first *heiau* is less convincing, as is his (1972) hypothesized construction sequence for this structure (although his suggestion that construction sequences might relate to "rededications" has considerable merit). Also the possibility that Structure C might have been reused as some kind of a "priests' enclosure" during the reign of Kamehameha (thus accounting for some of the oral traditions) cannot be excluded.

Structures D and E have also been variously and interchangeably interpreted as being a residence for priests (Structure E, Emory et al. 1959), a place for offerings by men of commoner rank (Kekahuna 1951), and the *hale o Papa* (Structure D, Hitchcock n.d. and Emory et al. 1959; Structure E, Kekahuna 1951). A *hale o Papa* is the temple structure where female deities are housed and where women of chiefly rank commingle with men at the end of one or more of the *luakini* rites, thus breaking the *kapu* imposed during the *luakini* ritual itself.

Based on descriptions by Kamakau (1961:325) we know that the *hale o Papa* was located to the "south" or "left" (as one faces the entrance) of the *luakini* temple and outside of the *kapu* area of the *luakini* courtyard, a situation that applies to both Structures D and E. However, one must also consider (see also I'i 1983:44-45) that (1) the *hale o Papa* also housed a *lele* altar; (2) pigs and other animals were cooked inside the structure; (3) other sacrifices included multiple garments of white tapa and large numbers of bananas; (4) the structure apparently housed a sizable group of individuals during its ceremonies (see also Malo 1951:175); and (5) the *hale o Papa* was the point from which people dispersed back into the surrounding community. These combine to strongly suggest that Structure E was the *hale o Papa* and not Structure D.

So what was the function of Structure D? We know from I'i and Kamakau that as with the *luakini* temple, there was a special *kahuna* who serviced the *hale o Papa*. Given the squarish shape, the relatively small size, the probable west-facing entryway, and the seeming absence of complexity to the internal features inside the structure, Structure D might have been the *kahuna* house for the presumed *hale o Papa* (Structure E).

Although there are no radiocarbon dates from Structure D, the dates from Structure E do seem to correspond well with the single date from Structure A. Given the various spatial relationships and construction details, it seems likely that Structures A and E were contemporaneously used during the 1700s and perhaps during the 1800s, as tradition suggests.

The last feature to be considered here is Structure F. Stokes (n.d.) recorded this feature as the *hale pe'a*, or women's menstrual house. There are few oral historical descriptions of *hale pe'a*; we simply know that they were isolated from other structures (Malo 1951:29). Because "tent" is one of its two definitions (Pukui and Elbert

1986), *hale pe'a* might generally have referred to buildings of small size and/or expedient construction.

Structure F is puzzling for several reasons. In support of its being a possible *hale pe'a*, the structure is indeed isolated, both horizontally and vertically. Also it is significant that its clearest link to other structures in the vicinity (i.e., in either Waha'ula proper or in Ka'ili'ili Village) is with Structure E, which, if it is the presumed *hale o Papa*, would have had a strong female association. Also possibly supportive of the *hale pe'a* assignation to Structure F is the fact that the flattened or rounded water-worn stones, such as the conspicuously displayed pairs, appear to have had a feminine connotation in traditional Hawaiian society (Beckwith 1970).

However, the size, construction techniques, rectangular (rather than square) shape, and probable presence of nearby burials would seem to suggest that Structure F is more than just a "common" *hale pe'a*. Perhaps this structure was indeed a *hale pe'a* but one strictly associated with the highest chiefly classes of women, who undoubtedly would also have been the women using the *hale o Papa*, and therefore associated with royal *luakini* such as Waha'ula. Even more intriguing (and speculative) is the possibility that Structure F was specifically built for an individual with special requirements, in particular Keākealani-wahine, who in the 1600s became the second woman (the first being her mother, Kaikilani) to independently rule Hawai'i (Fornander 1969:128), and who we know performed *luakini* rituals at Waha'ula (I'i 1983:160). Significantly, I'i notes:

As there was no other chiefess her equal, she was kept apart, with the chiefs who had the right to the prostrating kapu, and away from places where people were numerous. . . .

Though a woman, Keakealaniwahine was permitted to enter the heiaus to give her offerings and sacrifices. However, she was not allowed to eat any of the offerings and gifts with the priests and the men. . . . Thus Keakealaniwahine ate in her own house of the food permitted to women (emphasis added) (1983:159-160).

The Stones of Waha'ula

Stone served a variety of useful functions in Hawaiian society, including that of providing material for the construction of houses, temples, terraces, and other features; for tools such as adzes, fishing weights, and canoe anchors; and for various games such as *kōnane*. We also know that stones of distinctive sizes, shapes, colors, and compositions were often imbued with special status and were thought to contain *mana*, or power derived from being a representation (or an actualization) of deities, animals, or human beings (Beckwith 1970:88-89; Kalakaua 1972:40). Such stones were used as images or to denote aspects of this *mana*.

Despite the predilection that archaeologists have with the material remains of past societies, including architectural construction detail, there has been little attempt in Hawaiian archaeology to systematically study the social and symbolic information that might be present in stone architecture. Such studies could admittedly be speculative and potentially inappropriate exercises; nevertheless, there are certain situations in which the archaeological record lends itself to the explication of the original cultural context of a given object, feature, or site. Waha'ula provides an excellent vehicle for such a study. What follows is a brief exploration into the possible meanings of two specialized uses of stone: (1) the use of red cinder in structure wall

foundations and in other portions of overall *heiau* courtyard space; and (2) the presence of paired sets of unusual stones embedded into the walls of certain structures. Other potentially meaningful distributions of stone, such as the use of waterworn cobbles and pebbles in a variety of interesting contexts, lie beyond the scope of this article.

RED CINDER

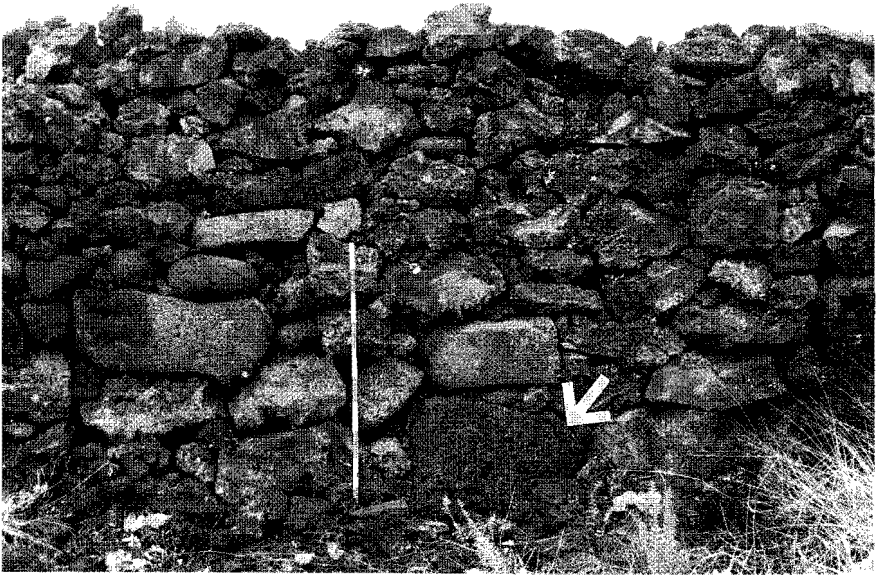
It has been noted previously that Structures A–D at Waha‘ula contain isolated chunks of bright reddish-orange volcanic cinder embedded into walls in conspicuous locations; likewise red cinder chunks are found in at least a few other contexts at Waha‘ula. The red cinders in walls are quite sizable, ranging from 30 cm in diameter to 75 cm in length and 40 cm in height (the stone in the *makai* wall of Structure A). These stones are conspicuous because of their isolation from other such stones and the fact that virtually all other construction stones are gray, dark brown or reddish-brown, and black. What, if anything, is signified by these bright red cinder stones? In the attempt to answer this question, it becomes apparent that Waha‘ula might have been a special place for early Hawaiians.

