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**NEW ZEALAND ARCHAEOLOGICAL ASSOCIATION NEWSLETTER**



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EXCAVATIONS AT LAKE MANGAKAWARE SITE 1, N.65/28

K. M. Peters

This site was first described by Pick (1968: 30), and later by Bellwood (1969: 45, 1970), and is located on the eastern side of Lake Mangakaware, which lies in the Waikato, about 10 miles south of Hamilton. The pa is bordered by the lake on the northern and western sides, while to the south and east it is surrounded by swamp land (see Figure 1 of preceding report).

Investigations were first carried out in April 1969 when two trenches, which contained a number of lines of palisades, and an interior test square was excavated. The test square area, within the pa itself, produced evidence of clay floors possibly associated with houses, similar to those excavated on MA2, and in May 1969 a small party returned to extend this area. A plan of the site and trenches is given in Figure 1.

The defended area covers approximately 1,640 square metres, slightly smaller than MA2 which is 2,100 square metres. The deposits excavated within the defended area extended to a depth of about 1 metre, and it is estimated that at least another metre of cultural deposit lies below this level. Surface evidence suggests that the outer area of the defended pa has been built up slightly higher than the inner area, and this central depression may have served as a marae. The outer area, which includes a number of low mounds, has been built up by the deposition of a series of sandy clay floors and black occupation deposits which suggest the continuous building and rebuilding of associated dwellings and shelters. The lower central area has not been tested.

The defences of the pa are very heavy indeed. On the south-east side some seven rows or part rows of palisade were discovered. The innermost line consisted mainly of heavy wooden slabs or planks, measuring in some cases as much as 50 cm. wide by 20 cm. thick. This palisade line had not only a defensive function but was also used as a retaining wall for the raised area contained within it. The outer rows were of less heavy timbers, and an interesting feature was that while on the land-side the palisades were leaning inwards at approximately a 20° angle from the vertical, on the lake-side they lean outward at about the same angle. Two palisade posts were still standing on the northern and eastern sides of the pa up to a height of 3.50 metres, when the pa was first visited. However, by our return in May 1969, vandals had removed the one on the eastern side.

There were two, or perhaps three, concentrations of posts located on

the northern and western side of the pa on the lake edge, which extended in two rough lines into the lake. These could possibly be the remains of canoe landing-stages, or of raised storehouses.

Altogether over 650 remnants of posts have been recorded. However, it is impossible to relate all of them chronologically. The heavy concentrations of posts in particular on the north-western and south-western sides of the pa strongly suggest rebuilding and modification of the defences, over a long period of time. It would be quite unrealistic to believe that the seven rows of posts, were all in use at one time. The depth of the deposits, which according to a calculation by Bellwood could represent a time depth of approximately 200 years (Bellwood 1970), rules out any possibility of a one-phase occupation.

### Mangakaware 3

This site was located about 30 metres from the eastern side of MA1 (see Figure 1 of preceding report). It was discovered during the plane-table survey of MA1, when it was found that palisade posts continued along the lake edge from MA1. At the same time an almost disintegrated canoe or part canoe was discovered in the mud at the edge of the lake. The ground surface of MA3 is very uneven due to tree clearing, and the build-up of deposits does not seem to have achieved any great depth. No test probes were made but some of the holes left by the tree clearing were examined.

