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OBSERVATIONS AND REGIONAL SIGNIFICANCE OF AN ADZE PREFORM CACHE FROM KIPU, MOLOKA'I, HAWAI'IAN ISLANDS

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Caches of whole formed artefacts are extremely rare in the Polynesian archaeological record. The author recently had an opportunity to examine a private collection of 11 quadrangular adze preforms of known provenance from Kipu, Moloka'i, Hawai'ian Islands. The assemblage represents the largest collection of adze preforms found in a non-quarry context in Hawai'i; that is, the artefacts were transported from their place of manufacture. In this case transport of quarry material from the sparsely populated "quarry-rich" western end of Moloka'i also attests to a west to east movement of adze material (Weisler and Kirch 1985).

The Kipu adze preform site (Hawai'i State Number 50-60-03-884) is located 2 km northeast of Kualapu'u, the closest town. Situated on a small hill adjacent to an unnamed gulch, the site lies at the 400 m contour overlooking the saddle area and south coast of the island (Fig.1).

The adze preforms were collected by Richard Langer, M.D., while shovel backfilling a shallow utility trench excavated by backhoe just north of his house. The preforms were found in the spoil dirt and could have been originally located up to 1m below surface. The author examined the site area and found no other cultural material (basalt flakes or midden) which suggests that the preforms were transported as is and not reduced further at this location.

Analysis of the collection was limited to colour and black and white photography and to measurement with digimatic calliper and triple beam balance. Specimens could not be removed for detailed artefact illustration or petrographic thin-section analysis, although this latter technique has proved beneficial in sourcing Hawai'ian adze quarry material (Cleghorn and others 1985).

All 11 specimens are of the same rock type, probably alkalic basalt (see Stearns and Mcdonald 1947:105-8). The material is homogeneous, fine-grained without vesicles and is light blue-grey in colour with fresh breaks dark blue. No flow structure or banding is evident. Elongate plagioclase phenocrysts are visible in hand specimens. While this material is a component of all Moloka'i quarries (Cleghorn and others