The red cinder stones at Waha‘ula have three distinctive aspects. The first two, color and specialized distribution, are readily apparent; the third, *mana* (representational power), is assumed from the first two characteristics. Geologists who have viewed the red cinder stones have suggested that they might have been obtained from open portions of Kilauea’s east rift, several miles north of Waha‘ula (Thomas L. Wright and Christina Heliker, pers. comm., 1989). Samples of these stones are currently undergoing compositional tests to verify this suggestion.

Red was an extremely powerful symbol in traditional Hawaiian society. For example, red-feathered cloaks (*‘ahu ‘ula*) and girdles denoted chiefly power (Stokes 1928); red was the primary color of Kū and was one of the colors associated with the gods Kāne and Kanaloa and the goddess Pele; and red was replete throughout all aspects of the *luakini* ritual (Valeri 1985), from the red *‘ōhi‘a lehua* wood used for images to the red clay that priests smeared on their bodies (Malo 1951:163); to the sacrificing of red fish (*i‘a ‘ula*); to the “blood” or “red rain,” a meteorological sign of royalty (Fornander 1919:108); and to the implied wiping of blood from the cutting of the sacred *‘aha kapu* or *‘aha ‘ula* sennit cord (Valeri 1985:152, 295).

A second distinctive aspect of the Waha‘ula red cinder is its restrictive distribution. The only structures exhibiting red cinder are A–D, and the only other known occurrences at Waha‘ula are the previously described scatter between Structures D and E and two large blocks that are situated approximately 100 m east of Structures A–C, one at the *mauka* edge of the *‘a‘ā* flow, the other at the *makai* edge (Fig. 4). Also red cinder is seemingly absent from Ka‘ili‘ili Village and only one instance of its use is known at Poupou-Kauka Village.

Given its significance and distribution, we suggest that the red cinder served two purposes: first, as the embodiment of an important concept (e.g., human sacrifice), an *akua* (deity), or an individual integral to the history or function of Waha‘ula; second, as a gender-oriented boundary marker that delineated the sacred central precinct (in this case including that portion of the eastern precinct stretching from the edge of Structures A–C to the two large red cinder blocks) from the remainder of Waha‘ula *heiau* (Fig. 5). This speculated gender barrier is emphasized by the lack



Pl. II. Photograph of large red cinder block in the *makai* wall of Structure A. Arrow points to stone. Courtesy of the U.S. National Park Service.

of red cinder at either Structure E or F, both female-related structures if our interpretation of them as the *hale o Papa* and *hale pe'a* are correct.

As the embodiment of a concept, deity, or individual, the red cinder used as basal foundation stones in the center of walls for temples and presumed *kahuna* houses is telling; however, two other aspects are notable. First, the two major exceptions to centrality for red cinder in walls are the large red cinder block in the *makai*-western wall of Structure A (Pl. II) and the stone in the *mauka*-western wall of Structure B. These two stones delimit the area in which Hitchcock explicitly states that human sacrifices were conducted. Second, the red cinder scatter along Pathway A between Structures D and E might be the residue from the deliberate smashing of a large red cinder stone. The smashing possibly took place in 1820 with the overthrow of the *kapu* system; the stone, perhaps a carved image, likely was representative of the concept, deity, or individual that made Waha'ula distinctive.

This then leads to the attempt to define that distinctive quality, or *mana*, that the red cinder stones possess. There are at least four plausible candidates: (1) a representation of Kū in one of his many forms; (2) a representation of Pele; (3) a commemoration of Pā'ao or another important historical or legendary figure; and (4) an architectural signature of an important historical figure, such as a king or his *kahuna kuhikuhi pu'uone*, the priest whose specialty was designing royal *heiau* (Malo 1951:161).

We can rule out the last possibility because structures from at least two distinct periods (e.g., Structure C is earlier than the others) are represented, making it unlikely that they share the signature of a single individual; however, this does not rule out the signature being extended from an individual to a priestly or chiefly lineage.

We can also rule out Pele as the deity being represented because the distribution of red cinder at Waha'ula is male- rather than female-oriented—unless, of course, the absence of a manifestation of Pele (red cinder) in structures E and F is actually a response to the female usage of these structures. This latter possibility is suggested because oral traditions indicate that menstrual blood offended Pele (Pukui et al. 1972:191), whose own menstrual blood was represented by volcanic eruptions (Valeri 1985:19), and surely red cinder was known to be a product of Pele's activities. However, even if the absence of red cinder in Structures E and F was due to not wanting to offend Pele, the use of red cinder elsewhere at Waha'ula need not necessarily be tied directly to Pele herself.

Mo'okini, Pā'ao's purported "second" *heiau*, was also examined for red cinder in its construction. A scan of several dozen color photographs in the State Historic Preservation Office and discussions with several individuals (Ross Cordy, Michael Kolb, Earl Neller, Martha Yent, Joyce Bath, pers. comm., 1990), lead one to conclude that in all of the Hawaiian Archipelago the structural use of red cinder or any other distinctly bright red stone was extremely rare and, in terms of *luakini heiau*, seemingly unique to Waha'ula. The previously mentioned structure at Poupou-Kauka (which, based on several different criteria, is likely a religious structure) is currently the only other known site with red cinder. A possible *heiau* at Paliuli in nearby La'epuki incorporates bright red (mottled) stone into its structure, but the stone is a red-oxidized basalt from a nearby seam.

These facts do not rule out the commemoration of Pā'ao as the purpose of the red cinder at Waha'ula, but the material more likely signifies one of the manifestations of Kū, and presumably one that would be intimately related to the establishment and performance of the *luakini* ritual. Kū-kā'ili-moku, Kamehameha's war god and the god allegedly brought by Pā'ao to Hawaii, comes immediately to mind. Some early chroniclers such as Ellis (1979:190) specifically state that Waha'ula was dedicated to Kū-kā'ili-moku. However, some scholars have suggested that Kū-kā'ili-moku did not come with Pā'ao but instead appeared for the first time with the Hawaiian king Līloa, some 13 generations after Pā'ao allegedly first appeared in Hawaii (Malo 1951:257n.66; Valeri 1985:247). Also all of Kamehameha's *luakini* were in effect dedicated to Kū-kā'ili-moku because of the intimate relationship between the *luakini* ritual and warfare (Valeri 1985). Thus red stones might be expected to appear in all *luakini* if they were a manifestation of Kū-kā'ili-moku.