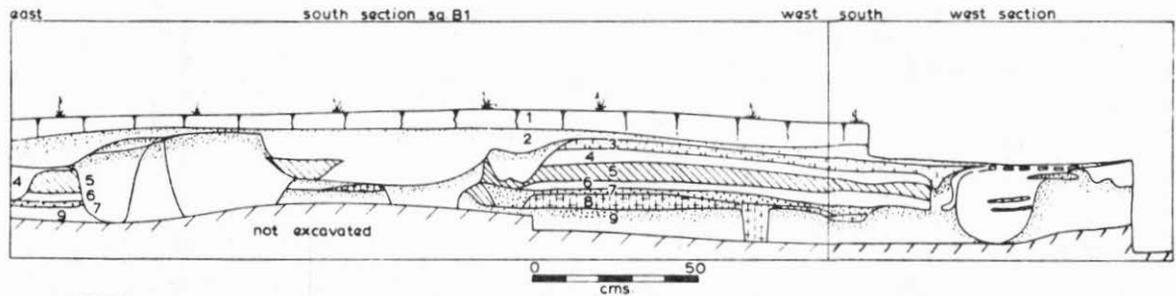
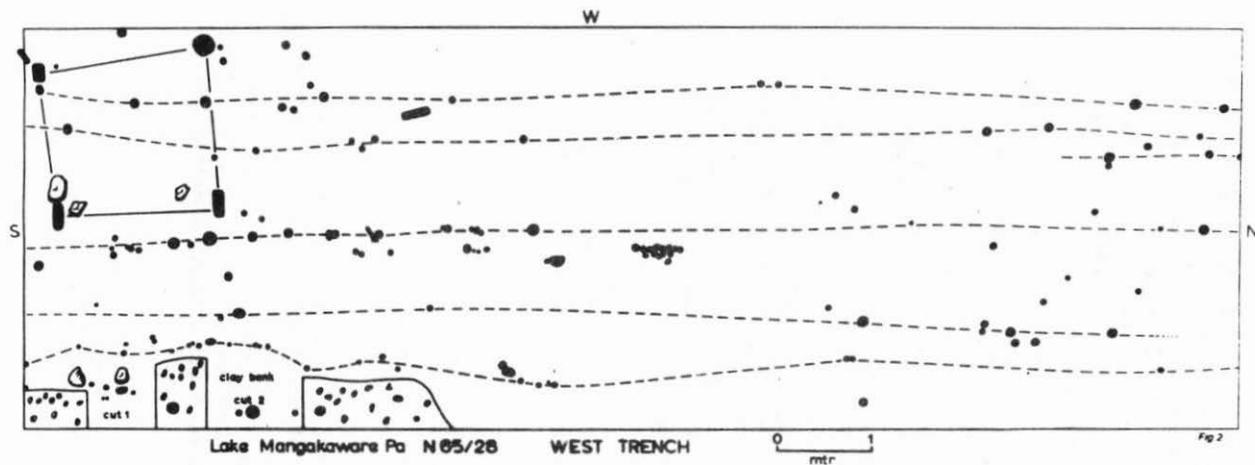
The site is separated from MA1 by a swamp approximately 30 metres wide, and dense blackberry bushes and willow trees prevented a thorough investigation of this area. The defences do not seem to have been extensive, and judging from surface evidence it may have been used as a living annexe area of MA1.

### The excavations

Figure 1 shows a plan of the excavations. Firstly, the two large trenches on the south and west sides of the pa were excavated, with the purpose of exposing the various lines of palisade posts, examining their construction, and locating entrances. Later, a single square was set out to test the deposits of one of the mounds. When this excavation revealed sandy clay floors with remnants of associated wooden posts and postholes, it was then decided to return in May 1969 to open up a larger area in order to investigate these deposits further (trenches A1, 2: B1, 2, 3). In this same period an area behind one of the landing stages was tested for a possible entrance in the defence lines (north trench).

