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# EXCAVATION OF A PA, R14/52 NEAR RAGLAN: A BELATED REPORT

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## Introduction

In 1972-73 the Waikato Museum Archaeological Society (WMAS) excavated a coastal headland pa on the north shore of Raglan Harbour, South Auckland (Figure 1), under the direction of Ken Gorbey, then director of the Waikato Museum. The site was then numbered N64/12 in the NZ Archaeological Association (NZAA) site files, and is now R14/52. The dig was never written up, and the Waikato Art Museum today is unable to locate any field notes, drawings, photographs, samples or artifacts from the dig. Fortunately some notes, drawings and a summary of midden analyses remained in the custody of one of the members of the now-defunct Society, while two other members kept personal photographs of the excavation square they worked in. A plane table plan is in the NZAA site files. This paper is an attempt to reconstruct the results of the excavation from the limited documentation currently available. The exercise seems worthwhile insofar as little archaeological excavation has been carried out along the Waikato - King Country coastline.

## The site

R15/52 is located on a flat-topped knob on a short hogback ridge lying athwart a headland protruding southeast into Raglan Harbour (Figure 2). The knob, about 40 m above sea level, has steep but easily scaleable slopes up from the harbour mudflats on three sides. There is a moderately steep slope westward to a broad saddle. The location is sheltered from the prevailing westerly winds, but provides good views across the harbour. There is ready access by foot or canoe to the outer coast as well as the extensive reaches of the harbour.

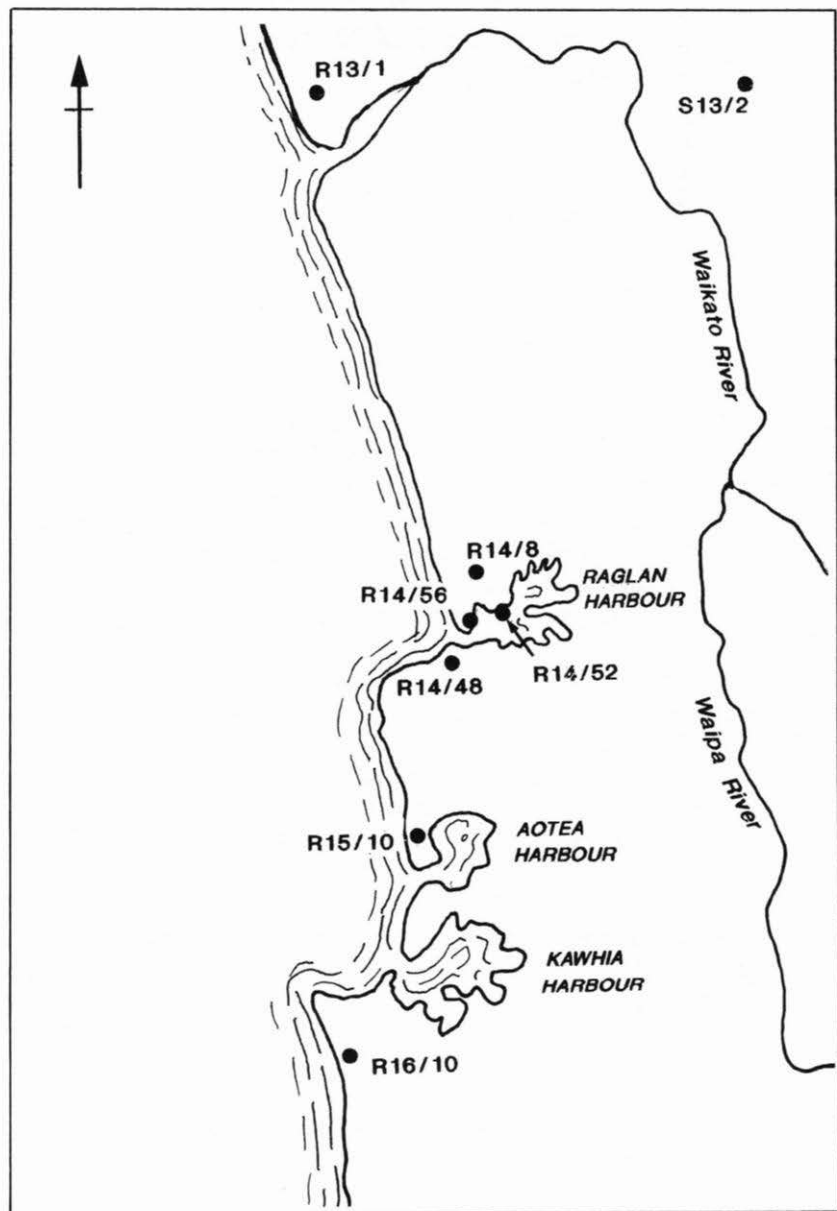


Figure 1. Location of R14/52 and other excavated sites.

R15/52 is now severely disfigured by a bach subdivision but in 1972 earthwork fortifications were clearly visible. To the south were two short, broad ditches each about 4 m deep, separated by a platform or bank about 8 m across. On the landward (west) side, and probably at the north end, the slope had been steepened by building out with spoil and by excavation of a terrace beneath the crest. No earthwork fortifications were detected on the east side, where there are steep slopes down to the shore.

The area was 2900 sq m, of which 2400 sq m lay within the fortifications. The western half of the pa is an apparently natural platform of about 900 sq m, narrowing toward the transverse fortifications in the south. East of the platform are gentle slopes on which terraces cover about half the area. There are two large terraces of about 100 sq m each and at least six smaller terraces. On the slopes between terraces there are four collapsed rua, as well as another rua on one of the larger terraces. Two small rectangular pits are also visible.

The original vegetation is unknown. Early survey maps show that the land was cleared and being farmed by 1900. It passed into Pakeha ownership in 1923 and was subdivided for bach sections in 1967. Most of the land occupied by the pa was set aside as a recreation reserve in 1971.

### **Traditional History**

R14/52 is located on Horongarara Point. Kelly (1949: 217-222) recounts a story of how Horo Ngarara pa was destroyed in about 1700 AD by a taua of 140 warriors from the Waipa valley, who approached across the mudflats in the middle of the night. Their leader, Ahiturama, entered the pa surreptitiously and found all were asleep except for a single sentry on a watchtower. When that sentry's watch was finished Ahiturama mounted the tower and sang the customary "All's well" song, which reassured the inhabitants that vigilance was being maintained. Ahiturama's men, however recognized his voice and knew that the pa was open to attack. They entered and the pa was sacked.