The specific representation of Kū at Waha'ula and perhaps the ultimate derivation of the *luakini* ritual itself might be Kū-waha-ilo, "Ku maggot-mouth." Kū-waha-ilo was a man-eater and supposedly the god responsible for the introduction of human sacrifice; in at least one tradition he was also the husband of Haumea (= Papa) and the father of Pele (Beckwith 1970:30). Kū-waha-ilo was the primary deity worshipped at Kumaka'ula *heiau* in nearby Kalapana village, and apparently the worship of Kū-waha-ilo was widespread on Hawai'i at historic contact (Ellis 1979:93, 191). In fact, according to Ellis, the *kahuna* at Kumaka'ula prophesized that when Kamehameha died

Kuahairo [Kū-waha-ilo] would take his spirit to the sky, and accompany it to the earth again, when his body would be reanimated and youthful; that he would have his wives, and resume his government in Hawaii; and that, at the same time, the existing generation would see and know their parents and ancestors, and all the people who had died would be restored to life (1979:93).

If Kū-waha-ilo is indeed embodied at Waha'ula, this may explain why several traditions seem to mark Waha'ula as a place of particularly harsh sanctions. Here is Westervelt:

The Mu, or "body-catcher," of this heiau with his assistants seems to have been continually on the watch for human victims, and woe to the unfortunate man who carelessly or ignorantly walked where the winds blew the smoke from the temple fires. No one dared rescue him from the hands of the hunter of men—for then the wrath of all the gods was sure to follow him all the days of his life.

The people of the districts around Waha'ula always watched the course of the winds with great anxiety, carefully noting the direction taken by the smoke. This smoke was the shadow cast by the deity worshipped, and was far more sacred than the shadow of the highest chief or king in all the islands.

It was always sufficient cause for death if a common man allowed his shadow to fall upon any tabu chief, i.e., a chief of especially high rank; but in this "burning tabu," if any man permitted the smoke or shadow of the god who was worshipped in this temple to come near to him or overshadow him, it was a mark of such great disrespect that the god was supposed to be enaena, or *red hot with rage* (emphasis added) (1963:6).

The appellation "red mouth" appears well deserved.

Because Kū-waha-ilo, like Pā'ao and the *luakini* ritual itself, is seemingly derived from "Kahiki," it is of more than passing interest to learn that the use of red cinder or its equivalent occurs in the archaeological record of the Society Islands. Recent studies by the University of Hawaii in Tahiti's Papeno'o Valley (Michael Graves, pers. comm., 1990) have demonstrated the presence of stone uprights of red scoria near altars within at least three *marae* (the central Polynesian equivalent of *heiau*). These small uprights, averaging less than 25 cm in length, are from contexts that likely date to between A.D. 1400–1800. Although there are differences in the use of red stones between Tahitian *marae* and Waha'ula *heiau*, the association nevertheless is intriguing and deserves further attention.

PAIRED STONES

Hawaiian religion has numerous examples of the pairing of *akua* to symbolize some aspect of the cosmos or to express some important activity, such as fishing (Beckwith 1970; Valeri 1985). Not surprisingly, archaeologists have observed paired stones at various places in the archipelago that are identified by local informants as representations of *akua*. One such *akua* pair was that of a small fishing shrine with two upright stones denoting Kāne and Kanaloa (McAllister 1976:184–185); pairings of Kū and his goddess-wife Hina are also known (McAllister 1976:185). However, the stone *akua* pairs noted by archaeologists have seemingly been restricted to sets of uprights, usually mounted into the base of stone pavings (see, however, Kamakau 1961:Fig. following p. 208) or platform facings (e.g., Kirch 1985:Fig. 148).

The two paired sets of unusual stones embedded into the interior center of the *mauka* walls of Structures B and F (Fig. 5) also likely represent paired *akua*, and are thought to be the same *akua* based on the nearly identical positioning of these two sets of stones. The highly visible nature and obviously deliberate placement/orientation of the two stone pairs indicate that the *mauka* (inland) direction held special significance. This is the general direction of Kīlauea Crater and the east rift in particular, as well as the general direction of both the mountains and the rainforest above the *pali*.

The stones in the *mauka* wall of Structure B likely represent a male-female pair



Pl. III. Photograph of paired red-oxidized stones in the interior of the *mauka* wall of Structure B. Arrows point to stones. Courtesy of the U.S. National Park Service.

given the fact that one (the eastern stone) is waterworn (female) and the other is not (Pl. III). Also their red color and their orientation and location within a probable *kahuna* house combine to suggest that these stones represent Kū in one of his many forms (see Valeri 1985: Table 1) and his *akua* wife, Hina. Hawaiian *ka'ao* and *mo'olelo* do not indicate a female consort for the war god Kū-kā'ili-moku, thus these stones are perhaps indicative of another form of Kū. Two possibilities suggest themselves. The first is that of Kū-ka-'ōhi'a-laka and Hina-ulu-'ōhi'a, the *akua* of the 'ōhi'a *lehua* forest (Beckwith 1970:16-17). As noted by Valeri (1985:262-279), the activities associated with the procurement, carving, and setting up of the *haku* 'ōhi'a, the main image of the *luakini heiau*, is a critical aspect of *luakini* ritual, the steps of which are overseen by the *kahuna nui*. Alternatively, the female partner of Kū-ka-'ōhi'a-laka could be his *akua* sister, Ka-ua-kuahiwa ("The rain on the ridges"), possibly signifying the *pali* slopes from which 'ōhi'a *lehua* trees were obtained; also in this direction (*mauka*) is the large 'a'ā flow area around Royal Gardens Estates, which would likely have supported the largest local stand of 'ōhi'a *lehua*. Significantly, Kū-ka-'ōhi'a-laka and his sister are known to have come from Kahiki, perhaps indicating an association with Pā'ao (Beckwith 1970:17).

The second possible Kū-consort pairing, and one with profound implications for Waha'ula, is Kū-waha-ilo and his wife, Haumea. This possibility is enhanced by the fact that these two stones face in the general direction of Kīlauea Crater, the home of the purported daughter of this *akua* pair. Given the location of Waha'ula and the presumed impact of the *kāne nui o hamo* lava flows during the early history of the *heiau*, the essence of Waha'ula for early Hawaiians might have been that of bringing together in a single explanatory framework the ritual symbolism of the Kū rites of sacrifice with that of Pele and her seeming physical dominion over the southern half

of Hawai'i Island. Although the rites in the *hale o Papa* at the close of a *luakini* ritual explicitly deal with Pele and her various manifestations (Valeri 1985:401n.251), it might be that Waha'ula, more than any other *luakini*, wove Pele into the overall ritual process.