#### West trench

A trench of 4.25 x 13 metres was laid out along the sloping western lake edge (Figure 2). The trench was excavated by trowelling off the top layer of loose black soil to expose the pattern of posts. In the north-east



- |  |  |
|--|--|
| <p>1 topsoil</p> <p>2 black soil mixed with shell charcoal and gray ash</p> <p>3 yellow-gray sandy clay</p> <p>4 brown yellow clay</p> <p>5 bright yellow sandy clay</p> | <p>6 light brown sandy clay</p> <p>7 dark brown sand</p> <p>8 medium brown sandy clay, house 2.</p> <p>9 black soil mixed with shell charcoal and gray ash</p> |
|--|--|

**MANGAKAWARE 1 SQ B1**  
 South section and part of west section showing clayfloors cut by firescoops

*Jamp*  
 Fig 5

corner an area of hard clay extended into the trench from the bank above. Two cuts, one of 75 cm. and the other of 100 cm. wide, were excavated into the clay, and these revealed a continuous build-up of very hard packed clay floors inter-stratified with ash and black peaty soil. Along the edges of this feature a line of vertical stakes associated with horizontally laid timbers was discovered. These might have been put there to retain the top of the clay bank, or they may have been part of a structure built on top of the bank.

A considerable number of broken haangi stones and boulders were lying on the surface of the bank, and many were also found during the excavation. A local farmer, Mr Sylvester, informed us that about 30 years ago the whole lake edge was covered with stones and water-worn river boulders, and these may have been used as protection for the bank against the water. Such boulders could be obtained from the bed of the Waipa River, two miles to the west of Lake Mangakaware.

The trench appears to have had four lines of posts and a fifth line of higher stakes almost on the top of the clay bank. Four big posts, placed in a roughly rectangular pattern in the south-western side of the trench, do not seem to be associated with any of the lines as they fall in between and outside them. It seems more likely that they formed an independent structure. It is likely that they represent the four corner posts of a storehouse as described by Buller (1892: 573) for Papaitonga Pa in Lake Waiwiri, Horowhenua. The posts are rectangular and must have been made from large tree trunks, which would have involved a considerable amount of labour.

The storehouse was probably connected by one or more access planks with the clay bank behind it. This would account for the hard compact clay floors, which became trampled by frequent traffic to and from the storehouse. Alternatively, the floors may have been part of a different structure on top of the bank which was used regularly.

#### South trench

This trench was excavated to an arbitrary depth of approximately 30 cm. In the eastern end some six rows of palisade posts were discovered, while in the western end an accumulation of some 60 posts formed an amorphous pattern which could not be "connected" with any of the lines occurring in the east corner (Figure 1). One row was built entirely from plank slabs by contrast with the other lines which consisted mainly of round or half-round posts.

It was only at the south-eastern end that concentric lines occurred; the other areas did not seem to have this definite pattern. Although it is possible to connect some of the posts into lines, there is no great

certainty about such relationships, as one cannot chronologically relate the lines one to another.

### North trenches

Two trenches were set out behind a cluster of posts believed to have served as a landing stage on the northern side of the pa (Figure 3). It was hoped that here an entrance into the interior of the pa could be found. After excavations had been in progress for some time and people had flattened down the long grass, two pathways showed up in the surface of the ground. These were sunk slightly below ground level, and gave the appearance of having been worn down by constant traffic. The second trench was laid out over the lower part of this possible path (Figure 3).

Although no entrance was found in trench 1, this trench did throw some light on the construction of the pa. Only one post showed up on the surface, but during the course of the excavation some 40 more were discovered underneath the turf layer. Some of these could be connected in a line along the edge of lowest deposits forming the pa. It was also discovered that timbers lying underneath these deposits formed the foundation on which the pa was built. Whether these timbers had been laid in any specific pattern could not be established from this excavation. On top of these timbers the first deposits of clay, sand and stones had been laid down.

As mentioned above, this trench covered part of a pathway leading from the lake edge to the interior of the pa. Along the eastern side of the path posts had been placed, presumably to form a fence line, while underneath the path a big oven containing fresh water mussel (Hyridella) was discovered, which suggested that other activities had taken place in this area before the path was formed. Surface evidence suggests that at least one other path existed to the west of this one, although it did not seem to be associated with any cluster of posts in the lake, unlike the first.