Tradition apparently does not record whether the pa was re-settled later. Historical records indicate that at the time of Pakeha contact Te Horea, 1.5 km to the west, was the main Maori settlement on the north shore. It was here that the Wesleyans established a mission station in 1835 (Figure 2).

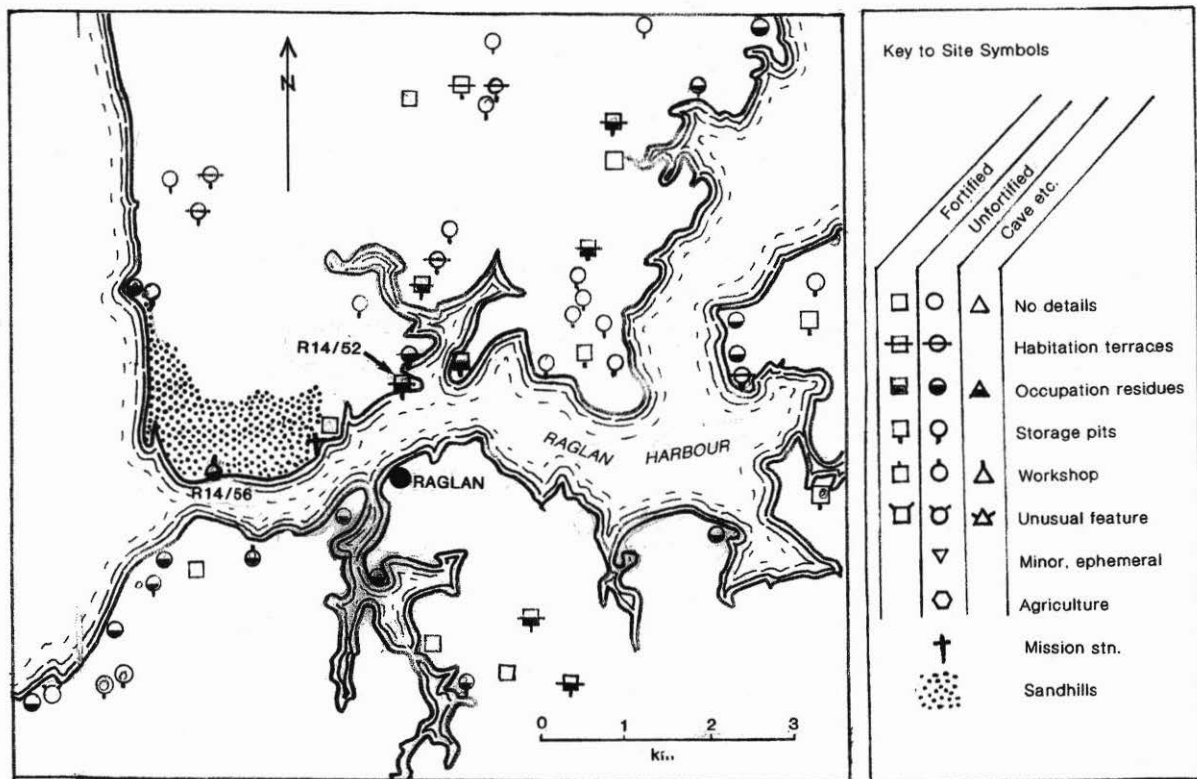


Figure 2. Recorded sites in vicinity of Raglan Harbour

### **Settlement pattern**

Raglan harbour, like other tidal inlets on the West Coast, was densely settled in Maori times (Figure 2). These inlets with large areas of mudflat and sandbank were enormously productive sources of shellfish, and they provided safe havens for canoe travel on an otherwise wild and dangerous coastline.

An idea of local settlement pattern can be obtained from NZAA site record files. Site recording in this area was carried out by the Waikato Archaeological Society (predecessor of the WMAS) in the 1960s and by Richard Cassels of Auckland University in the 1970s.

Intensive site recording has been carried out in the two square kilometres of sand dunes on the north side of the harbour mouth. Here about 25 shell middens (not shown in Figure 2) were recorded. Several of them show evidence of archaic culture and moa-hunting, and some of them were workshop sites, where flaked adzes were made from a local basalt. One site, R14/56, excavated at the same time as Horo Ngarara by Dante Bonica of Waikato Museum, was a fishhook factory. Many of these sites are probably older than Horo Ngarara.

Elsewhere in the vicinity of Horo Ngarara enough site recording has been carried out for us to be fairly sure that most of the important sites have been discovered. In the 10 km square centred on Horo Ngarara (slightly larger than what Figure 2 covers) 65 sites have been recorded. These include 18 pa, 2 terraced habitation sites, 12 kitchen sites (midden, hangi residues), 23 pit clusters, a petroglyph site, a cluster of agricultural(?) drains, and a fish trap. The 18 pa are mostly bigger than Horo Ngarara, and most of them have more pits than are visible on Horo Ngarara.

### **The Dig**

The excavation was intended to produce data on "the size of socio-political groupings in pre-European New Zealand, and how they came together for defensive purposes". (Waikato Times 1973). Excavations were undertaken in January 1972 and January 1973. At least 150 person-days were worked. A 4 m grid was laid out and at least 21 3 m squares were excavated, leaving 1 m baulks. Most digging was done on the main platform. Two squares were dug on a terrace. Some baulks were later removed. A total of about 300 sq m was excavated.

### **Stratigraphy**

Stratigraphy was relatively simple:

5. Post-occupation topsoil, about 10 cm thick.
4. Upper occupation layer, with 2 facies - a crushed cockle "pavement" layer (4A), and spoil from/fill for earthworks (4B).

A. Over most of the area excavated there was a thin fairly uniform layer of well-crushed and well-compacted shell, mostly cockle, with some charcoal. Generally it was about 5 cm thick, but was up to 15 cm thick. It occasionally thinned to a thin scatter, and in places, particularly outside the palisade and on the rise of terraces, was absent. It was thicker and went deeper over pit fillings. The layer was interpreted by the diggers as a pavement laid perhaps for a marae, or perhaps to counteract muddiness of the underlying material and to even-out slight irregularities in the ground surface. A better explanation, developed further below, is that the layer was formed post-occupation by earthworms concentrating shell formerly distributed evenly through the overlying soil layer.

B. Earthworks spoil/fill. At the south end of the site the layer 4A midden graded laterally into, and was interstratified with, the inner defensive bank made up of subsoil probably excavated from the adjacent ditch.