This seems quite plausible until the second paired stone set, that of Structure F, is brought into the picture. Although the orientation and location of these two stones are indeed nearly identical to those in Structure B, the Structure F stones are both waterworn (i.e., female), and neither are red. Does this situation, then, refute the narrative described above? Not necessarily; there are known aspects of the *luakini* ritual that may help explain the presence of the Structure F stones, especially if Structures E and F are indeed the *hale o Papa* and its presumably associated *hale pe'a*.

As described by I'i (1983:44) and Malo (1951:82–83), female chiefs worshipped a number of *akua*, two or three of which were kept in the *hale o Papa* (see also Valeri 1985:331), including Kiha-wahine (= Kalamainu'u) and Walinu'u (= Haumea = Kāmcha'ikana). Kiha-wahine and Walinu'u are *mo'o* deities (Beckwith 1970:193–195), ancestral guardians in the form of water spirits. These *akua* helped rescue a Kaua'i chief named Puna from the clutches of Pele. Thus the two stones in Structure F could conceivably represent two water *mo'o*, set up to protect menstruating women from Pele's wrath. Likewise, these two stones, or perhaps the other waterworn cobble pair in the *makai*-western corner of Structure F, might somehow be linked with the *kapu kai*, or the ceremonial seawater purification bath taken at the end of the menstrual period. But perhaps here the story is diverging from *mo'olelo* into *ka'ao*!

Pā'ao from Kahiki

Hawaiian *mo'olelo* are replete with stories about emigrations to Hawai'i from islands to the "south" and tales of two-way voyages between Hawai'i and many of these same island groups. In particular, Kahiki is singled out as an important source of people and ideas for Hawai'i. Perhaps the most distinguished of these travelers was Pā'ao, the legendary *kahuna* who brought the *luakini* to Hawai'i. There has been much debate over the origins, timing, nature, and even authenticity of Pā'ao and his alleged contributions to traditional Hawaiian culture (Beckwith 1970:247, 341; Emerson 1893; Fornander 1969:33–38; Stokes 1928; Sahlins 1981:9–12, 25–26, 28; Valeri 1985:341). However, a critical reading of the extensive literature on Pā'ao and the Kahiki migrations, along with *mo'olelo* and *ka'ao* of other legendary characters such as the Pele family, suggests that certainly the migrations and perhaps even the character of Pā'ao have a historical basis (e.g., Hommon 1989; Kirch 1985:66). The great difficulty has been in trying to sort the *ka'ao* from the *mo'olelo* by examining the contributions and timing of the various presumed introductions to Hawai'i.

Malo (1951:6, 248, 250–251, 255–256), Kamakau (1961:235; 1964:41), Kalakaua (1972:39, 107–108), and Ellis (1979:283–284, 318, 320) provide a curious picture of Pā'ao showing up at four different points in Hawaiian historical traditions, a span of approximately 15 generations. Kamakau (1961:235) literally interpreted these as representing the full length of one individual's lifespan: "Pā'ao must have lived 447 years or more." Because the Pā'ao priesthood continued in unbroken succession from the original *kahuna nui* of king Pilikaea (Pili, king of Hawai'i Island who was originally brought from Kahiki by Pā'ao) until that of Hewahewa, high priest of

Kamehameha, it seems likely that the name Pā'ao was used interchangeably to denote both the legendary person and the position of high priest in the Pā'ao priestly order (e.g., Kalakaua 1972:107–108).

The four "historical" Pā'ao episodes are briefly described. (1) Pā'ao arrives (from Kahiki) on Hawai'i Island during the reign of La'au or his predecessor Lonokawai (= Lanakawai). During this period Pā'ao apparently founded 'Aha'ula *heiau* in the Puna District, returned to Kahiki to bring back a new king for Hawai'i Island (Pili, who became the founder of the unbroken royal dynasty leading to Kamehameha), and eventually established Mo'okini *heiau* in Kohala, where Pā'ao stayed after bringing Pili from Kahiki. (2) During the reign of Hawai'i Island's usurper king, Kamai'ole, Pā'ao is asked to help remove Kamai'ole and to replace him with Kalapana, the rightful heir to the throne. (3) The barren wife of the king Kohoukapu seeks Pā'ao's help so that she might have children. (4) Pā'ao dies during the reign of the Kohala chief Ka-maka-'ohua (Kamakau 1961:235), apparently about two generations after 'Umi.

There have been a number of attempts to date the reigns of the early Hawaiian chiefs, ranging from Kalakaua's (1972:31) use of variable time periods, apparently based on an assessment of the known accomplishments of each king, to that of Fornander (1919:312–316), who assigned an arbitrary value of 30 years to each generation, to that of Hommon (1989), who uses an arbitrary value of 20 years for each generation, and to that of Cordy (1981:202, 210–214), who presents his data in terms of generations of both 20 and 25 years. Based on a number of factors that are more fully explored elsewhere,⁵ we have chosen to use an arbitrary generation value of 25 years, beginning with the start of Kalani'ōpu'u's reign (which began in 1754 but to which we ascribe a date of 1750) and extending backward in time.

Using this method, it would appear that Pā'ao's arrival in Hawai'i and founding of 'Aha'ula *heiau* took place at approximately A.D. 1125–1200 (allowing for an error factor of 25 years), or 1150–1225; the founding of Mo'okini *heiau* seemingly took place at around A.D. 1175–1250; the overthrow of Kamai'ole and the reign of Kalapana took place at around A.D. 1300–1375; and the reign of Kohoukapu took place at around A.D. 1400–1475. Other notable dates would include the reign of 'Umi (during which time Waha'ula was rededicated by the legendary blind chief, Imaikalani) at approximately A.D. 1500–1575, with the reign of his predecessor, Līloa, occurring at around A.D. 1475–1550; the "death" of Pā'ao in the period of approximately A.D. 1525–1600; and the use of Waha'ula *heiau* by Keākealani-wahine at around A.D. 1650–1725. These dates suggest that the *luakini* ritual and its attendant suite of social reforms took shape on Hawai'i at around A.D. 1150–1250 (perhaps as late as A.D. 1375 based on the possible impact of the *kāne nui o hamo* lava flows noted below) and thereafter rapidly disseminated throughout the entire archipelago.

It may never be possible to completely unravel the origination and timing of individual features and traits allegedly from Kahiki, but the list of such traits is impressive. Hommon (1989) has recently compiled the following list: the large *pahu*, or coconut tree trunk drum, with a sharkskin head, used in temple ritual; the *pūlo'ulo'u*, a tapa-covered ball on a rod placed before temples and houses of high-ranked chiefs as a symbol of *kapu*; the practice of circumcision; the 'awa, or kava plant (*Piper methysticum*); the nose flute; the practice of tattooing; the practice of separating menstruating women from the rest of the community; the *pā'ū*, or woman's tapa skirt; the 'aha ali'i, a body of chiefs empowered to determine an

individual's position in the chiefly hierarchy; a system of social stratification that was more distinct and permanent than had existed previously; the institution of a "sovereign lord or king" on each of the major Hawaiian islands; a more stringent *kapu* system, which, among other things, served to emphasize the distinction between chief and commoner; several gods and demigods, including Kū-ka'ili-moku and the Pele family; the practice of human sacrifice; and the *luakini*, or temple of human sacrifice.

