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The Tamaki River Pā:
the excavation of a small defended site, R11/1506, on the Tamaki River, Auckland, New Zealand

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ABSTRACT

An archaeological site, R11/1506, on the banks of the Tamaki River was excavated prior to industrial development of the area. Excavation of the site revealed further information about pre-European settlement in this part of Auckland, with evidence of a small pā with pit storage, houses, a stone-working area and an encircling palisade. The site was occupied for a short period in the fifteenth or sixteenth centuries.

Keywords: NEW ZEALAND, TAMAKI RIVER, PĀ, PALISADE, HOUSES, EARTH OVENS, PITS, SIXTEENTH CENTURY.

INTRODUCTION

Site R11/1506 was situated on the west bank of the Tamaki River, some 8.5 km from its mouth (Fig. 1). The site was on flat land close to the northern limits of the lava and ash deposits of the McLennan Hills/Otahuhu volcanic area. Both volcanic centres are estimated to have erupted some 25,000 years ago at roughly the same time, with ash from Otahuhu overlying the lava from Te Apunga o Tainui (McLennan Hills). The river bank at the site was formed by the northern edge of the lava flow; the site was approximately 4 to 5 m above the river with moderate to steep banks but still having easy access to the river in places.

Approximately 1.5 km to the south-west is the site of the former volcanic cone pā of Te Apunga o Tainui (McLennan Hills). In this vicinity a number of archaeological sites have been excavated, all on the western bank of the Tamaki River and lying between 0.5 and 1.5 km from R11/1506. These are the Fisher Road sites, R11/887, 888 and 899 (Foster 1986; Foster and Sewell 1986, 1988, 1989), Hawkins Hill, R11/1394, (Coates 1986; Foster 1986; Coates, Foster and Sewell 1996), Westfield, R11/898, (Furey 1983, 1986; Sewell 1992), Hamlins Hill, R11/142 (Davidson 1970; Irwin 1975; Pearce 1975, 1977; Walton 1979; Nichol 1980), R11/1201, adjacent to R11/1506 (Foster and Sewell 1993) and R11/1436 (Clough 1996). All these sites have been interpreted as undefended settlements (although the highest point of Hamlins Hill is thought to have been a pā), some of which may have been associated with occupation at Te Apunga o Tainui and Otahuhu. All of these sites are on the narrow strip of land between the Tamaki River and the Manukau Harbour, in the

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vicinity of the traditional Māori canoe portages linking the east and west coast of the North Island (Fig. 1).

The surface evidence of the site consisted of two depressions interpreted as pits and two small scatters of shell midden, suggesting that another small undefended settlement was present. One shell scatter was noted eroding down the bank to the river and the other was visible amongst the grass in the south-western corner of the site. No lava flow or loose lava rocks were seen until the grass and topsoil had been removed. At that point the surface of lava flows was noted in three parts of the site — the extreme north-east, the south-west corner and the centre.

The site was excavated prior to the development of the area as an industrial subdivision. The excavation was carried out over four weeks in December 1988 by Department of Conservation staff assisted by volunteers from the University of Auckland. A more detailed report of the excavation is to be found in Foster and Sewell (1993).

THE EXCAVATION

A total area of approximately 1000 m^2 was excavated using a mechanical excavator. Initially, six main east-west trenches, each 1.0 m wide, were dug across the site to define its extent. Following this, the whole area was stripped using a 2.0 m weed bucket and individual features were hand excavated, with the exception of the pits which were individually trenched. It was noticeable that where no shell midden was present features were sometimes not visible until up to 0.40 m of subsoil had been removed. This was not a result of the use of machinery. A test area, where the presence of postholes could be predicted, was entirely hand excavated and a similar depth of apparently featureless soil was removed before any clear trace of a feature became apparent. Hence, in areas where such a depth of material had to be removed before any archaeological evidence became apparent only the truncated bases of the deeper postholes still remained.

In seeking an explanation for this phenomenon ploughing was discounted as shell midden deposits (and underlying features) immediately beneath the topsoil were intact. The undisturbed nature of the midden deposits also seems to make later Māori prehistoric horticulture or historic farming involving ploughing or other ground disturbance unlikely. A possible explanation can be suggested by comparison with Yule's (1990) discussion of the 'dark earth' of Roman London. He examined the relationship of the 'dark earth' deposits, which overlie stratified Roman sites and the 'lost' part of the late Roman London sequence. He proposed that earthworm action, shrub root systems and weathering had served to mix the very late Roman deposits into an unstratified homogeneous mass — the dark earth. It would seem possible that similar actions were responsible for the truncation of features at this site. In areas where features were not truncated, the presence of shell midden may have served to protect them from this biological reworking, as did tessellated or mortared floors in Roman London. The degree of the reworking was obviously less than that discussed by Yule, as the site reported here did not have centuries of later occupation superimposed on it.

A similar truncation of features has been noticed even at far more modern sites. For example, excavations in Albert Park in central Auckland for the foundations of a new statue on the site of the nineteenth century Albert Barracks were monitored by an archaeologist who noted that the top 1.0 m of WWII slit trenches dug in this area was not visible, although the base of each trench was clear (D. Veart pers. comm.). The ground level had