### Houses

When the initial inner test square revealed evidence of clay floors with posts and postholes similar to those discovered in Mangakaware 2, four more squares were set out to expose them (A1, 2; B1, 2). The deposits were composed of yellow sandy clay, interspersed with greasy black soil mixed with charcoal particles, stones and shell. Associated with the yellow sandy clay lenses were postholes, plank slots and remnants of almost decomposed posts. Presumably the sandy clay deposits had been quarried from a site some 300 metres south of the pa, and the quarry can still be seen as a depression in the hillside.

The greasy black soil containing shell, broken haangi stones and charcoal, is probably the result of intensive living activities represented



MANGAKAWARE 1  
Squares A1-2 and B1-B3  
Plan of features.

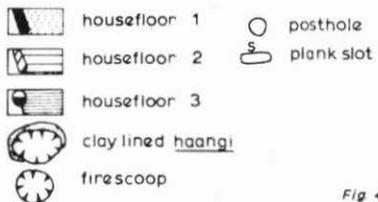
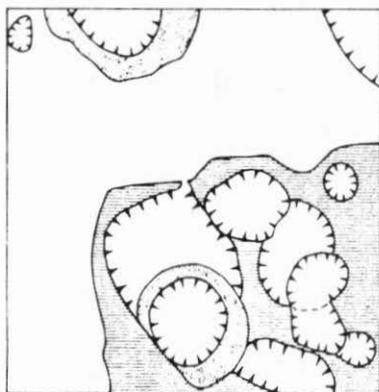
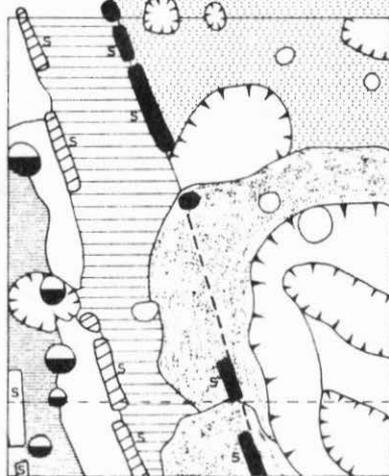
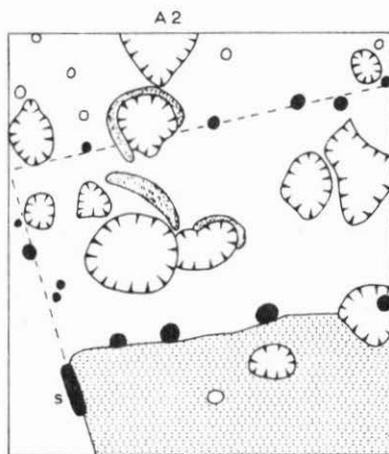


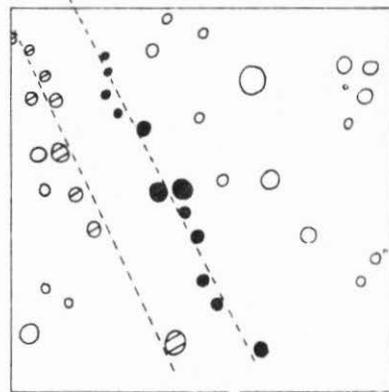
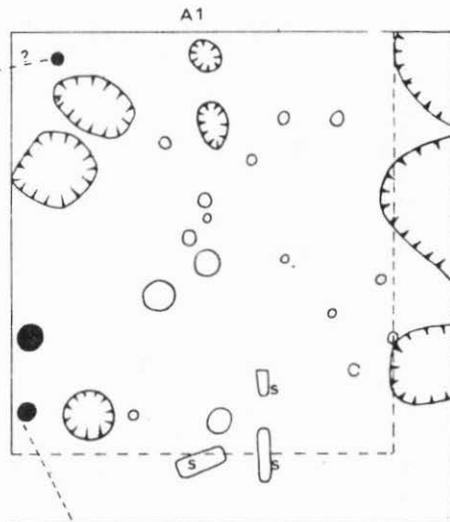
Fig 4



B3



B2



B1

*Imp*

by cooking and heating fires. Whether these deposits were redistributed through the site for rebuilding purposes could not be established.