To this list we can possibly add the introduction of the sweet potato (Hommon 1976) and the coconut, both of which played a vital role in the subsistence and economics of Ka'ū and Puna (the coconut might have been first planted at Waha'ula and nearby Kalapana) (Beckwith 1970:432). In fact, Waha'ula and the Puna District in general seem to figure prominently in the "Kahiki connection," so aptly named by Hommon (1989), and likewise figure prominently in the "Kahiki family" of deities and mythical characters noted below.

Pā'ao, 'Aha'ula and Waha'ula, Mo'okini, and the Wrath of Pele

Both Pā'ao and Pele are part of the suite of individuals, deities, animals, plants, and cultural practices allegedly brought to Hawai'i from Kahiki at various times during the period of approximately A.D. 1100–1400. Aside from a curious mention in one tradition that names Pā'ao and Pele as brother and sister (Beckwith 1970:372), Hawaiian *mo'olelo* do not indicate a clear relationship between Pā'ao and Pele. However, when we focus directly on the geologic history of the Puna and Ka'ū districts the relationship between the legendary priest and the goddess comes into focus.

Somers (1991) has cogently pointed out that the observable archaeological record of the southern half of Hawai'i might be profoundly distorted by the volcanic activity of the region. Likewise, Holcomb (1987:340), in his masterful study of the geologic history of Kīlauea Volcano, notes that historic traditions, if used expeditiously, should illuminate aspects of the social history of the island. These are not particularly new thoughts, and even Ellis (1979:171–174) and Emerson (1965:232) speculated on this possibility. The only serious attempt thus far to bring together oral traditions and geologic history (to see how the traditions might help to date geologic events) produced what seemed to the author to be very ambiguous and tentative couplings, the result of perceived inadequacies in both the geologic and oral historical data (Holcomb 1987:337–340).

However, we suggest that traditional data, when coupled with two specific sets of eruptions, have potentially profound implications in the quest to explain the social phenomenon represented by Waha'ula *heiau*. The two sets of eruptions (Holcomb 1987) include one or more series of flows dating to around 750–1000 years B.P. in the vicinity of the volcanic cone Pu'u Kali'u, about 15 km east of Waha'ula, and the *kāne nui o hamo* flows that surround Waha'ula and date to around 500–750 years B.P.

The Kali'u flows might possibly be significant if the original name of Waha'ula *heiau* was indeed 'Aha'ula, as suggested in the traditions of Kamakau and Fornander, and if there is merit in the tradition collected by Stokes (n.d.) and Thrum (1908a:38–40, 1908b) of a large temple located at Kamāili (in the vicinity of Pu'u Kali'u), also

named Waha'ula. The temple was supposedly dismantled and its stones used to build the present Waha'ula *heiau* (Fig. 3). Perhaps this earlier *heiau* is Pā'ao's 'Aha'ula, and perhaps lava from the Kali'u flows forced the abandonment of this temple site and the removal of at least certain "stones" (red cinder?) to the present Waha'ula. Certainly there is some overlap between the dating of the Kali'u flows (A.D. 950–1200) and the presumed establishment of 'Aha'ula/Waha'ula *heiau* (A.D. 1150–1225); the possibility of an earlier Pā'ao temple ('Aha'ula) would do much to eliminate many of the current inconsistencies in traditional histories of Waha'ula.

The name 'aha 'ula ("red-assembly" or "council of chiefs"), which apparently was given to this earliest of Pā'ao's hypothetical *heiau*, may not only have referred to the red-feathered cloaks and girdles of chiefly office, but also to a certain "assembly" of red cinder stones, later removed to Waha'ula. Analogous to the consumption of a ritual sacrifice, the very walls of Waha'ula may be thought of having incorporated the *mana* of 'Aha'ula and thus be 'Aha'ula. If this supposition were true, it may be that this "genealogical incorporation" can be stretched back even further into the past to Kahiki itself. This linkage can also be stretched in the other direction and be bound with the historically documented *luakini* ritual in that the 'aha 'ula (or 'aha *kapu*) ritual, the binding with cord and wrapping with bark cloth, also symbolizes genealogical relationships among chiefs and with the gods (Valeri 1985:288–308).

The second set of lava flows, the *kāne nui o hamo* eruptions, are even more remarkable, and appear to represent the longest stable rift eruption in the geologic history of Kīlauea Volcano (Holcomb 1987:301). But the *kāne nui o hamo* flows are not solely just an interesting piece of geologic history. These flows might have profoundly influenced the nature and trajectory of both Hawaiian religion and society. What is the basis for making such a claim?

First, Holcomb's (1987:339) hypothesis (which he actually put forward as one of several alternatives) that the *kāne nui o hamo* lava flows are the origin of the famous Hawaiian *mo'olelo* story about Pele's battle with Kamapua'a, the "pig-child" *kupua* (demigod), who is half hog and half human, must be taken into account (Beckwith 1970:201–213; Kalakaua 1972:147–154; Ellis 1979:173–174, 183; Charlot 1987). Holcomb (1987:338–339), in analyzing Ellis' (1979:182–183) 1823 travel route, thought Ellis was more likely referring to the Keauhou flows west of Kealakomo Village as the site of the Pele-Kamapua'a conflict (Fig. 3). However, Ellis' (1979:190) later statement—"Leaving Kearakomo, we travelled several miles in a north-easterly direction *along the same bed of lava that we had crossed on Saturday evening*" (emphasis added)—clearly indicates that the flows referred to earlier in Ellis' journal for the Pele-Kamapua'a conflict are those of *kāne nui o hamo* and not Keauhou. With this in mind, and assuming the reliability of the traditions that couple the two flows with the reigns of Kamai'ole and Līloa, respectively, the *kāne nui o hamo* flows date to the period of approximately A.D. 1300–1375 and those of Keauhou to around A.D. 1475–1550.

The *kāne nui o hamo* lava flows did much to create the legend of Waha'ula, perhaps serving as the inspiration for its name "red-mouth," and likewise played a significant role in the development of the *luakini* ritual and the enhancement of attendant social institutions. Assuming that the present eruption of Kīlauea Volcano (since 1983) is a satisfactory model for the developmental pattern of the *kāne nui o hamo* lava flows, it should have taken two or more decades for *kāne nui o hamo* to spread its mantle over the fertile valleys of Puna, and ultimately, near the end of the

eruption, to surround and to make a *kīpuka*, or island, of Waha'ula. Thus, in the course of perhaps less than a single generation, a once fertile and populous land was converted into a wasteland, and a major center (or at least what would likely have developed into a major center) of power and religious thought was transported lock, stock, and *kahuna nui* to the farthest place one can get from fresh, hot lava on Hawai'i—to Kohala (Fig. 1). Thus were the power and influence of Mo'okini *heiau* established, if not the *heiau* itself. Its construction might have occurred around the time of Pili, as noted earlier, but its preeminence likely began in the latter half of the fourteenth century.