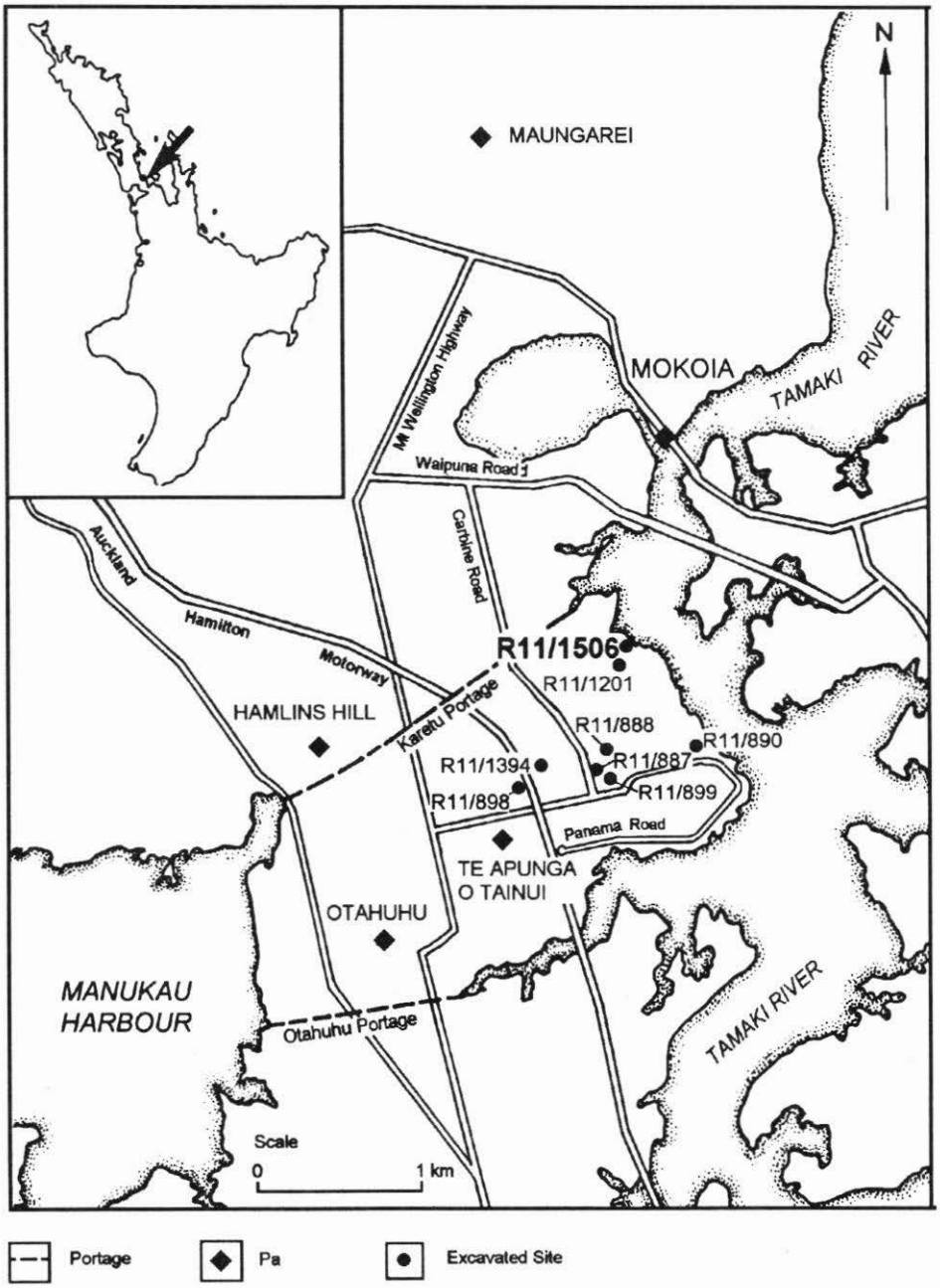

Figure 1: The location of site R11/1506.

not been significantly altered since the trenches had been filled and turfed over to make a lawn. It was clear that only natural soil processes could have caused this loss of the upper parts of what should have been well defined features only some fifty years old.

STRATIGRAPHY

The cross-section illustrated in Figure 2 was taken from the southern baulk of one of the initial east-west trenches where it ran through the group of features in the south-west portion of the site[3]. The features shown in the cross-section are two postholes and two bedding trenches for a fence. The easternmost posthole was filled with a dark soil similar to the layer above and appears truncated. It is likely that the soil processes discussed above resulted in this truncation. Further to the west are a further shallow posthole and three bedding trenches relating to structures associated with the midden.

The stratigraphy of this site was simple with four main layers.

Layer 1: turf and topsoil, a brown friable loam 0.1 to 0.15 m in depth.

Layer 2a: black greasy soil containing shell and charcoal deposits. This layer did not cover the whole site, but was found only in areas where earth ovens were present. Between 0.1 and 0.2 m in depth.

Layer 2b: mottled dark brown friable soil up to 0.1 m deep. Stone artefactual material was present in this layer.

Layer 3: subsoil, a brown volcanic ash, overlying clay or basaltic lava flows. Archaeological features were cut into this layer. In the base of the pits this layer was not present but was replaced by banded tuff and/or lava outcrop.

The straightforward nature of the stratigraphy and the overall low density of archaeological features did not allow specific correlations between the various features of the site to be made. Feature fill was either brown soil very similar to the subsoil or black soil, shell and charcoal in areas of midden/oven rake-out. The overall pattern of the site, however, suggests that most structures were contemporary or at least very close to each other in time.

STRUCTURES

PALISADE

The most striking feature of this site is the evidence of palisading (Fig. 3). This extended for the entire length of the eastern and southern sides, where there was a double row of postholes some 1.5 m apart, and for a short distance on the northern side, where there was a length of bedding trench and postholes at the top of the riverbank. In places on the

[3]The exact position of the section is not shown on Figure 3 because the scale is too small.