3. Firescoop layer. A layer varying in thickness and composition occurred particularly on the western side of the platform. Where present and distinguishable from layer 4 it was 10 - 20 cm thick and consisted of lenses and sublayers of charcoally soil, cockle midden, and relatively clean redeposited subsoil. The layer was thicker over underlying rectangular pits. Within the layer were numerous firescoops. Some contained in-situ hangi stones, but otherwise hangi stones were not abundant. Most postholes appeared to have been dug from this layer, and most were filled with material from this layer. It is possible, however that postholes with less distinctive fills were not detected.

2. Pit-fill layer. At least 4 of the 6 rectangular pits found (see below) were half-filled with subsoil presumably derived from the excavation of other pits. This pitfill contained numerous scatters and lenses of midden shell, charcoal and/or topsoil, and rare hangi stones.

1. Natural. Underlying the culturally-modified layers is a heavy, poorly-draining yellowish clay-rich subsoil. This becomes muddy when disturbed, and



has slumped down-slope in places, leaving an open crack behind. In places an old soil horizon could be detected at the top of layer 1.

The above stratigraphy is all quite straightforward except for the layer 5 "pavement". Three features about it seem significant.

- The fieldnotes indicate that few if any structures clearly originate from the layer.
- Most of the artifacts found were on or embedded in this layer, including some items of Pakeha origin. One piece of obsidian came from above the "pavement".
- The section drawings clearly indicate that the layer was always at a constant depth below the present soil surface, and "floated" over irregularities in the underlying stratigraphy.

To interpret such a layer as a "pavement" leaves contradictions unresolved. Why were artifacts "lost" more often on a smooth hard surface than they had been earlier in a relatively untidy cooking area? Why was an artifact-rich "compacted" surface so free of postholes or other structures?

A more likely origin for such a layer is that it results from post-occupation changes to the upper part of the firescoop layer. Cultivation after occupation ceased would create a mixed layer of soil and midden in which the shell would become more fragmented. If the site then lay undisturbed, earthworm action would concentrate fines upward and shell together with any admixed artifacts would become concentrated downward, thus giving the artifact-rich yet structureless, apparently compacted, layer of fragmented shell seen now.

## **Structures**

### *Kumara pits*

Six rectangular pits, presumably intended for kumara storage, were excavated. No pit was excavated in its entirety.

Two of these (pits 1 & 2) were found in the terrace squares (T1 & T2, Figure 3), and no detail on them is available. Each of them was described, however, as having respectively a "large" and a "smaller" rua-type chamber opening into one side.

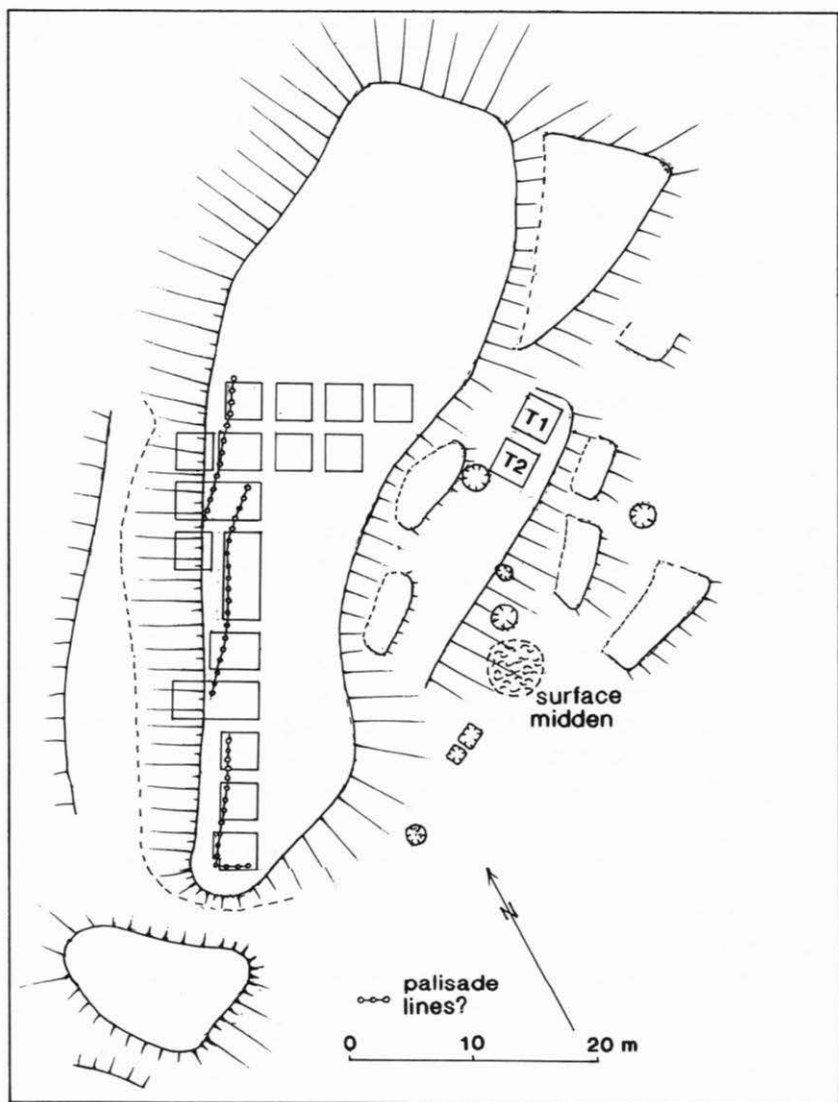


Figure 3. Surface features of R14/53, and palisade lineations inferred from excavation.