Almost certainly Waha'ula was briefly abandoned during this period, and perhaps before abandonment the rate of human sacrifice and other attempts at pietistical placation would have increased greatly. When the *kāne nui o hamo* flows stopped for good and Waha'ula stood unscathed, the situation no doubt reinforced the sanctity of Waha'ula, the essential "correctness" of the rites of sacrifice and kindred ritual observances used to mollify Pele and other *akua*, and the power and authority of the priests and kings who happened to be in the right place at the right time.

It is no accident that Pā'ao's second appearance in Hawaiian *mo'olelo* occurs during the reign of Kamai'ole, at the time of Pele's destruction of Puna; usurpers and religious movements are often facilitated by strife. No wonder Kamapua'a (who, significantly, in one of his forms, is associated with sweet potato cultivation—see Valeri 1985:10) retired from the Puna scene and moved to Kahiki.

Pā'ao appears for a third time in *mo'olelo* (Beckwith 1970:191; Ellis 1979:205–211) during the reign of Kohoukapu (c. A.D. 1400–1475). Again we find Pele in a foul mood. A young Puna chief, Kahawali, makes the mistake of not recognizing Pele when she asks to borrow his sled for a *hōlua* sliding contest. When he flees, she pursues him down the hill, whereupon he dashes past the terrified crowd of spectators, pauses just long enough in his headlong flight to kiss wife, children, and favorite pig goodbye, and makes his escape to the sea, much to the detriment of those left behind.

The eruption caused by Kahawali's error is clearly identified as originating from Kapoho Crater (Fig. 2) near Puna's Cape Kumukahi (Holcomb 1987:326), although Holcomb suggests that it might be of more recent derivation than the A.D. 1400–1475 date suggested by association with Kohoukapu. Ellis (1979:208) was told that the Pele-Kahawali episode took place during the reign of "Keariikukuii" (Keali'iokāloa), which would place the eruption at approximately A.D. 1525–1600, a date somewhat more consonant with Holcomb's. What is critical, however, is the possibility that the Kapoho eruption occurred at around the same time as the extensive 'Ai-la'au eruptions along the northern side of the east rift zone, which Holcomb (1987) dates to around 350–500 years B.P.⁶ This is also a time of extensive warfare by 'Umi and of the apparent institution of roasting human sacrifices (Kamakau 1964:12), which might conceivably be linked to the eruptions, or at least to population dislocations that might have been caused by the eruptions. Notably, the large number of sacrifices occurring during the time of 'Umi is linked with his sorcery god, Kū-waha-ilo (Ellis 1979:260), who Beckwith (1970:29–30) notes as being possibly linked with the Pele family. Likewise, it is during this period (A.D. 1525–1600) that Pā'ao is supposed to have died. But the articulation of these events and associations is much more poorly defined than is the case for the effects of the earlier *kāne nui o hamo* flows.

Luakini

Throughout this article aspects of the *luakini* ritual have been discussed, and it has been noted that Waha'ula (or 'Aha'ula) is, according to Hawaiian *mo'olelo*, the original *luakini* temple in all of Hawai'i. The possibility that Waha'ula is, in fact, the *luakini* ritual also suggests itself.

Luakini literally means "40,000 pits." Because the refuse pit, into which the bones of sacrifice are placed, is also called *luakini* or *luapa'u* (the latter literally translated as "damp pit" according to Pukui and Elbert 1986), scholars have assumed that the term signifies a large number of sacrifices (e.g., Valeri 1985:236–237). However, this is just one of several interpretations.

Carter and Somers (1990:7–9) have suggested that the many pits present throughout Waha'ula *heiau*, especially those in its *mauka* and eastern precinct, are a derivation of the term *luakini*. This scenario seems quite likely because the physical evidence suggests that these pits are earlier than at least Structure A and seemingly Structures B–D as well. But what are these pits and what is their importance, if any, to the overall ritual that became known as *luakini*?

Perhaps the answers to these questions are contained in a curious *mo'olelo* collected by Kamakau (in Thrum 1908a and Emory et al. 1959), which notes that at one point "a specimen of every tree in Hawaii" was gathered and brought together to form a sacred grove at Waha'ula *heiau*. Fornander (1969:35–36) in 1869 noted the rich floristic assemblage at Waha'ula, and more than a century later Warshauer and Jacobi's (1973) detailed systematic study of the area noted the presence of several rare endemic species. What might have prompted this amazing bit of landscaping? If Kamakau's story has any merit (and the physical evidence seems to support it), the removal of plants to Waha'ula was prompted at least in part by the *kāne nui o hamo* lava flows. The entire countryside west and north of Waha'ula was devastated by these flows; even land to the east was affected with the exception of a sizable 'a'ā lava flow of the same age as that of Waha'ula, on which was once perched the modern community of Royal Garden Estates. Therefore, trees and other plants might have been brought to Waha'ula after the eruption to provide shade, construction material, food, and aesthetic relief to an area largely denuded of its former vegetation. The tradition also suggests that Waha'ula yielded tremendous power and influence, perhaps due to its having been "miraculously" spared the wrath of Pele. Alternatively, but still consonant with this tradition, many or most of the pits could have been used for agricultural purposes (sweet potatoes), the necessary byproduct of having to provide sustenance for the local population.

But perhaps many of these pits *were* sacrificial! As previously suggested, there might have been an intensification of human ritual sacrifice in the face of the oncoming eruption, and the pits are therefore the residue of such activity. But there is yet a third option, one that ties directly into the *luakini* ritual itself and combines both sacred grove and sacrifice into one holistic package. During the collecting of the 'ōhi'a *lehua* tree for the *haku 'ōhi'a*, or main image, a human sacrifice was placed at the foot of the cut tree (Kamakau 1976:130; Valeri 1985:264–265). Perhaps a similar practice was followed in the establishment of Waha'ula's sacred grove (including the alternative, which is to place a human sacrifice in the tree pit at Waha'ula), thus making the grove and the resulting pits *the luakini*.

As a final alternative, *lua* can also be used with reference to volcanic craters. Thus *luakini* may simply refer to the many active and inactive volcanic craters in the Puna

and Ka'ū districts. In this regard, it is significant that sacrifices were commonly made to Pele by throwing objects into the lava at Kīlauea Crater and other places, including select portions or the entire remains of deceased individuals (Ellis 1979: 173, 259). Thus Kīlauea was, in effect, simply a giant version of the *luapa'ū* pit of the *luakini* ritual process. But the point that must be stressed is that if any of the possibilities noted above are true, there would seem to be a direct link between the volcanic activity of this region and the establishment and spread of the *luakini* ritual.

WAHA'ULA TODAY

This article has attempted to show how the archaeological record of Waha'ula *heiau* might reflect critical religious values and important developmental episodes in the history of Hawaiian society, and how current knowledge of the physical history of this active geologic region provides tentative explanations for the establishment and spread of the *luakini* ritual and associated cultural phenomena.