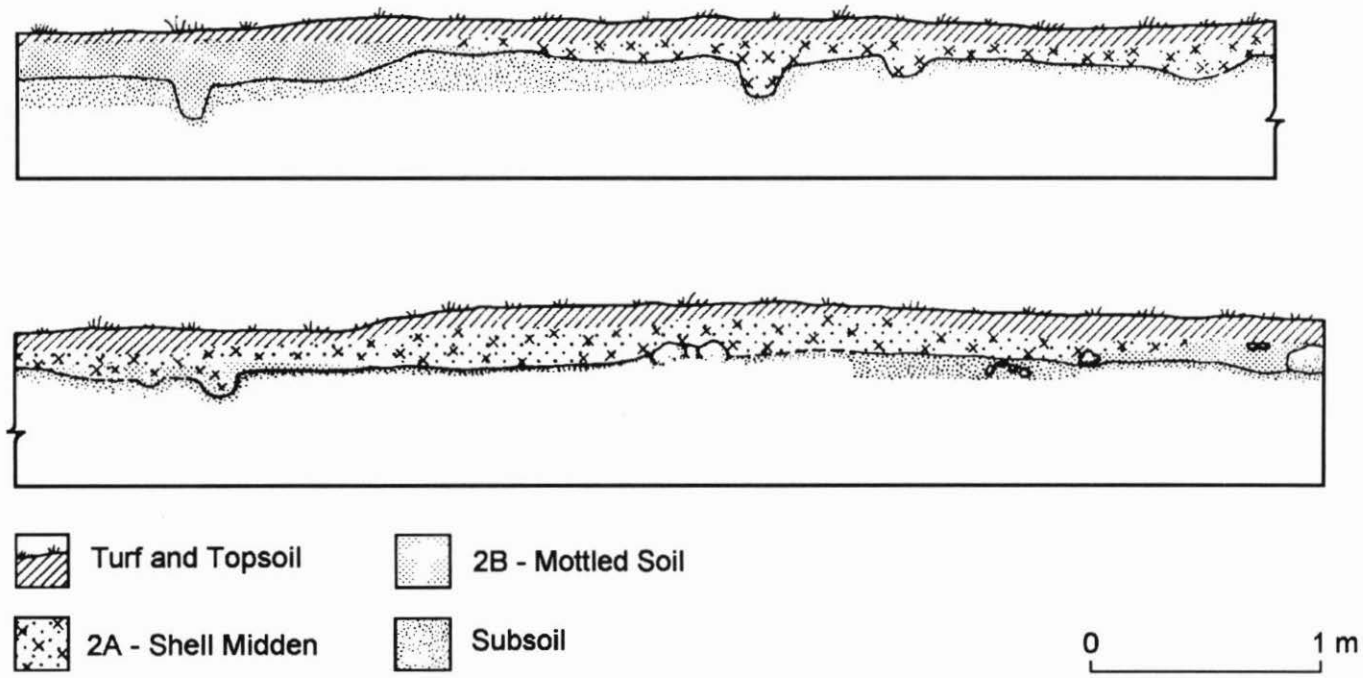

Figure 2: East-west cross-section, site R11/1506.

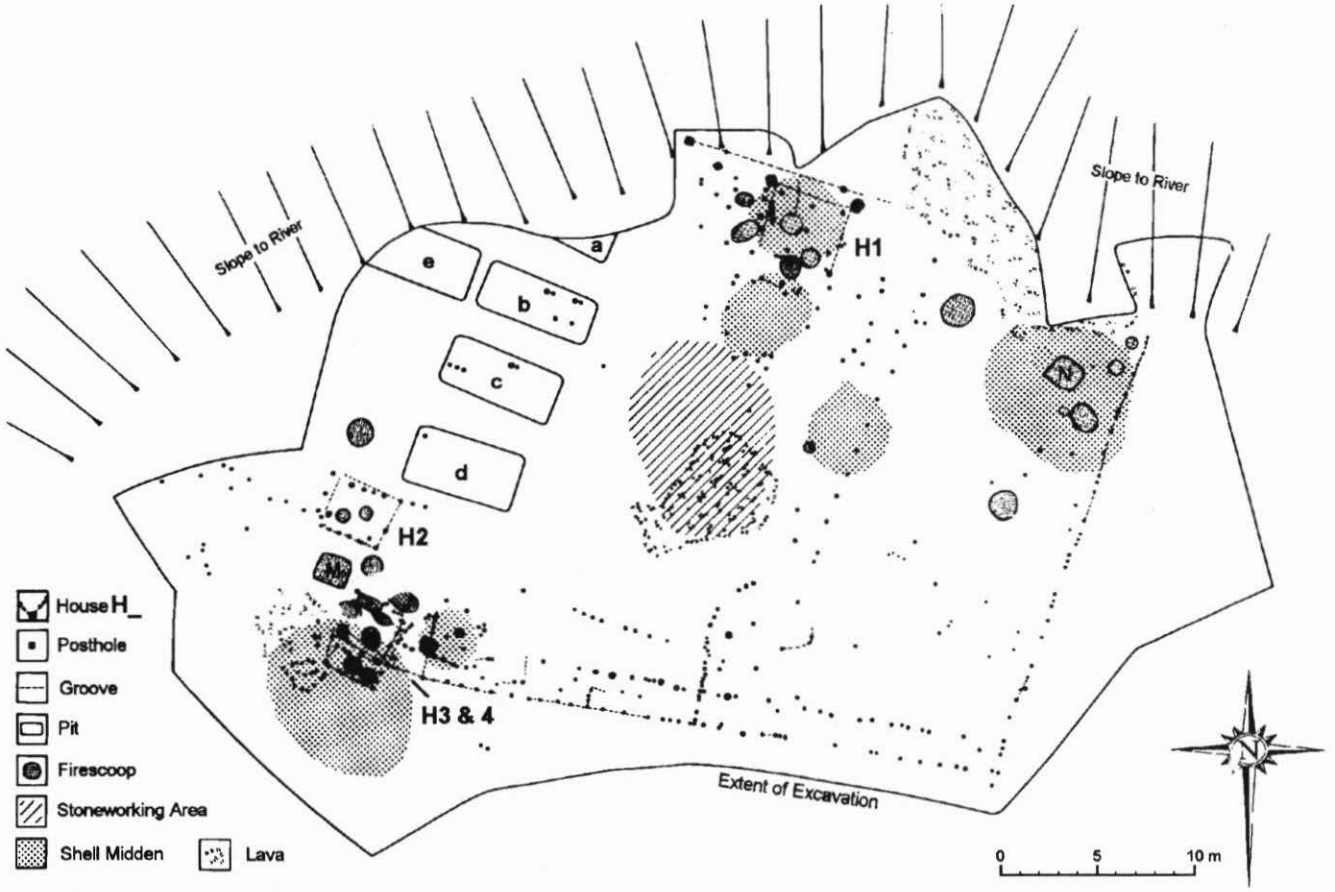

Figure 3: Plan of site R11/1506, showing all features excavated.

northern side the ground was too rocky to identify a continuous line of palisading. However, on the basis of what was found it is clear that the palisade ran round the north, east and south sides of the site.

No clear evidence of palisading was found on the western side. However, the excavation did not extend to the very edge of the riverbank and it is likely that the palisading continued this side also. Erosion, particularly since the introduction of pastoral farming, could have caused the loss of several metres at this side of the site.