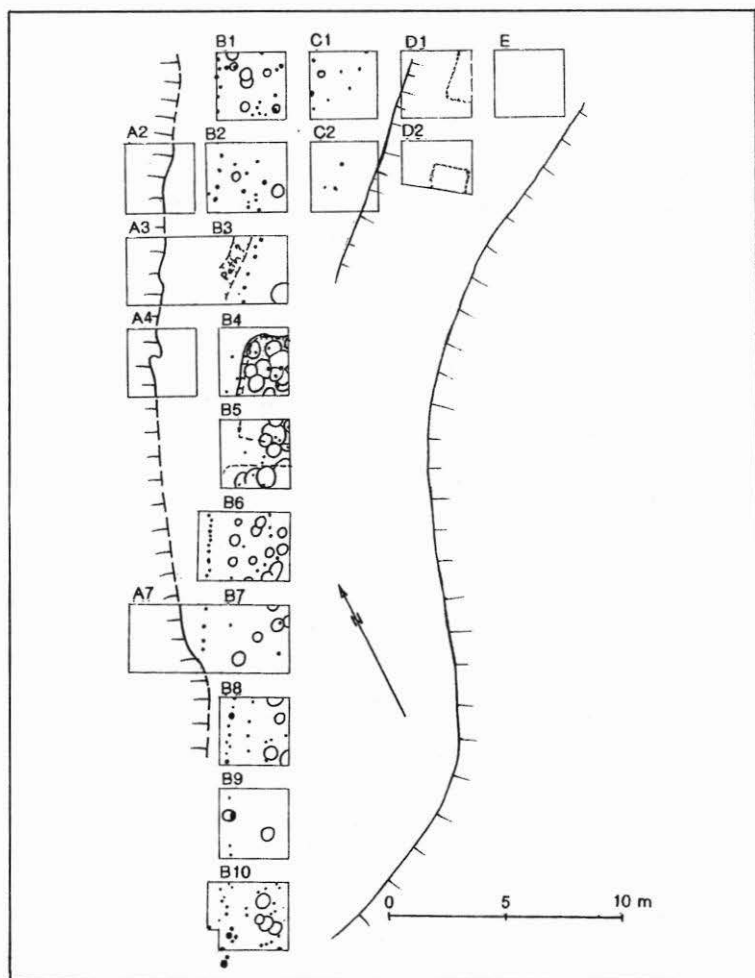


Figure 4. Structures in firescoop layer of R14/52, together with outlines of pits in layer below.

The other pits occurred in two pairs oriented northeast-southwest, more or less parallel to a nearby terrace scarp.

One pair (squares B4-B5, Figure 5), has longitudinal axes perpendicular to each other. Pit 3, 4.5 m long, 2 m wide, and 100 cm deep, had a step or buttress located midway along the end furthest from its partner pit, and 4 postholes

along its midline. Pit 4 was over 3 m wide and 70 cm deep, of somewhat irregular form, and possibly unfinished. No postholes were seen in the limited part excavated.

The other pair (squares D1-D2, Figure 6) were lined up end to end. Pit 5 had a bench or shelf at one end, 30 cm below the lip, in which one of the postholes was embedded. It was at least 3 m long (including the shelf) and 80 cm deep. Pit 6 was at least 2 m wide and 90 cm deep.

All four pits had somewhat irregular floor drains and internal sumps or soakholes. These mostly ran along the floor edges, but also extended out onto the floor and were in places recessed under the walls. They probably had vertical sides originally. The close spacing of the postholes suggests that the posts had to carry a heavy load - presumably the roofs were earth-covered.

The four pits appear to have dated from the initial occupation of the site. The fill of the pits indicate that after use had ceased there was an initial deposit of slightly humusy soil probably derived from the collapse of a soil-covered roof and/or from the excavation of new pits nearby. This initial deposit, 15-20 cm thick, lay exposed in the pit long enough to accumulate a soil profile and/or a layer of mixed occupation residues, before the pit was deliberately topped up with midden, soil and firescoop residues to a within 10-20 cm of the lip - or the fills may have subsequently settled the same amount. Firescoops were then made in the remaining shallow dips of pits 3 and 4.

As well as these early filled pits there are later pits (7 - 14) which are still visible on the surface. These are located on the eastern and lower part of the site. There is a pair of 1.5 m square pits separated by a baulk (presumably they shared a common roof), and 5 collapsed rua with diameters ranging from 1 to 2 m. All these pits are today quite shallow, and excavation would presumably show that they had all suffered some deliberate filling-in.

About 70 firescoops were excavated out, most of them in the firescoop layer overlying the kumara pits, and shown in Figure 4. In general they were 30 - 50 cm diam. and 5 - 15 cm deep. Most were saucer shaped, but some had more or less vertical walls. Some still contained in-situ cooking stones and were definitely the remains of hangi. In general however the layer contained very few hangi stones, so some of the scoops may have been ordinary hearths. Within the excavated area firescoops seemed to be concentrated on the highest part of the

site and within about 4 m of the western lateral palisade, and were concentrated particularly over filled pits 3 and 4.

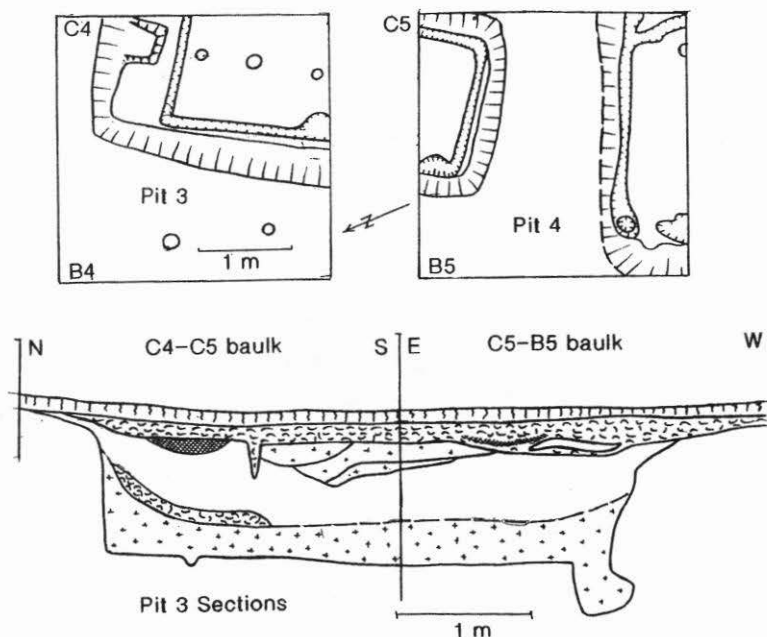


Figure 5. Plan and section of pits 3 and 4 in squares B4 and B5. Cross hatching indicates dense charcoal, +++ = sparse charcoal and short arcs indicate shell midden.

Some saucer-shaped hollows were also tentatively recorded in the "pavement" layer but showed no signs of fire. Three patches or heaps of hangi stones each apparently derived from the emptying-out of a hangi were also recorded in the "pavement" layer. According to the present interpretation of stratigraphy the hollows were probably of no significance, and the heaps probably were intruding upwards from the firescoop layer below.