Understandably, many readers might question how unpredictable and erratic physical events such as volcanic eruptions can influence and sustain such a pervasive social institution as the *luakini* ritual, especially those who expect social phenomena to have equally social origins and maintenance mechanisms. For example, although Valeri (1985) has done a masterful job of synthesizing the documentary and oral historical data to produce important insights into the symbolic contextual meaning of the *luakini* ritual as practiced during the eighteenth and early nineteenth centuries, he nevertheless has, by omission, denigrated the substantial impact that local environment, physical and social, has on ritual. Although he does note that some minor differences are present in *luakini* features and/or *luakini* rituals between various areas in Hawai'i (1985:332–336), he instead chooses to homogenize his data to deliver a generally static explanation for their development and being. Valeri seems to suggest that each of the various *luakini* throughout Hawai'i, and indeed throughout the entire archipelago, provided virtually identical stages for the acting of virtually identical dramas. Only the choice of dramas and the audience changed as the *ali'i kāne* moved his royal "act(s)" from place to place. But are all *luakini* the same or is there another level of ritual meaning that Valeri and other scholars have failed to grasp?

For example, the clockwise round of visits to the *luakini* on Hawai'i performed by Liholiho (I'i 1983:137) could possibly have been representative of a longstanding "cycle of incorporation" (for lack of a better term) in which the ceremony at each *luakini* is complementary rather than identical to the others, and where the order of progression from *luakini* to *luakini* was set by cosmological/symbolic logic rather than by (or at least in addition to) random sets of events. This is not to deny the obvious structuralism inherent in traditional Hawaiian society, which has been so persuasively demonstrated by scholars such as Sahlins (1981) and Valeri (1985) and which seemingly is reflected in the archaeological record of Waha'ula. However, unless Waha'ula is truly unique among the royal *heiau* of Hawai'i, the evidence from Waha'ula argues for functional diversity rather than uniformity among *luakini*, and perhaps also for the presence of some sort of "cycle of incorporation" as defined above. This situation, if it exists, by no means denigrates the structuralist paradigm; rather it broadens the stage, both hierarchically and temporally, on which the ritual drama took place.

Environment, in particular the volcanism of the southern half of Hawai'i Island,

has played a significant role in shaping the *luakini* ritual. Although Kū-kā'ili-moku might have been Kamehameha's "island-snatcher" god, there was another deity who likewise "snatched" land in equally terrifying (if not more so) ways. Pele's periodic actions necessitated a complex set of rituals, including sacrifice, aimed at transforming her destructive properties into something productive and understandable.

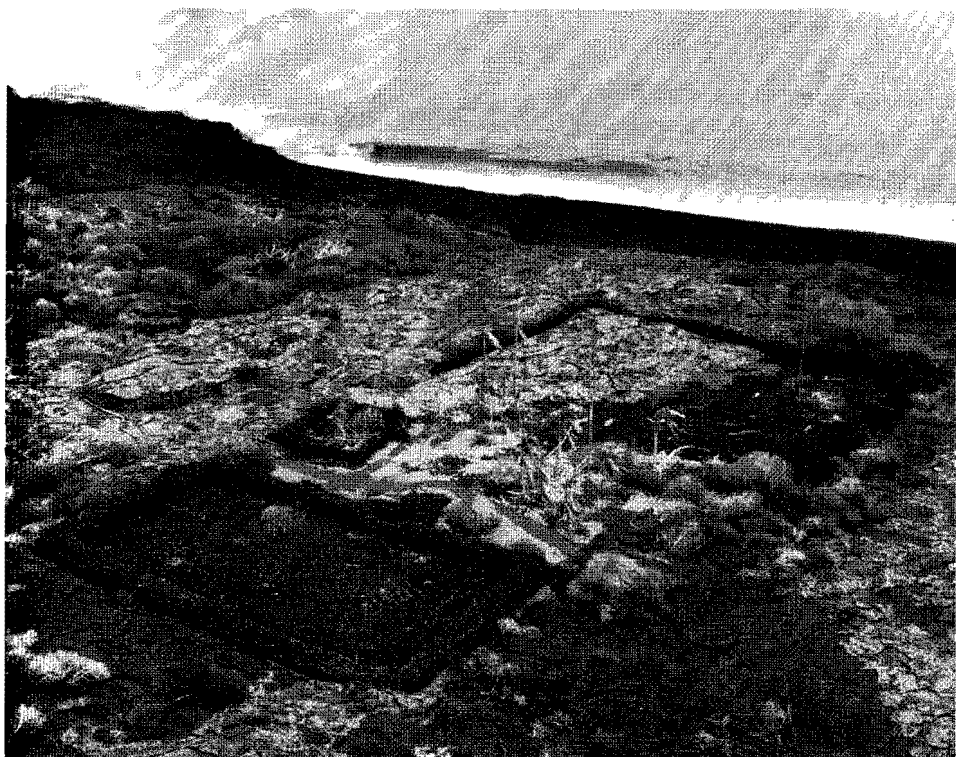
A few brief observations of how the present eruption of Kīlauea Volcano has articulated with Waha'ula *heiau* illustrate this point. On five different occasions during the course of field work and its aftermath (June–December 1989), lava flows came into contact with *heiau* structures at Waha'ula and then abruptly ceased before breaching the structure (three cases) or stopped immediately after breaching; the shortest stoppage lasted approximately eight hours (when lava began surging into Structure F and then stopped after two minutes of vigorous flow), while the longest has lasted 10 months and counting. One event was triggered by a 6.1 Richter-scale earthquake, which providentially gave the field crew an extra week to conduct its studies; the other four flow stoppages are not so easily explained, including the final cessation on 7 December 1989 (Pl. IV). It was a bit eerie to observe loose chunks of porous red cinder floating gaudily to the surface of flows while other stones remained submersed.

Given circumstances such as these, it is not difficult to imagine why Pele was so revered by early Hawaiians. Ellis noted in 1823 that for the occupants of Kealakomo Village, 15 km to the west of Waha'ula:

The apprehensions uniformly entertained by the natives, of the fearful consequences of Pele's anger, prevented their paying very frequent visits to the vicinity of her abode; and when, on their inland journeys, they had occasion to approach Kirauea [Kīlauea], they were scrupulously attentive to every injunction of her priests, and regarded with a degree of superstitious veneration and awe, the appalling spectacle which the crater and its appendages presented (1979:185).

This reverence for and fear of Pele was so strong that even Kamehameha in 1801 felt compelled to sacrifice a lock of his sacred hair in an attempt to stop the ongoing destruction of North Kona by vigorous flows from Ka'ūpūlehu Crater of Hualālai Volcano (Kamakau 1961:184–186; Ellis 1979:30–31). Incredibly the flows stopped two days later, and Hualālai has lain dormant for nearly two centuries! This event, which did much to enhance the reputation of both Pele and Kamehameha, was repeated by Hawaiian royalty in 1882 when a flow threatened Hilo (see Kalakaua 1972:42–43). Such reverence for and fear of volcanism helps to explain why Waha'ula became a venerated name in Hawaiian *mo'olelo*.