Remnants of three houses were discovered in the excavation. It seems very likely that more existed in this area, but the limited scope of the excavation prevented us from investigating this further. The three house outlines which are formed by lines of postholes and plank slots associated with sandy clay deposits were orientated in a S.W.—N.E. direction (Fig. 4). The two houses in B2 and A2 were superimposed on each other, and the earlier (house-floor 2) was slightly offset by about 60 cm. to the north. The surface of the sand lenses was badly disturbed by haangi and fire-scoops, thus leaving only remnants of the initial floors intact. In the south section of square B1, the stratigraphy revealed five lenses of these deposits, and although stratigraphically it could not be proven by this excavation that they belong to the floors of the houses, the interpretation is that they do (Figure 5). The posthole pattern in square B1 is very interesting. As can be seen in Figure 4, there are two lines of double postholes running in the same direction as the two lines of postholes and slots in square B2. These alignments of postholes in B1 all have the same yellow sandy clay fill. We could therefore line up the first line with house-floor 2 and the second with house-floor 1. The diameter of the holes suggest that they contained tree fern posts, like those of house 1 in trench E at Ma 2, which were of approximately the same diameter. Although speculative, one might suggest that these postholes could represent the outside walls of houses which had lighter walls of a post construction on the north side (the warmer), and more solid planking on the colder (south) side. Both house 1 and house 2 would thus be 2.90 metres wide.

The northern alignment of posts from house 2 was stratigraphically associated with the clay lenses in the south section of B1 (Figure 5). The first posthole is partly in the section and is clearly dug from the surface of layer 8, which is the lowest sand lens. The clay floors from square B2 do not extend into B1, except for layer 5 which extended about 50 cm. into the square. Fire scoops in this square have destroyed practically all evidence of house-floors. Thus the posthole alignments which are evident in square B1, could be either the outer walls of the houses occurring in square B2, or they could form part of different structures associated with these houses whose nature could not be established. It is not possible to state which alternative is the more likely, owing to the lack of stratigraphic relationship between the postholes in square B1, and the house-floors in square B2, with the exception of the single posthole in the south section of B1. Nevertheless, the yellow sand fill of the posthole lines in B1 might be suggestive of a relationship. In square A2, a line of postholes running parallel with the west wall of house 1 could form the outline of a verandah as described by Banks (Morrell 1958: 135). It measures 1.35 metres wide and approximately 3 metres long (Figure 4). The fire scoop and haangi are

later features dug into the existing floor level and do not stratigraphically belong to this structure.

The remainder of the posthole pattern in squares B1 and A2, whose fill was of a different composition from the alignments of postholes in square B1, could form quite a number of acceptable alignments, but this would be purely speculative. However, it may be that some belonged to drying racks for eels.

In square B3 the remnants of the sandy clay floor, house 3, are also very badly disturbed by the fire scoops. This floor did not seem to have any later floors superimposed over it.

#### Fire scoops and hearths

No fireplace or hearth could be associated with house 2. In houses 1 and 3 all disturbances had been cut from above, except for a single clay lined hearth in house 3 which was on the south side of the floor, and which was clearly associated with it. Cut into the floor of house 1, one clay lined haangi, measuring 1.40 x 2 metres, had two smaller clay lined haangi built over it, measuring 75 x 30 cms. and 45 x 50 cms. The big haangi extended well over the line of house plank slots and postholes, thus making it definitely a later feature.

In this same floor 7 fire scoops had been dug. In house 2, which was only partially exposed, one fire scoop was excavated, while in house 3 a further eight fire scoops were discovered. All of these features were dug into the surface of the house floors, except for the one hearth in house 3, and were therefore later than these floors.