One 70 cm diam., 25 cm deep hollow in square B9 had vertical sides and a fill of humus-rich soil containing a Duff 2B adze. Presumably it was an almost-emptied cache hole. A 30 cm diam. hollow in square B5 contained about 40 entire oyster valves.

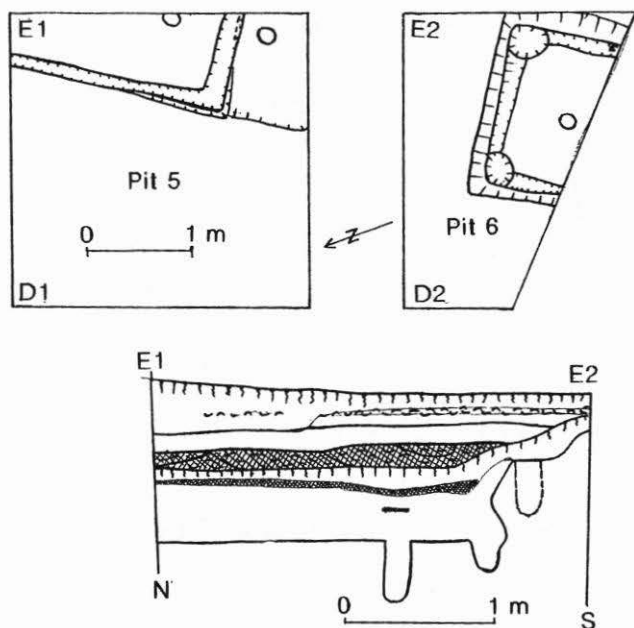


Figure 6. Plan and section of pits 5 and 6 in squares D1 and D2. Cross hatching indicates dense charcoal, +++ = sparse charcoal and short arcs indicate shell midden.

### Postholes and Stakeholes

Postholes and stakeholes were numerous: there were probably more excavated than are shown on Figure 4. According to the fieldnotes most of these postholes were dug from within the firescoop layer, but this is not confirmed by the section drawings. At least some of the stakeholes were apparently dug from the shell "pavement" layer (see eg Figure 5 section). No pattern of structures is evident, although there are some posthole lineations and stakehole clusters. Overall the post- and stakeholes tend to be concentrated in the same places as the firescoops, suggesting that they were associated with cooking sheds. Alternatively it may be that intrusions into the natural were easier to identify when filled with charcoally soil, and that similar intrusions were not detected away from the firescoops.

### Fortifications

The excavations exposed two lines of modest-size palisade postholes along the western scarp and some more massive postholes along the edge of the southern ditch (Figures 3 & 4).

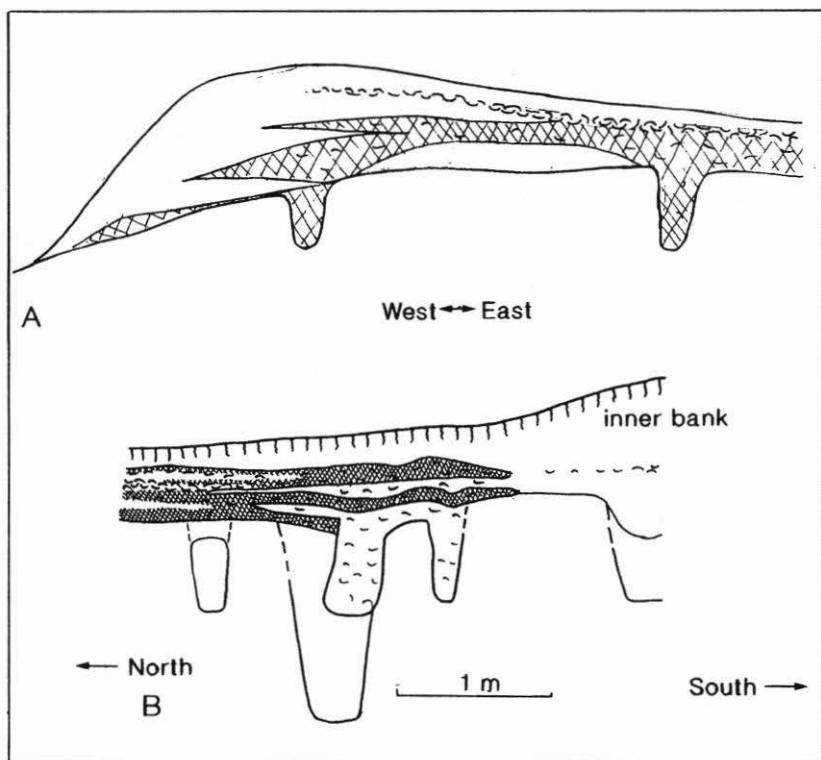


Figure 7. Fortifications. A: Compiled (composite) section of palisades on west side at north end of excavation. B: Section of B10-B11 baulk showing palisades at south end of excavation.

The palisade arrangement along the western scarp was described in the fieldnotes as "most confusing". Unfortunately only one section drawing is available, and it seems to contradict the fieldnotes. Figure 7A is compiled from notes and drawings and attempts to reconcile the contradictions. It seems that the west palisade was in existence only during an early phase of occupation, probably at the same time as the first rectangular pits were in use. In the northwest end of the excavated area there was a double row of posts. These were separated by a compacted clay "pathway" about 2 m wide, interpreted on the dig as an entrance-way from the west. Another explanation, based on the stratigraphy in Figure 7A, is that the outer palisade pre-dated and was replaced by the inner one. The inner row of posts may have supported a fighting

platform. Palisade posts were spaced at 60 cm centres and left holes or moulds about 20 cm diam. and 40 cm deep.

Later on there was apparently no western palisade and midden and hangi refuse extended out over the earlier palisade line. Spoil of substrate origin possibly derived from pit excavation appears to have been dumped so as to extend the main platform westward, perhaps with the intention of achieving a steeper and more defensible scarp. The fieldnotes suggest that a later palisade was located to the west of the earlier one, but that all evidence for it has been removed by subsequent erosion. This seems a likely explanation, especially given the obvious readiness of the subsoil to creep and slump.

The shorter but more massive south palisade (Figure 7B) was also described as "confusing". Here postholes were up to 60 cm wide and 1 m deep, and contained post moulds or stumps of 15-20 cm diam. Holes contained fill very similar to the subsoil they were dug into, and moulds contained material similar to the firescoop layer. The holes are not clearly in line, and it is difficult to generalize about their spacing. There may be two palisade lines - an earlier and more massive one which curved around to link up with the west palisade, and a later one located slightly to the south. Both sets of holes are covered by the firescoop layer, here consisting of several alternations of midden/hangi material and redeposited substrate.