Between the main palisade posts there was a bedding trench, in the fill of which the post-moulds of closely packed smaller posts, some 50 to 80 mm in diameter, were present. This is similar to the palisade defences described at Mount Roskill (R11/19) by Fox (1980: 48) and at Mount Victoria (R11/109) by Sewell (1988: 187). At Mount Roskill Fox interpreted this bedding trench as being either for holding small upright posts lashed to each other or as bedding for a horizontal sleeper beam. This palisade or fence could resemble the *raihi* type with close set stakes pushed vertically into the ground and lashed to a horizontal rail, lessening the need for deep postholes.

Although evidence of the bedding trench was only present where it coincided with the shell midden/oven rake-out, it is clear, given the truncation of features discussed above, that the bedding trench would originally have been present along the whole length of the palisade.

The major postholes of the palisade were some 0.25 to 0.30 m in diameter and up to 0.5 m deep. The remains of two *in situ* posts were both identified as matai (*Prumnopitys taxifolia*). The size of the postholes suggests that the fortification is not on the same scale as larger pā sites where more massive palisade postholes are found. For example, at the relatively small pā site of Ruahihi, palisade postholes up to 0.8 m wide and 2.0 m deep have been reported (McFadgen and Sheppard 1984: 16) and at Mangakaware 2, a swamp pā just over twice the size of the site discussed here, palisade posts of 0.22 m diameter imbedded into the ground for up to 3 m survived and it was calculated that they would originally have stood up to 4 m high above the ground (Bellwood 1978: 16 and Fig. 5). On the other hand, the small pā of Waiwhau, on the banks of the Waihou River, had palisade postholes of comparable size to those described here, with an outer line of postholes 0.6 m deep and an inner line only 0.3 m deep (Phillips and Green 1991: 156). Waiwhau was also defended on two sides by a small ditch but, as with the Tamaki River site, it probably was not intended to resist determined attack.

Associated with the northern palisade line were four large postholes between 0.65 and 0.90 m in diameter and 0.8 m deep. It is clear that they originally held a structure or structures of some size. Two interpretations can be suggested for these: as part of a fighting stage, or for a series of individual carved posts. Almost directly opposite, on the southern side of the site, is a further group of large postholes, associated with the inner line of the palisade on this side. These, too, could be interpreted as part of a fighting stage. If this interpretation is correct these posthole groups may indicate entrances, as in many instances fighting stages were erected over entrances (Best 1975: 115). At present there is easy access to the site from the river in two places: the first is the slumped river bank to the north-west of the site and the second is to the north-east of House 1. It is contended that when the pā was in use, the entrance from the river was by this second access.

In addition to the main lines of the outer palisade there were two short lengths of cross-wall running inwards from the southern side. The function of these features is unclear. It is possible that they related to some form of internal subdivision. Davidson (1970: 17) interpreted a row of postholes at Hamlins Hill as such an internal division.

It is possible that there was another palisade, parallel to the eastern line and some 12 m to the west, where there was a row of substantial postholes set at approximately 1.5 m intervals. These postholes could relate to another row running from the southern end of this line at roughly 90° westwards towards House 2 and possibly continuing on past that structure. No bedding trench was found associated with either of these rows but it is possible that they did form a similar structure to the outer palisade. Given the small size of the site it would seem unlikely that this smaller palisaded area would have been present at the same time as the larger structure and, if it does represent another palisade, its relationship to the main occupation of the site is unclear.

POSTHOLES

A large number of postholes was found. Some were parts of houses; others were associated with the cooking areas and most probably represent cooking shelters or wind breaks. A number of posts, however, had no particular apparent associations. Almost every drawing or engraving of early nineteenth century Māori settlements shows a profusion of storage platforms and single posts on which an assortment of items were hung (e.g. "The residence of 'Shulitea', Kororareka" by Augustus Earle, reproduced in Murray-Oliver 1968: 69). It is more than likely that many of the postholes without other clear associations related to such structures.

PITS

Five rectangular pits were located (Fig. 3a–e). They were all of similar size and orientation, ranging from 5.8 x 3.1 m to 6.0 x 2.4 m in size and varying in depth between 0.75 and 0.85 m. Three pits were trenched and all had postholes in their bases, although none were on the centre line. It is most likely that the roofs of these structures were supported on a double row of posts, similar to those of pit G at the nearby Fisher Road site, R11/899 (Foster and Sewell 1989: 15). The orientation and grouping of the pits tends to suggest that they were built as a unit. Pits of the size of those described here are generally assumed to have been used for the storage of root crops, most especially kumara (Fox 1974: 144).

EARTH OVENS

Twenty-six earth ovens were recorded, ranging in size from 0.65 to 1.5 m in diameter and up to 0.3 m deep. The majority were dish-shaped with the exception of two rectangular ovens with straight sides and flat bases (marked M and N in Fig. 3). Oven M measured 1.9 x 1.6 x 0.3 m deep and N 1.7 x 1.5 x 0.25 m deep. Both contained fill similar to the other ovens recorded. All ovens contained black charcoal-rich soil, shells, predominantly cockle (*Austrovenus stutchburyi*), and some also contained a few fish bones. Fire-cracked greywacke rocks and fired scoriaceous basalt rocks were also present in all of the earth ovens. Analysis of the charcoal from the earth ovens indicated that the favoured woods used in them were puriri (*Vitex lucens*) and rata/pohutukawa (*Metrosideros* sp.) with some matai (*Prumnopitys taxifolia)* and taraire (*Beilschmiedia tarairi*). It is interesting that regenerative species were only noted in four of the ovens. Overall the charcoal from the site suggests a

source similar to remnant forest still surviving to the south of Auckland (Dr C. Green, Department of Conservation, pers. comm.). However, it is uncertain whether this reflects forest in the immediate vicinity of the site, as much could have been gathered as driftwood from the banks of the river.

There were three distinct clusters of ovens: one on the northern side of the site which consisted of five ovens cut from the midden overlying House 1, a second group of seven at the eastern side and the third on the south-western edge of the site. This latter group shows three changes in use of this part of the site. Initially there was a small group of earth ovens which were superseded by at least two superimposed houses. After these became disused a third phase of oven construction took place on top of the house site.

HOUSES

At least four rectangular houses were found. All had slot and post construction with floors at ground level. Details and dimensions are set out in Table 1.