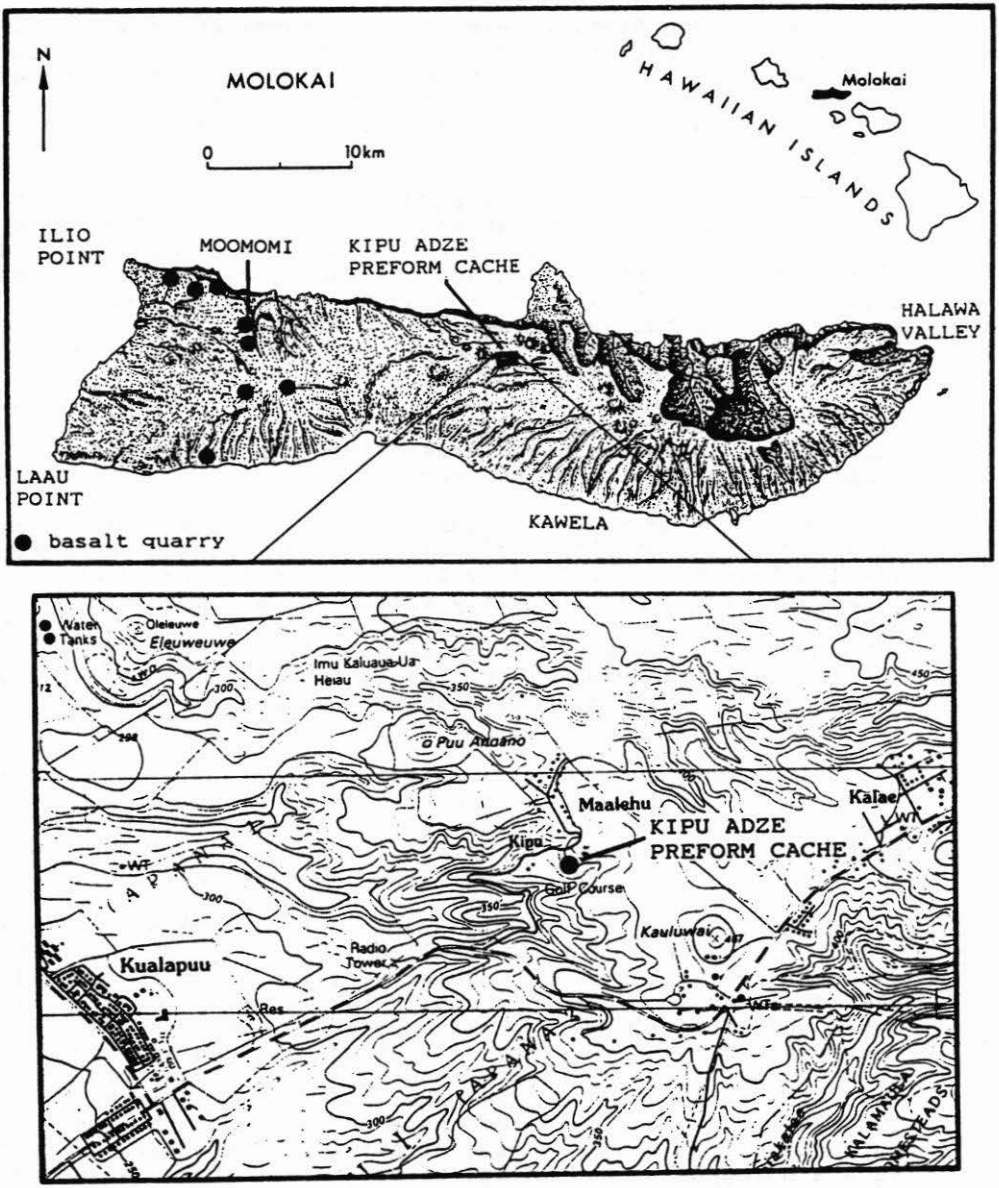

FIGURE 1. Moloka'i, showing known basalt adze quarries, and location of Kipu cache site.

1985:248-9; John Sinton, pers. comm.), examination of texture, colour, flow structure, and presence/absence of vesicles in hand specimens from the eight known Moloka'i quarries suggests the Kipu adze preforms appear to be from the Mo'omomi quarry, but petrographic analysis is necessary to confirm this observation.

Metric attributes of the Kipu adze preforms are presented in Table 1. Attribute terms and definitions are after Buck and others (1930) and Davidson (1961). Comparisons of the standard deviations of length, width and thickness measurements reveal a relatively low standard error and therefore high degree of similarity for the assemblage as a whole. At first glance the large standard deviation and wide range of specimen weight (458.1-1478.5g) does not suggest the collection is homogeneous. Wentworth estimates the weight of basalt at about 180 pounds a cubic foot (1925:72), and therefore small differences in volume have large differences in weight due simply to the density of the rock.

Comparison of values in Table 1 shows that all specimens have sides that expand toward the cutting edge and taper from the shoulder to the poll (Fig.2). All cutting edges are straight. The tang is clearly visible on all specimens (Fig.3). The collection continues to fuel interest of why the tanged adze is present in high frequencies of non-quarry sites in late Hawai'ian prehistory, but is found in low frequencies ranging from 2 to 29% at five quarries examined to date (Weisler 1987).

Using Emory's (1968:152) criteria for transverse section form, specimens 1 to 6 and 8 to 11 are rectangular, while specimen 7 is reverse trapezoidal. The geometric form of all cross-sections, however, is broad and thin, the width being greater than thickness at the blade, shoulder and poll.

Comparison of five quarry assemblages from Hawai'i Islands, O'ahu, Moloka'i and Lana'i totalling 577 blanks and preforms demonstrates that the rectangular sectioned form accounts for 38% of all assemblages combined (Weisler 1987). Of the three dated quarries, all were utilized between the 15th-17th centuries AD. The rectangular sectioned tanged adze is common in later Hawai'ian prehistory and this standardisation of form may reflect the rise of adze-maker specialists (Kirch 1985:304). It is clear from the examination of the Kipu collection that a high degree of skill was necessary to produce such a homogeneous assemblage of preforms. While dating of their context remains problematic, based on cross-section the artefacts probably date to the Late Expansion Period, perhaps AD 1400-1650 (Kirch 1985:303-6). This is also supported by the settlement pattern data of western Moloka'i where all dated habitation sites are within this period.