One palisade posthole in square B10 contained about 50 entire oyster shells.

The firescoop layer itself graded laterally into and was interstratified with the redeposited yellow clay substrate material which makes up the southern bank of the visible southern fortification, the crest of which was located about one metre south of the earlier palisade line. This bank was presumably made with spoil from the ditch immediately to the south. The dig failed to find evidence for a palisade associated with this bank, perhaps because it did not extend far enough to the south.

### **Midden**

Midden consisted overwhelmingly of shellfish, although the fieldnotes record that the shell fill in pit 3 was "rich in fishbone", mostly vertebra of snapper. A few pieces of mammal bone, including what was tentatively identified in the field as human bone was also found in a midden context.



Five midden samples were taken from square D1 and one sample from square B1.

Midden was analyzed by counting individuals of each species after shaking each sample in a four-wires-per-inch sieve (Rosenberg & Rosenberg, nd). These samples were compared with a collection and a sample taken from shell beds exposed at low tide in the harbour near the site. Species in the midden and in the nearby harbour are listed in Table 1.

A wider range of shellfish species were found in the midden than were currently present in the harbour near the site. This indicates that shellfish were being gathered from wider range of harbour environments than occurred adjacent to the site. Rock oyster in particular was probably gathered from well up-harbour. However, less use was made of open beach and rocky shore resources than might be expected.

The main open beach species, tuatua, was completely absent, as were rocky shore species such as Cook's turban and paua, which are commonly found in other sites along this coastline. Paua was, for example, common in the midden at R14/48, on the other side of the harbour and only 2 km distant.

Two species reasonably common in the harbour in 1972 were not found in the midden - the turret shell, which was probably ignored because of the difficulty of extracting the flesh, and the bivalve *Tellina liliiana*. Another notable absence from the list is *Pecten novaезelandiae*, the common queen scallop, which at least until recently was fairly common in Raglan waters.

The average composition of the 6 samples was:

cockle	92 %
pipi	1 %
rock oyster	1 %
others	6 %

Midden was dominated consistently and overwhelmingly by common cockle, which made up between 83 and 97% of the various midden samples. Many of the cockle were of such small size that they would have contributed negligible nourishment. The size distribution of samples each of 100 shells taken from the midden and from the mudflats nearby is shown in Figure 8. There is a close correspondence between the two curves, indicating that shellfish were probably gathered without any regard for size. Present-day cockles are slightly bigger on

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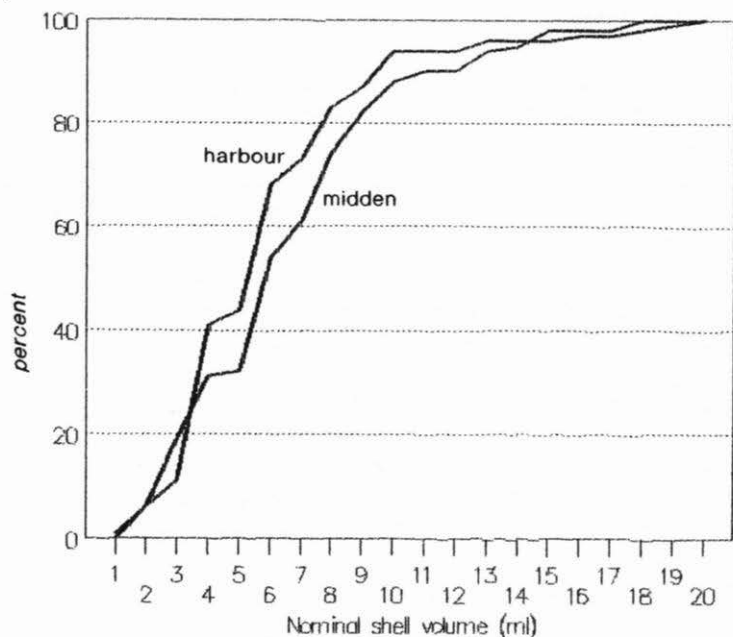


Figure 8. Cumulative curve comparing volumes of midden shell and contemporary shell samples.

These midden concentrations are compared with those of other sites in Figure 9. It can be seen that Horo Ngarara fits quite well into a general pattern of decreasing utilisation of open coast species and increasing utilisation of inner harbour species, from sites located on the open coast to sites located at the head of the harbour. There are only two sites, R14/77 and 78 at the head of the harbour, which depart markedly from the pattern. Cassels (1973) found a similar pattern after sampling 150 middens near Aotea Harbour.

If the dug squares are a representative sample of the entire site then the average thickness of occupation residues including midden, charcoal, ash and cooking

stones, was only about 8 cm. However site recording elsewhere on this coastline indicates that midden was generally dumped at the periphery of the occupied area, frequently down the steepest slope. It is thus likely that there is far more midden associated with this site than has been detected so far. One apparently midden-rich area not put to the trowel is shown in Figure 3.

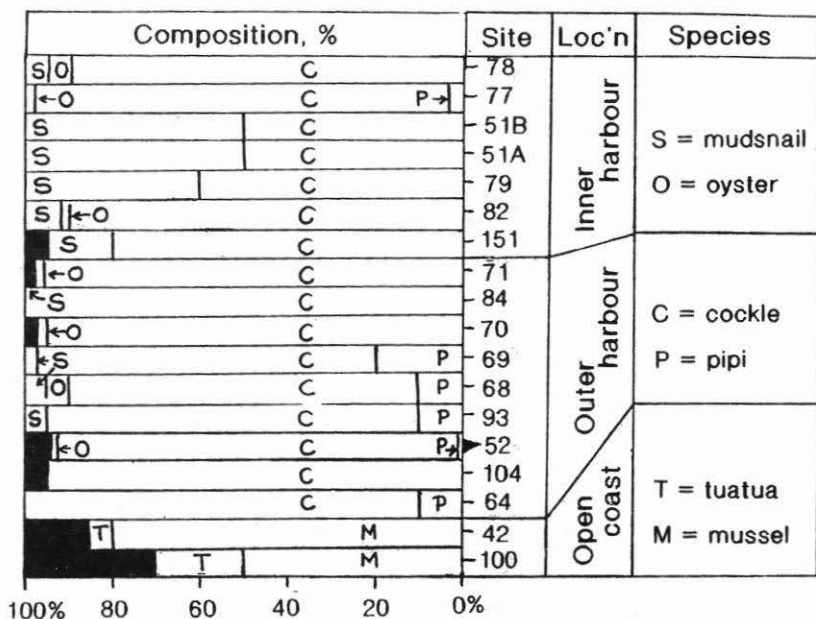


Figure 9. Graph demonstrating how distribution of open coast, outer harbour and inner harbour shellfish in middens corresponds with the location of sites relative to those three environments respectively. Sites are all in vicinity of Raglan Harbour and arranged according to distance from open sea. Site numbers all refer to sheet R14 site records. Data are from site records compiles by R. Cassels in 1970s.