Squares A1 and A2 also had heavy concentrations of these fire scoops and haangi which were particularly dense where the excavation was taken to a depth of about one metre, and where the deposits were composed mainly of rakeouts and ash lenses mixed with shells, fresh water mussel (Hyridella), scallops (Pectennoaezelandiae) and pipi (Amphidesma australe). These deposits indicate that extensive cooking activity went on for a considerable length of time, and this was probably associated with other activities represented by the houses found in the other squares.

#### Artefacts

The number of artefacts found in the excavations, together with the artefacts discovered from the lake bed, was quite numerous and forms a formidable assemblage. In all, some 280 items were discovered. Most of these artefacts are of wood and are partially decomposed. They are at present being preserved in the laboratory at the Anthropology Department, Auckland University, by impregnation with Polyethylene Glycol 1500. Therefore, only a list of non-timber artefacts will be published here, and when all this material has been preserved a full study will be made

and published. However, a short discussion on some of the artefacts other than wooden ones is given here.

Figure 6a shows the mid-section of an unfinished patu. The artefact is in a stage from which the manufacturer finally shapes the well-balanced blade and handle of the patu. The surface of this artefact is carefully and neatly shaped by stone pecking ready for the final shaping and polishing. When the weapon was broken during its manufacturing, this section was probably used as an anvil, as suggested by the heavy "bruising" on its back.

b and c illustrate one broken and one complete 2b adze, while d shows a partially polished stone flake, presumably from an adze, shaped into a chisel. It is  $6\frac{1}{2}$  cms. long and  $2\frac{1}{2}$  cms. wide, and has a concave bevel which shows signs of heavy use.

e is one of the two perforated scallop shells recovered. The hole is slightly off centre, and its edges are very worn, suggesting regular wear. Similar shells were found in the excavations at Lake Ngaroto (Shawcross pers. comm.).

#### West trench

5 obsidian flakes (two green, three grey)  
2 stone flakes  
1 stone flake made into a chisel (Fig. 6d)  
1 sandstone file

#### South trench - East corner

1 broken unfinished mid-section of a patu (Fig. 6a)  
1 piece of pumice with rubbing marks

#### West corner

1 grinding stone  
1 obsidian flake (grey)  
1 stone rubber

#### Square N1

1 scoria ochre grinder

#### Square B1

1 complete 2b adze (Fig. 6b)

#### Square B2

1 grey obsidian flake

Square A2

1 complete and 1 broken scallop shell pendant (Fig. 6a)

Surface finds

1 broken steel adze blade

Faunal remains

Birds

Faunal remains were very few, and the high acid content (a ph of 6.3 was measured for a soil sample from Square A1) is possibly responsible for the low survival rate of bone material.

Species identified were:

- |                |   |                                 |          |
|----------------|---|---------------------------------|----------|
| 1 N.Z. Quail   | - | <u>Coturnix Novaezelandiae</u>  | (koreke) |
| 1 N.Z. Pidgeon | - | <u>Hemiphaga Novaezelandiae</u> | (kerekū) |
| 1 Kaka         | - | <u>Nestor meridionalis</u>      |          |
| 1 Grey duck    | - | <u>Anas superciliosa</u>        | (parera) |

Fish

- 1 vertebra of snapper
- 9 vertebrae of stingray

These bone remains were excavated from the lower deposits in Squares A1 and B2.