Contrary to Valeri's (1985:19) assertion that "goddesses . . . have a marginal position in the Hawaiian pantheon. This corresponds to the marginal position of women in the ritual system," the female role was indeed vital in Hawaiian ritual. Waha'ula is exemplary of the mutualism that existed among women, the environment, and the *luakini* ritual system. If we hope to understand the full range of the *luakini* ritual's meanings, it should not be separated from its environmental and historical context, one that fostered a number of mediating mechanisms of which the *luakini* ritual was but one example and one in which men and women, commoners and kings, all played important and mutually reinforcing roles in weaving the fabric of Hawaiian society. In fact, Pele's ouster of 'Ai-la'au (Westervelt 1987:35–36), the original volcano god of Hawai'i, and her subsequent conflicts with Kama-



Pl. IV. Aerial photograph of the central precinct of Waha'ula heiau as of 3 January 1990, looking makai. Courtesy of the U.S. National Park Service.

pua'a and other mythical and legendary individuals seem to parallel the establishment and expansion of the *luakini* ritual itself; the Pele myth can be thought of as the ethereal, female counterpart to the historical, male-dominated rites of human sacrifice.

Those fortunate enough to witness the extraordinary power and unpredictability of Kīlauea's volcanism can do naught but share a deep and abiding empathy with the former occupants of Kona, Ka'ū, Puna, and Hilo who tried to make sense of the world around them. Although Waha'ula heiau has now become but a small *kīpuka* in a vast sea of present lava flows and past historical drama, its surviving remnants serve as a reminder that there are many stories, both *ka'ao* and *mo'olelo*, still to be elicited from the archaeological record of the Hawaiian Islands.

NOTES

1. *Hawai'i* is used specifically with reference to the island; *Hawaii* refers to the entire archipelago.
2. The emergency rescue archaeology program at Waha'ula heiau and Ka'ili'ili Village was conducted between 21 June and 7 July 1990, a joint effort between the National Park Service (NPS) and the Hawaii State Historic Preservation Office (SHPO). The project was organized by Gary F. Somers, NPS Pacific Area Archaeologist, and Ross H. Cordy, SHPO Head Archaeologist. Laura A. Carter (NPS) and W. Bruce Masse (SHPO) served as Co-Field Directors. The authors thank numerous individuals in both agencies, especially the 13-member field crew for their dedicated work under extremely difficult conditions.

3. The Bishop Museum Library has a typescript copy of Chester Lyman's original journal, dated approximately 1921 and apparently prepared by his son. Comparison of this manuscript with the 1924 published volume indicates that much significant material was inexplicably excised from the published volume; there are also several grammatical inconsistencies that subtly alter contextual meaning. References to both the published book and the unpublished typescript are used in this article. Those interested should consult the original journal if possible.
4. Lyman appears to have had a copy of the 1825 edition of William Ellis' journal in his possession during his 1846 trip through Puna. Thus Lyman's statements regarding the relationship between Waha'ula and Kamehameha and his god Kū-kā'ili-moku may simply be a parroting of Ellis' work.
5. Carter, Laura A., W. Bruce Masse, Gary F. Somers, and Melia Lane-Hamasaki, report in preparation for the National Park Service.
6. Holly McEldowney of the Hawaii State Historic Preservation Office has informed us that recent examination of 'Ai-la'au flow lava tube systems in relation to surrounding flow episodes now suggests that a portion of the 'Ai-la'au flows are situated beneath what previously were thought to be relatively older flows. This emphasizes the still tentative nature of our understanding of the Kīlauea eruption chronology, a point likewise stressed by Holcomb (1987).

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named Waha'ula. The temple was supposedly dismantled and its stones used to build the present Waha'ula *heiau* (Fig. 3). Perhaps this earlier *heiau* is Pā'ao's 'Aha'ula, and perhaps lava from the Kali'u flows forced the abandonment of this temple site and the removal of at least certain "stones" (red cinder?) to the present Waha'ula. Certainly there is some overlap between the dating of the Kali'u flows (A.D. 950–1200) and the presumed establishment of 'Aha'ula/Waha'ula *heiau* (A.D. 1150–1225); the possibility of an earlier Pā'ao temple ('Aha'ula) would do much to eliminate many of the current inconsistencies in traditional histories of Waha'ula.

The name *'aha 'ula* ("red-assembly" or "council of chiefs"), which apparently was given to this earliest of Pā'ao's hypothetical *heiau*, may not only have referred to the red-feathered cloaks and girdles of chiefly office, but also to a certain "assembly" of red cinder stones, later removed to Waha'ula. Analogous to the consumption of a ritual sacrifice, the very walls of Waha'ula may be thought of having incorporated the *mana* of 'Aha'ula and thus be 'Aha'ula. If this supposition were true, it may be that this "genealogical incorporation" can be stretched back even further into the past to Kahiki itself. This linkage can also be stretched in the other direction and be bound with the historically documented *luakini* ritual in that the *'aha 'ula* (or *'aha kapu*) ritual, the binding with cord and wrapping with bark cloth, also symbolizes genealogical relationships among chiefs and with the gods (Valeri 1985:288–308).

The second set of lava flows, the *kāne nui o hamo* eruptions, are even more remarkable, and appear to represent the longest stable rift eruption in the geologic history of Kīlauea Volcano (Holcomb 1987:301). But the *kāne nui o hamo* flows are not solely just an interesting piece of geologic history. These flows might have profoundly influenced the nature and trajectory of both Hawaiian religion and society. What is the basis for making such a claim?

First, Holcomb's (1987:339) hypothesis (which he actually put forward as one of several alternatives) that the *kāne nui o hamo* lava flows are the origin of the famous Hawaiian *mo'olelo* story about Pele's battle with Kamapua'a, the "pig-child" *kupua* (demigod), who is half hog and half human, must be taken into account (Beckwith 1970:201–213; Kalakaua 1972:147–154; Ellis 1979:173–174, 183; Charlot 1987). Holcomb (1987:338–339), in analyzing Ellis' (1979:182–183) 1823 travel route, thought Ellis was more likely referring to the Keauhou flows west of Kealakomo Village as the site of the Pele-Kamapua'a conflict (Fig. 3). However, Ellis' (1979:190) later statement—"Leaving Kearakomo, we travelled several miles in a northeasterly direction *along the same bed of lava that we had crossed on Saturday evening*" (emphasis added)—clearly indicates that the flows referred to earlier in Ellis' journal for the Pele-Kamapua'a conflict are those of *kāne nui o hamo* and not Keauhou. With this in mind, and assuming the reliability of the traditions that couple the two flows with the reigns of Kamai'ole and Liloa, respectively, the *kāne nui o hamo* flows date to the period of approximately A.D. 1300–1375 and those of Keauhou to around A.D. 1475–1550.

The *kāne nui o hamo* lava flows did much to create the legend of Waha'ula, perhaps serving as the inspiration for its name "red-mouth," and likewise played a significant role in the development of the *luakini* ritual and the enhancement of attendant social institutions. Assuming that the present eruption of Kīlauea Volcano (since 1983) is a satisfactory model for the developmental pattern of the *kāne nui o hamo* lava flows, it should have taken two or more decades for *kāne nui o hamo* to spread its mantle over the fertile valleys of Puna, and ultimately, near the end of the