### Artifacts

Some 35 artifacts were found, equivalent to about one for every 1.3 cub m excavated. There was a slight tendency for artifacts to be concentrated in the northwest and southern parts of the excavated area and to be absent from the cooking area in squares B4 and B5. All, including those with Pakeha

associations, were found on or in the "pavement" layer except those noted below as being from structures in the firescoop layer. There was also one piece of obsidian from above the "pavement" layer.

Finds are listed in Table 2. Few conclusions can be drawn from such a small collection, but there are still a few observations worth making.

One complete adze and four bits of adzes indicate some woodworking activity. There is no evidence for manufacture of adzes, fishhooks or other items. The occurrence of a piece of "chert", however, may indicate holes were being drilled, since this material was used in the King Country/Waikato coastline mainly for making drill points.

Bits of two pounders indicate that fernroot, flax or hinau berries were processed. Quite often in Waikato-King Country coastline artifact collections such pounders occur about half as frequently as do adzes. Two flat stone slabs found in the dig probably served as anvils.

Obsidian flakes were rare. Obsidian is much more abundant at other sites locally, in particular the sandhill sites.

Fishing, indicated by 3 hooks and 2 sinkers, was evidently of some importance, despite fishbone being rare in the midden.

The occurrence of dentalium rings seems out of character for a west coast North Island pa site otherwise exhibiting all the characteristics of a relatively late site. Fossil dentalium has been observed in Cretaceous- Tertiary mudstones some 80 km to the south and may very well occur closer.

The perforated scallop is of some interest, especially given that no scallop was found in the midden. Perforated bivalve shells are quite often reported on the Waikato-King Country West Coast. Perforated pipi shells were excavated at Aotea (R15/10), perforated rock oyster shells have been recorded from Kiritehere (R16/271) and inland in a rockshelter near Waitomo (R16/214). A perforated scallop was excavated at the Raglan "fishing camp", R14/48 (Hunt 1962). Such perforated shells have usually been interpreted (somewhat lamely!) as personal ornaments, but the frequency with which they occur, not to mention aesthetic considerations, make a more mundane interpretation more likely. Hunt suggested that shells may have been strung on a line over seed beds to scare birds away. It is hard to imagine what pre-Pakeha era crops would have needed protection from birds - certainly not kumera or taro. Another possibility is that

shells could have been used to keep track of dogs when hunting. According to Kelly (1949: 205) bones were used in this way :

“... the ancient Maori dogs did not bark when hunting, hence they were fitted with collars to which bones were attached. These rattled when the animal shook its capture, thus advising the hunter that a bird had been caught”.

Shells, especially scallop shells, would surely have made a better rattle than would bones.

### **Interpretation and Inferred History**

Based on the incomplete evidence, it can be suggested that Horo Ngarara was a well-defended settlement and kumara storage site of maybe 100-200 people which was either occupied only intermittently for several years, or was occupied continuously for a few months. The fact that there seem to have been at least three periods of storage pit excavation suggests that occupation was intermittent over a period of several years. If, as speculated earlier, substantial periods of occupation residue still remain undetected, then either the duration or the population of the settlement may have been greater.

### **Comparisons with Other Sites**

Seven other sites in the Waikato-King Country coastline and coastal hills have been investigated by excavation (Figure 1).

The closest was a unfortified workshop and midden (R14/56) on the sand dunes about 1.5 km to the west of Horo Ngarara (Waikato Times 1972; see also NZAA site record). This site was much older, with archaic culture and probably moahunting, and was quite different from Horo Ngarara. Another old site (R16/10) on the Taharoa dunes, 45 km to the south, however, did have pits with end-wall benches, end-wall buttresses and posthole patterns quite similar to those at Horo Ngarara (McKinlay nd).

Other unfortified sites have been excavated at Raglan, about 2.5 km to the south (Hunt 1962), and at Aotea, 25 km to the south (Fox & Cassels, 1983).

The Raglan site (R14/48) was a substantial and diverse midden of cockle, mudsnail and pipi, and also tuatua and rocky shore species, as might be expected from its location closer to the open coast. It also had a much higher content of artifacts, including 4 adzes, 2 chisels, 4 fishing weights, and workshop items. Obsidian flakes were "rare".

At Aotea (R15/10) several unfortified habitation terraces were carefully excavated in 1972-3. The area dug was somewhat greater than at R14/52. Twenty intentionally filled pits were found on the terraces, many of which had similar dimensions and posthole patterns to Horo Ngarara. End-wall buttresses and end-wall benches were absent however. Drains were also absent, although they were probably not needed on the free-draining Aotea soils. Rectangular house patterns could be recognised in the postholes.

Aotea yielded an artifact collection somewhat richer than but still mostly comparable to Horo Ngarara. Comparable items included a broken adze, rare obsidian flakes, a dogtooth fishhook and two other fishhooks, fishing sinkers, 2 perforated pipi shells, several bits of worked pumice, and "siliceous sinter" (probably the same as the "chert" found at Horo Ngarara). Aotea differed in that it yielded a greenstone chip and some abraders.

Pa of roughly the same age as Horo Ngarara have been excavated at Kotare (R14/8), 3 km to the northeast [Pos 1964], Maioro (R13/1), 50 km to the north (Fox & Green 1982), and Taniwha (S13/2), about 50 km to the northeast (Law & Green 1972). All these pa had pits with similar drain and posthole patterns, as well as some pits with end-wall buttresses. None had the end-wall bench however.

### **Sequence of Events**

The following paragraphs offer a somewhat imaginative reconstruction of the history of this site.

Horo Ngarara was first used for kumara storage. Several pairs of rectangular pits were dug on the crest of the ridge and on the east flank. These pits probably had earth-covered roofs. Judging by the lack of wear and tear they were used for a relatively brief period and then fell into disrepair. One of them may even have been abandoned before being finished. Further pits were probably dug to the east of the original ones and spoil from these was dumped in the earlier pits.