TABLE 1

Details of houses, R11/1506

House	Size		Postholes		Description
	length (m)	width (m)	diameter (m)	depth (m)	
1	3.5	4.0	0.10-0.15	0.13-0.20	Slot and slab post construction. Slot *c.* 0.10 m deep and 0.12 m wide. Porch 0.8 m wide on south side.
2	3.4	2.8	0.10-0.15	0.09-0.30	Slot and slab post construction. Slot *c.* 0.06 m deep and 0.08 m wide.
3	3.5	3.0	0.10-0.16	0.15-0.35	Houses 3 and 4 superimposed. Both slot and post construction. Slots *c.* 0.20 m deep and 0.16 m wide.
4	?	2.8			

House 1 (Fig. 4a) was the earliest structure in the northern part of the site, with the ovens stratigraphically later in the sequence. The outline of the house was defined by a groove or bedding trench together with postholes in and alongside the groove. It is similar to houses found at the nearby site R11/899 at Fisher Road (Foster and Sewell 1988: 38) and to those on Hamlins Hill (Davidson 1970: Fig 4).

House 2 (Fig. 4b) was of similar construction with posts in and alongside grooves. There were two ovens within the outline of the house but there was insufficient evidence to place them in time relative to the house structure. The possibility that this structure was a cooking shed was considered. Ethnographic illustrations showing cooking shelters indicate a flimsy structure with a roof supported by free-standing corner posts. The evidence from the houses at this site suggests more substantial structures with solid walls.

Houses 3 and 4 (Fig. 4c) in the south-western corner of the site are also similar to houses excavated at R11/899 at Fisher Road. These two houses are part of the most stratigraphically complex area of the site where at least three intervals of use could be determined. Initially the area was used for earth ovens. These were followed by at least two superimposed houses

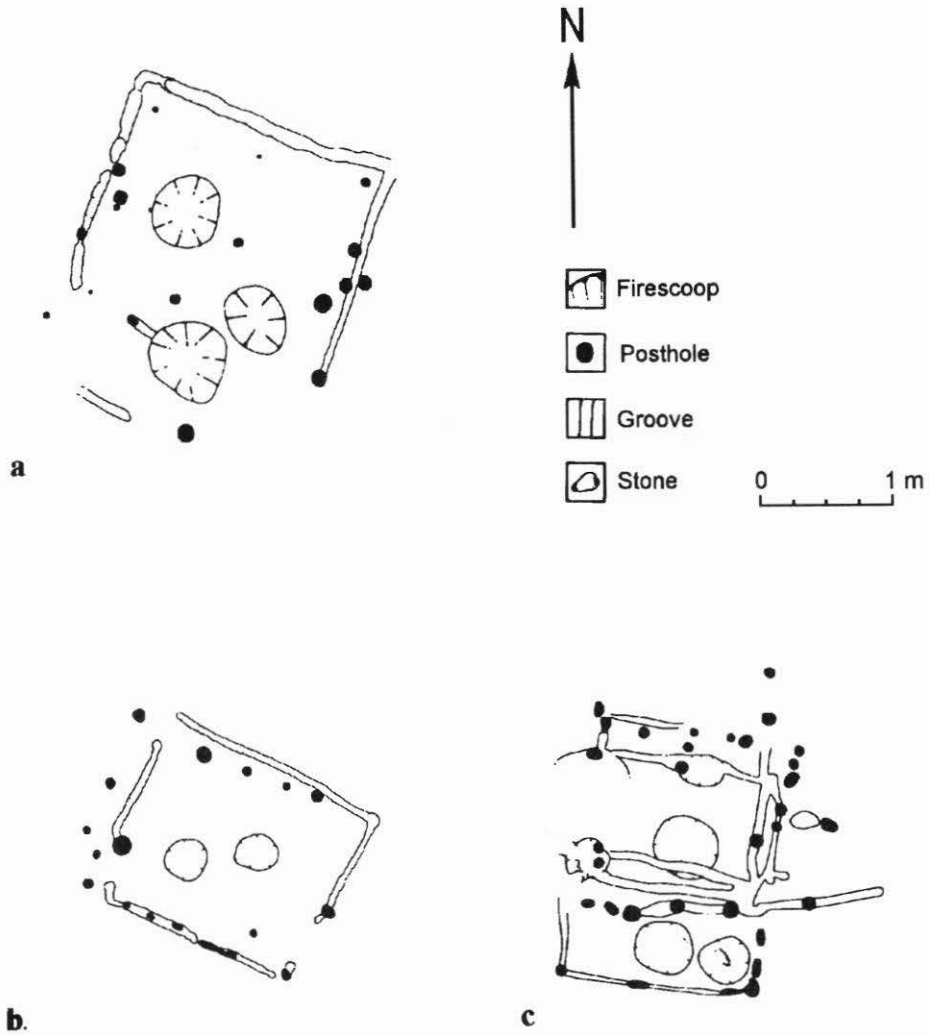

Figure 4: Details of house structures, site R11/1506. a, House 1. b, House 2. c, Houses 3 and 4.

and then the area was reused for further earth oven construction. All the features in this area were located beneath the midden deposit. The postholes and slots of the houses were filled with the midden layer and there was nothing that enabled a sequence to be made that clearly distinguished between the various slots and postholes present, although it was clear that at least one of the houses lay partially outside the palisaded area. This portion of the house also lay beneath the midden that had originally been piled against the palisade (see below), indicating that one of the houses pre-dated the palisading.

In the Auckland area there appear to have been three kinds of above-ground structures, all of which could have been used as houses. It is probable that they all looked similar and

differed only in the method of construction, which is left as evidence in the subsurface remains. The first kind of house has a wide geographical spread in the North Island. This had a frame of poles set in the ground leaving behind a rectangular outline of postholes. Houses of this type are well documented at Ruahihi (McFadgen and Sheppard 1984) where four of the small houses were 2–2.8 m wide and 3.5–4 m long, including the porch. Closer to the Tamaki River at Hawkins Hill (R11/1394), a similar house measured more than 3.25 m long and was 2.8m wide. None of the structures interpreted as houses at R11/1506 were of this kind, although they were similar in size to those at Ruahihi.