Shellfish

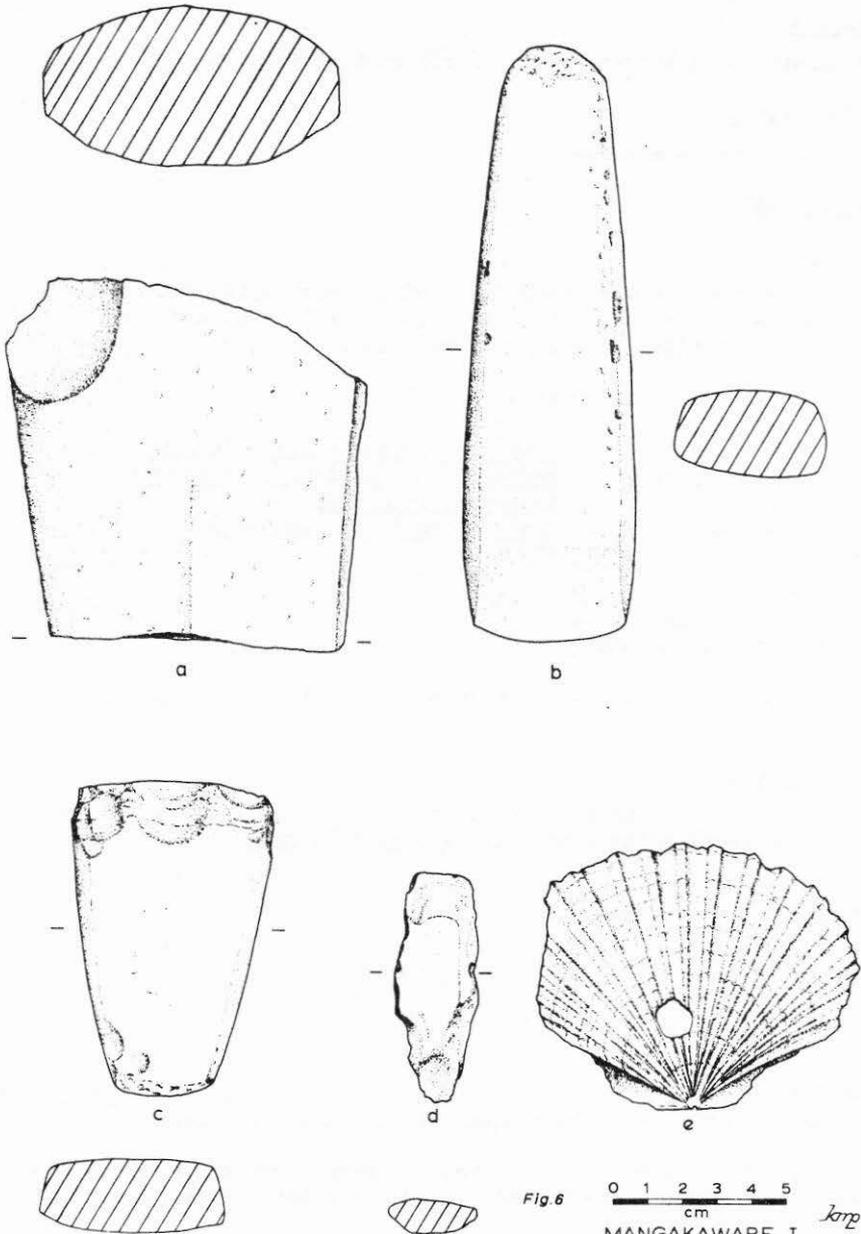
Shellfish remains include fresh-water mussel (Hyridella), scallops (Pecten Novaezelandiae), and pip (Australis amphidesma).

Conclusions

Despite the limitations imposed by the small area excavated, it is possible to describe the last three or four phases of activity which took place within the pa before it was finally abandoned.

From the five inner squares excavated it is clear that the area was used for cooking during the last phase of its occupation; haangi and fire pits cut into the housefloors demonstrate this very clearly.

Prior to this much of the area had been occupied by houses, and an associated adjacent area had been used for extensive cooking activities.



This period must have covered a considerable time span, as we have evidence of two superimposed house structures, possibly with other associated structures (although this is uncertain), in addition to house 3.

Before the houses were built, the area had been used as a cooking area for some considerable time, as suggested by the depth of the deposits of ash, and associated fire scoops in square A1. Further sandy clay floors appeared again at this lower level, suggesting that much earlier evidence of occupation remains to be excavated.

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