Palisades were built along the western edge of the ridge, and across the ridge at the southern end of the site, probably at the same time or a little later than the first pits.

When the new pits were built on the upper eastern terraces the main platform of the site became a general living area, with numerous randomly-oriented and maybe temporary huts. Cooking was carried out in the same area. Tools were occasionally cached here.

At about this time the site was extended. Spoil was dumped to the west to steepen the scarp and a new palisade line was established. At the south end an existing transverse ditch was deepened and spoil was dumped on the inner lip to make a defensive bank. Some deep postholes apparently not in line with the main palisade may have served as foundation for a fighting platform or even the watchtower climbed by Ahiturama. A new palisade was built on the top of the new bank. A reduction in the size of palisade posts and an increasing reliance on earthwork fortifications may have been due to a decreasing supply of timber suitable for palisades.

New terraces were built lower down the eastern slopes and new pits including bell-shaped underground rua were dug on and near them.

At some date which we cannot even guess at, but which may well have been about 1700 as the traditional history implies, occupation of Horo Ngarara ceased. The palisades and dwellings disappeared, and the site lay vacant as a clearing in the coastal scrub and bush. The soil was rich in plant nutrients from food wastes and human wastes, its texture and drainage was improved by all the charcoal it contained, and its pH was high from all the midden shell. It was an obvious place for someone to cultivate and take off a few crops. A few items of pakeha origin somehow became incorporated in the soil, probably after the mission station at Te Horea opened in 1835. After some seasons of intensive cultivation the site lay fallow for a 100 years or so while earthworms thrived in the high pH soil and confused the upper layers of stratigraphy.

The community at Horo Ngarara seems to have been rather isolated. The inhabitants brought back little food from open coastal beaches or reefs. Perhaps these resources were under the control of hostile communities. Certainly some of the other pa in the district were much bigger than Horo Ngarara, and the inhabitants of those pa stored much greater quantities of kumera. The inhabitants of Horo Ngarara probably had little access to the upper reaches of the harbour where mudsnail is abundant. Their tools were mostly made from locally-available materials, and there is little evidence for trade with other districts. They had no greenstone that we are aware of, nor South Island argillite, and not very much obsidian. They did not have local access to some resources that were available to earlier people living in the same area - in particular moa were well extinct, and seals do not seem to have been locally available.

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### References

- Cassels, R. 1973. Pattern of prehistoric resource exploitation at Aotea, New Zealand, IX INQUA Conference, Christchurch NZ.
- Fox, A. & R. Cassels. 1983. Excavations at Aotea, Waikato 1972-75. *Records of the Auckland Institute and Museum* 20: 65-106.
- Fox, A. & R. Green. 1982. Excavations at Maoro, N51/5, South Auckland. *Records of the Auckland Institute & Museum*. 19: 53-80. [Now R13/1]
- Hunt, C.G. 1962. A Fishing camp near Raglan. *NZAA Newsletter* 5 (1): 32-34.
- Kelly, L.G. 1949 *Tainui: The Story of Hoturoa and His Descendants*. Polynesian Society. Wellington.
- Law, R.G. & R.C. Green 1972 An Economic Interpretation of Taniwha Pa, Lower Waikato, New Zealand (N52/1). *Mankind* 8: 255-269.
- McKinlay, J.R. . n.d. Taharoa Report. Unpub. report on archaeological excavations at Taharoa in early 1970s. 41 pp.
- Pos, Hans G. 1964. Archaeology in the Waikato Area *NZAA Newsletter* 7 (2): 109-114.
- Rosenberg, B. & D. Rosenberg, n.d. [Untitled notes on midden analysis, lodged with NZAA site record R14/52.]
- Waikato Times 1972. "Archaeological teams excavate the evidence of the Waikato's past", 29 April, p. 1.
- Waikato Times 1973 "Dig Centred on Raglan pa site", 13 January, p. 1.



Table 1 : Shell species present in midden and nearby harbour

Species (and common name)	present in midden	in nearby harbour	rocky shore species
<i>Chione stutchburyi</i> (cockle)	X	X	
<i>Paphies australe</i> (pipi)	X	X	
<i>Crassostrea glomerata</i> (rock oyster)	X		
<i>Notopaphia elegans</i> (mudstone borer)	X		X
<i>Perna canaliculus</i> (blue mussel)	X		X
<i>Amphibola crenata</i> (mud snail)	X	X	
<i>Barbatia n'zealandiae</i>	X		
<i>Bucculinum sp.</i> (lined whelk)	X		
<i>Cominella glandiformis</i> (mud whelk)	X	X	
<i>Cominella maculosa</i> (spotted whelk)	X		
<i>Lepsiella scobina</i> (oyster borer)	X		
<i>Turbo smaragdus</i> (catseye)	X		
<i>Melagraphia aethiops</i> (spotted top)	X	X	
<i>Thais orbita</i> (white rock shell)	X		X
<i>Sigpatella n'zealandiae</i> (slipper shell)	X		X
<i>Zeacumantis lutulentis</i> (horn shell)	X	X	
<i>Diloma subrostrata</i> (mud snail)	X		
<i>Maoricolpus roseus</i> (turret shell)	-	X	
<i>Tellina (Macomona) liliana</i>	-	X	

Table 2: Artifacts found during excavations

(All items are from "pavement" layer unless otherwise noted.)

Activity	Number	Item
Pakeha contact	1	bottle glass
	1	loop of steel wire
	1	steel ?spatula
weapon /ornament	1	knob of patu handle
	2	fossil dentalium rings
	1	(?paua) eye ring from ?tiki or ?patu
fishing	2	bone fishhook
	1	grooved sinker
	1	?fishhook point of ?dogtooth
cutting	5	obsidian flakes (including one from layer 5)
woodworking	1	adze ( from hollow in firescoop layer, sq B9.)
	1	portion of adze
	1	cutting edge of adze
	2	polished flakes from adzes

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other	1	2 bits of a pounder (found in posthole deliberately filled with shell and stone in square B10)
	1	part of pounder made from black stone
	1	worked pumice piece
	2	pumice lump
	1	?ivory hook or needle (of ?pakeha origin?)
	1	worked bone
	1	point of bone
	1	worked ?human bone
	1	piece of hammerdressed "chert"
	1	bone ?toggle (In firescoop layer, sq B4)
	1	perforated scallop shell (in firescoop layer, sq B4)