The second kind of structure is recognisable by its slightly sunken floor and has been found at R10/31, Motutapu (Leahy 1970, 1972), at Rahopara Pa, Castor Bay (R11/21 — Green 1970) and at Westfield (Furey 1983). In these cases the outline of the house is determined by the sunken floor rather than an arrangement of postholes. The size of these structures is in the range of 4 x 2 m to 2.5 x 2 m. Two shallow pits excavated at Fisher Road (R11/887) were larger and deeper than the shallow features mentioned above, but could have served equally well as houses or for storage. Excavation of the village site at Papahinu uncovered a number of similar shallow structures, at least one of which was clearly used as a dwelling (Foster and Sewell 1995).

The third kind of structure is represented archaeologically by postholes and grooves. Examples include structures at this site, Fisher Road and Hamlins Hill. The house at Orakei (Davidson 1984: 156) was of somewhat similar construction, with postholes and a continuous groove, although the arrangement of postholes suggests that a horizontal beam was placed in the groove with posts on either side.

In summary, the houses at this site were small and similar in size to those at Ruahihi and Hawkins Hill, although constructed with postholes and bedding trenches rather than postholes alone. There were at least two superimposed houses of post and groove construction at Hamlins Hill (Davidson 1970: 117); although the complete outline of these houses could not be determined it appears that they were larger than 3 x 2 m — in other words of similar size and construction to those at this site.

None of the houses contained any artefacts apart from a few flakes in House 2. These may have been associated with the earth ovens, which were probably stratigraphically later in the occupation sequence than the house. However, the lack of these items does not appear to be particularly unusual in Auckland, where evidence from Hamlins Hill (Davidson 1970), Fisher Road (Foster and Sewell 1989), Hawkins Hill (R11/1394) (Coates *et al.*), Papahinu (Foster and Sewell 1995) and R11/1188, Wiri, Manukau City (D. Veart, pers. comm.) suggests that stone flakes are not always found within houses.

Similarly, the association of hearths within houses in the Auckland area is weak. No hearths or other form of heating were recorded at Hamlins Hill (Davidson 1970: Fig. 4) or at R10/31 (Leahy 1972: Fig. 3), whilst at Westfield (Furey 1983), in the superimposed houses at Fisher Road (Foster and Sewell 1989) and at Hawkins Hill (Coates *et al.* 1996) the fires or ovens could be stratigraphically later.

MIDDEN

Five midden deposits were located. All except one, the largest, were within the area defined by the palisading. The exception was by the house/cooking area in the south-west of the site and lay immediately outside the palisade. Originally this midden was piled up against the palisade, where the deposit was *in situ*, but over time much had eroded and been redeposited within the palisaded area.

Grab samples were collected from each midden deposit for analysis as well as samples from several postholes and earth ovens. All samples were found to have essentially similar contents, containing shells, fish bone and small quantities of dog and rat bone. The primary shellfish species represented was cockle, *Austrovenus stutchburyi*, with smaller amounts of pipi, *Paphies australis*, and other soft shore and rocky shore species (Table 2). This is similar to most other Auckland sites, particularly in the predominance of cockle. Of the identifiable fish bone the major species was snapper, *Pagrus auratus* (seven), with trevally, *Caranx georgianus* (two), mackerel, *Trachurus declivis* (one) and mullet, *Aldrichetta forsteri* (one) also present, together with some vertebrae of a small shark species. Dog was not a major food item — its remains consisted of the fragmented remnants of a minimum of two dogs, one adult and one puppy. A very small number of bones of the Polynesian rat, *Rattus exulans*, was found.

TABLE 2

Proportions of shellfish by weight, R11/1506

P=Present

Species		% of total
Cockle	*Austrovenus stutchburyi*	82.87
Pipi	*Paphies australis*	11.10
Mudsnail	*Amphibola crenata*	1.24
Tuatua	*Paphies subtriangulata*	1.06
Cat's eye	*Turbo smaragdus*	0.85
Scallop	*Pecten novaezelandiae*	0.73
Arabic volute	*Alcithoe arabica*	0.50
Mussel	*Perna canaliculus*	0.42
Small gastropods		0.28
Dark rock shell	*Haustrum haustorium*	0.25
Melagraphia	*Melagraphia aethiops*	0.21
Whelk	*Cominella adspersa*	0.19
Turret shell	*Maoricolpus roseus*	0.19
Rock oyster	*Crassostrea glomerata*	0.11
White rock shell	*Thais orbita*	P
Dosinia	*Dosinia* sp.	P

The types of shellfish present indicate the exploitation of estuarine, rocky coast and open coast ecological zones, all of which would have been within easy access of the site. Cockles could have collected from the Tamaki river mouth itself with the other species available only a little further afield in the Manukau and Waitemata harbours and the islands of the Hauraki Gulf. However, the small numbers of fish bones present could suggest that fishing (or at least fish processing) was not a major activity at this site. Alternatively, the dogs on the site may have eaten most of the fish scraps. It is possible that the small quantity of fish bone is a result of sampling error, but a similar general lack of bone material is not uncommon in many Auckland sites within the volcanic areas such as the Cryers Road sites (Fredericksen and Visser 1989), the Fisher Road sites (Foster and Sewell 1988), Westfield (Furey 1983; Sewell 1992) and Hawkins Hill (Coates *et al.* 1996).

PORTABLE ARTEFACTS

Almost the entire collection of stone material came from the vicinity of the raised lava in the centre of the site which appears to have functioned, at least in part, as a stone working floor. With the exception of obsidian sourcing the stone material was analysed and sourced by K. Prickett (Auckland Institute and Museum). P. Moore (Waihi) sourced the obsidian, which is thought to have come from Coromandel, Mayor Island and possibly the Taupo volcanic zone. The artefactual material is fully described by Prickett (1993) and is only briefly summarised here.

Motutapu and Waiheke Island beds were identified as the source for the 3 greywacke adzes, 2 drill points, 44 adze fragments, 5 hammerstones and 443 flakes and cobbles. In addition, one adze and three flakes of basalt were sourced to the Tahanga basalt quarry. Also from Coromandel sources came three pieces of grindstone, and one chert and one andesite hammerstone. One or two pieces came from further afield; for example a piece of metasomatised argillite from Nelson/D'Urville Island and a non-Waitemata sandstone item. An unusual item recovered from the site was a small pendant fashioned from a water polished chalcedony pebble with a modified natural perforation. This is fully described by Prickett (1993).