Specimen	L-1	L-2	W-1	W-2	W-3	T-1	T-2	T-3	Weight
1	265.09	179.91	49.80	61.48	84.91	26.13	43.38	35.38	1478.5
2	254.44	172.39	50.62	56.71	76.36	23.04	36.24	31.59	1134.7
3	227.97	153.61	46.16	56.65	79.97	22.11	35.65	35.55	904.7
4	206.72	144.44	41.77	50.43	67.37	20.07	36.42	32.11	761.2
5	225.68	155.24	40.48	51.48	73.39	20.24	30.89	28.03	721.6
6	211.42	144.21	38.37	50.21	72.27	26.02	33.78	28.09	788.1
7	218.22	150.80	37.55	47.64	66.62	20.55	37.38	37.94	793.6
8	203.73	142.16	44.01	51.10	74.15	19.92	29.36	23.73	627.5
9	193.79	130.30	38.82	46.56	67.24	19.69	33.26	26.09	625.9
10	199.65	139.22	37.94	44.48	57.97	19.64	26.48	24.32	484.0
11	194.24	135.26	33.40	39.66	55.97	20.15	29.58	25.95	458.1
Mean	218.27	149.78	41.72	50.58	70.57	21.60	33.86	29.89	798.0
S.D.	22.49	14.41	5.15	5.84	8.31	2.34	4.48	4.68	280.9

Note: Length, width and thickness measurements in millimeters, weight in grams. L-1= total length; L-2= blade length (shoulder to cutting edge); W-1= poll width; W-2= shoulder width; W-3= cutting edge width; T-1= poll thickness; T-2= shoulder thickness; and T-3= maximum thickness midway between shoulder and cutting edge.

TABLE 1. Metric attributes of the Kipu adze preforms.

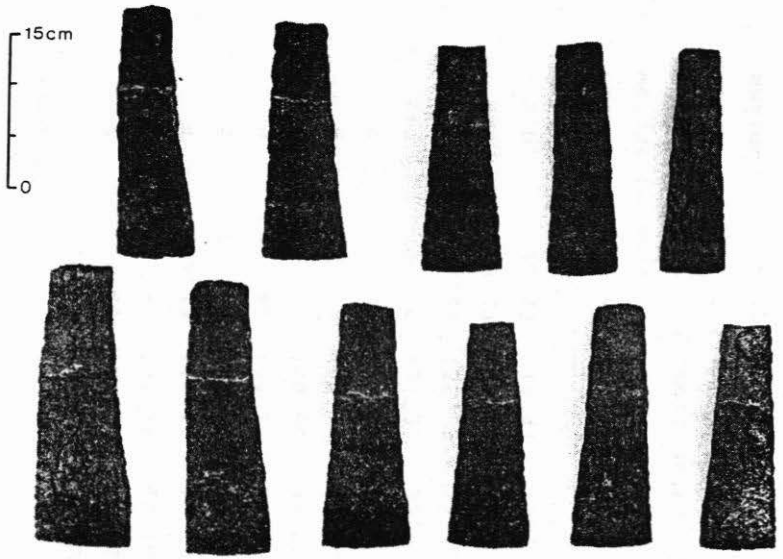

FIGURE 2. Front views. Top row left to right, specimens 7-11; bottom row, specimens 1-6.

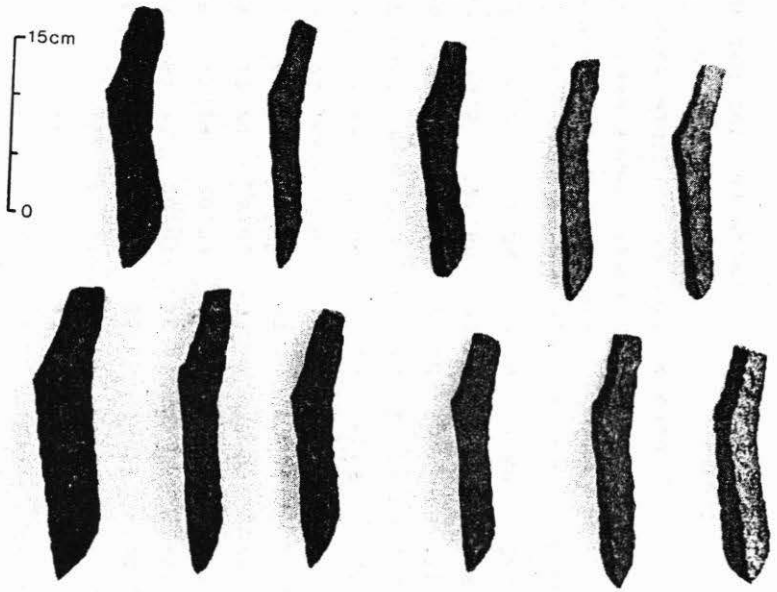

FIGURE 3. Side views. Top row, left to right, specimens 7-11; bottom row, specimens 1-6. Note pronounced shoulder and tang formation.

Acknowledgements

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