The making and maintenance of adzes appeared to have been a major activity, whilst usewear on obsidian tools suggests that woodworking and possibly fibre working were other activities carried out. Amongst the artefacts recovered was a fragment of baked clay, possibly part of a disc. Baked clay items are not common and have only recently been recognised in archaeological contexts in New Zealand, being first described by Furey (1983: 26). Since then more pieces have been recognised from sites in Auckland and elsewhere (L. Furey pers. comm.).

The 130 pieces of obsidian found were analysed by Prickett. Of these, 58.5% was grey and the remainder green. Use wear was found on 58 pieces with most edges lightly damaged, possibly from scraping pliable materials. A few pieces with heavier damage could have been used for scraping wood or bone. Two pieces had snapped ends to create strong points for fibre working (Prickett 1993).

DATING

Five samples of marine shell (*Austrovenus stutchburyi*) were submitted for radiocarbon dating to the Radiocarbon Laboratory at the University of Waikato. Corrections of the raw age estimates for the Marine Reservoir effect, using the DSIR Marine Correction programme, are set out in Table 3. McFadgen (pers. comm. 1991) further analysed the corrected results and suggested that they can be pooled to provide an age of between 380 and 385 years BP. Although all the samples were taken from features on the site, it could be argued that in each case the material dated came from shells deposited later than the use of the feature. However, the archaeological evidence suggested a short occupation at this site and there was nothing to indicate a significantly later occupation from which the midden could be derived.

TABLE 3
Radiocarbon age estimates, site R11/1506

Identifier	Source	Conventional Age (old ½ life)	$\delta^{13}C$	Calibrated Age 95% Confidence level	Calibrated Age Median Age
Wk 1940	Earth oven	730 +/- 35	+0.3	AD 1483-1651	AD 1652
Wk 1941	Midden, SW cnr site	720+/- 35	+0.5	AD 1489-1656	AD 1571
Wk 1942	Midden, centre site	670 +/- 45	+0.2	AD 1503-1698	AD 1610
Wk 1943	Posthole, house 1	750 +/- 45	+0.9	AD 1461-1649	AD 1543
Wk 1944	Posthole, palisade	680 +/- 50	+1.1	AD 1491-1695	AD 1600
WK 1945	Midden, E. side site	690 +/- 50	+0.5	AD 1488-1687	AD 1594

The age estimates for this site are similar to those obtained for settlement elsewhere in the Tamaki area at Fisher Road and Hawkins Hill (Foster 1986: 248), Westfield (Furey 1983: Appendix VI; Sewell 1992: Appendix 3) and Hamlins Hill (Pearce and Walton 1983: 276).

Radiocarbon age estimates from grab midden samples from the lower terraces of the cone pā at Te Apunga o Tainui and Otahuhu (Sewell 1992: 47) suggest that at least parts of these pā were occupied during the same period.

DISCUSSION

The use of machinery to remove topsoil and to expose underlying features has proved its worth in Auckland's volcanic areas where a large proportion of a site can be recorded with the minimum expenditure of time and labour. Auckland experience has shown that the presence of a shell midden is usually indicative of something other than the casual disposal of waste after one or two meals. In particular, middens found close to good gardening soils suggest that evidence of more permanent occupation should be forthcoming. At this site, the digging of small conventional test holes only in the area where midden was known to exist might have revealed the occasional posthole, but would have not indicated its relationship to other features. Also, small exploratory excavations in areas where midden was absent would probably have missed many features entirely. Without extensive stripping the palisading might not have been found or, if encountered in a few places, might not have been correctly interpreted. As it is, the complete layout of a site of a kind previously unknown in the Auckland region was exposed.

It is probable that the site was occupied for a relatively short period of time, as a fairly limited range of archaeological evidence was present and there was little stratigraphic depth. Overall, the types of individual features excavated were similar to those found at the Fisher Road sites (Foster and Sewell 1988), Hawkins Hill (Coates 1986) and Westfield (Furey 1983, Sewell 1992). However, the range of features suggests that this site was functionally different.

The lack of stratigraphic correlations between the various parts of the site made it difficult to assign features to any particular point in a brief occupation. A further difficulty in interpreting the structure of the site is that many features away from the midden/oven rake out areas had been truncated, and it is not certain how many other postholes might originally have been present. However, sufficient features remained to delineate the structure of the main occupation of the pā.

The palisade was clearly the defining feature of the site. With the exception of one of the houses in the south-west corner, all the features are within the area defined by the palisade. A description of Whakatiwai, a flatland pā, by Wade in 1835, provides a point of comparison:

> Whakatiwai consists of a quadrangular enclosure about 400 feet along the front, by 200 feet in depth; the fence composed of stakes of all sorts and sizes, varying in height from ten to twenty feet, driven into the ground about a couple of inches apart, and having, at intervals, large posts, of which the upper part is rudely shaped in the semblance of a human figure, in as impressive an attitude of contempt and defiance as New Zealand ingenuity can achieve: usually representing the head thrust forward, with fierce staring eyes and protruding tongue. Some of these, at a distance, really looked like very valorous fellows standing on top of the fence. Outside, in all directions, are large mounds of cockle shells. The entrance is by an opening about two feet from the ground, just wide enough for one person; a block of wood driven into the earth serving as a step...(Wade 1977: 26)

Although Whakatiwai was a major pā, very much larger than the site under consideration here, the palisade described is very similar to that which could be envisaged at this site. Certainly the stakes driven into the ground 'a couple of inches apart' with larger posts at intervals are very similar. In this context, the four large postholes clustered along the northern palisade are of interest. They must have held much more substantial posts than any others on the site. They also faced directly towards the mouth of the Tamaki River. Any party approaching from that direction would have had a clear view of a structure or structures of the size indicated by the postholes. It is possible that these originally held large carved posts such as that drawn by Le Breton in 1840, set hard against a palisade (Wright 1955: 69). Alternatively, it is possible that they, along with another group of postholes on the southern side, could have formed parts of fighting stages associated with the entrances to the pā. However, as discussed above, the defences do not appear to have been of sufficient strength to withstand serious attack, making the need for such defensive structure dubious, although they would clearly have added to the overall impression of the site. The relatively insubstantial defences do not suggest a pā prepared for war. Rather it is likely that this was a peace-time site similar to the *pā tuwatawata* described by Best:

> In the case of a hamlet or collection of a few huts used as a temporary residence when sea fishing or fowling or working in cultivations, etc., the defences were not formidable. A comparatively light stockade, showing no carved posts or other elaborate work, was deemed sufficient, the approach of enemies causing the people to retire to their permanent stronghold. (Best 1975: 55)

Cooking in earth ovens appears to have been restricted to areas which, whilst within the palisaded area, are around the periphery of the site. However, not all the earth ovens relate to the same time period of occupation. Some are stratigraphically earlier and others later than the houses. Only the earth oven group at the eastern side of the site does not definitely post-date the houses, whilst two or three in the south-west corner pre-date houses 3 and 4. Possibly the later ovens could date to a time after the site was abandoned as a pā, when later visitors, either using the portages or gardening in the vicinity, found this a convenient spot to camp. The remnants of old houses could even have served as useful windbreaks.

Pit storage was clustered in the north-west where all pits are an aligned group. They were possibly all constructed at the same time as there was no evidence of intercutting pits or altered alignments. It is notable that whilst housing and cooking areas could vary in function during the course of the site's occupation, no similar change in use is indicated by the pit storage area. The presence of storage pits suggests that there were gardens somewhere in the vicinity of the site. Certainly, in the early nineteenth century gardens were present along the Tamaki River (Cruise 1974: 216) and it would seem reasonable to expect there to have been gardens associated with the earlier settlements on the river. As at this site, the nearby sites at R11/1201, Fisher Road and Hawkins Hill also had numerous storage pits. Although the volcanic soils of the area were favoured for cultivation, no evidence has been located as to exactly where gardens may have been situated.

The houses that were found were relatively small and did not exceed 3.5 m in length. In this respect they would have resembled more closely the small houses excavated at Ruahihi than the larger houses from Orakei, Hamlins Hill, Fisher Road and Westfield. However, apart from size, the posts and bedding trenches suggest that these structures within the pā were very similar in construction to the slightly larger houses at the nearby Fisher Road and Hamlins Hill sites.

The houses are small and it could be argued that Houses 3 and 4 and possibly House 2 (as there is no stratigraphic evidence to indicate that the ovens within it are definitely later

than the house) could have been used as cooking shelters rather than for sleeping. On practical grounds, however, this is considered unlikely. The construction of a substantial perimeter fence involving many days of work and containing within it pit storage, cooking and industrial areas presupposes that people would also have lived there. These factors, together with the structural similarity of the structures here to larger structure elsewhere that were undoubtedly houses, lead to the conclusion that they were indeed houses too.

Clearly, small houses such as those indicated by the postholes and slots here are not the larger, sometimes carved houses, but they may have been of the smaller sleeping house form (Davidson 1984: 155).

These houses were around the perimeter of the site. In one case (Houses 3 and 4) there was clear evidence of rebuilding of a house in the same location. Replacement of houses in the same location was also a feature of both the nearby Fisher Road site R11/899 (Foster and Sewell 1988: 36) and the later Papahinu site (Foster and Sewell 1995). It is possible that there had been a similar replacement of House 2, where it was unclear whether one or two houses were represented by the features recorded.

The site suggests a planned settlement with areas around the edge reserved for storage, cooking and housing, and with a clear space in the centre. This is similar to the arrangement identified at Mangakaware, a swamp pā in the Waikato (Bellwood 1978: 15) and tentatively suggested for the far larger swamp pā at Raupa (Prickett 1990: 142). One activity carried out in the central space was stone tool manufacture and use as, with the exception of two adzes found in Pit e and a few flakes found in an earth oven situated at House 2, the stone artefacts were found in this central area, partly over the surface lava flow (which would have restricted the use of the area for building), and over the area immediately adjoining to the north, indicating that this open space was used for industry (the making, maintenance and use of adzes and other stone tools).

At Mangakaware the central open space was identified as a marae (Bellwood 1978: 20). Possibly the open space at this site could also be so identified. In the south-east corner of the site there is a relatively clear space with two parallel posthole alignments running north-west–south-east. It is perhaps not too fanciful to suggest that this may have been the remnant of a larger house opening on to the central open space.

The site is well located, both for the occupants to see down the river but also for them to be seen by people travelling upstream. The four large posts facing the river and the most probable access route from the river suggest a degree of elaboration over a simple stockaded village. Similarly, the number and sizes of the pits also suggest that they were constructed with the intention of providing for more people than the few occupants suggested by the small number and size of the houses. The proximity of the site to two of the portages also hints that it could possibly have served as a focal point for several *whānau* living in the vicinity and been used as a family meeting place and for greeting travellers passing up or down the river.

All of the excavated sites in this area have produced similar dates, although it is not suggested that all were necessarily occupied at the same time. The stratigraphy at these sites does not indicate any great time depth in their occupation, although each site did have evidence of reconstruction, replacement or a change in use of an area. No sites have been found in this area that are noticeably earlier. Moreover, the charcoal analysis from all these sites indicates the presence of forest with little evidence of regenerating scrub. Thus both the ^{14}C and charcoal evidence tend to suggest that there was probably very little occupation in the area before about 400 years ago. At that time occupation would have consisted of scattered, probably seasonal, hamlets amongst the gardens. According to early European

visitors in the 1820s the major settlement was further downstream at Mokoia. Certainly no later historic period sites have been recorded from this lava field. Perhaps this indicates a change in settlement to a more nucleated pattern with no settlement in the gardens away from the main occupation site.

Given the imprecision of radiocarbon dating over the timespan involved in the human occupation of this area, it is not possible to establish the chronological relationships between the various sites, apart from a general similarity. However, it is possible to build up a picture of this part of the Tamaki River in the sixteenth century with productive gardens along the river banks and scattered through the podocarp-coastal forest, small settlements amongst the gardens, such the Fisher Road sites, and smaller or more temporary occupation sites such as that exemplified by site R11/1201, with the more formal palisaded site R11/1506 built at a prominent location on the river's edge.

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