



NEW ZEALAND JOURNAL OF ARCHAEOLOGY



This document is made available by The New Zealand Archaeological Association under the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License.

To view a copy of this license, visit
<http://creativecommons.org/licenses/by-nc-sa/4.0/>.

Prehistoric and Nineteenth Century Maori Settlement on Mana Island, Cook Strait: Excavations at Site R26/141

Michelle Horwood
Wanganui Regional Museum

ABSTRACT

Early nineteenth century settlements of the Ngati Toa tribe on Mana and Kapiti Islands and the adjacent mainland are historically documented. Little is known about the earlier inhabitants of this region, although according to traditional accounts it was occupied by several tribes including the Ngai Tara. This paper describes recent excavations in two areas of Site R26/141 on Mana Island, and the artefactual assemblages recovered. At least four cultural layers were encountered. It is concluded that the cultural sequence at Site R26/141 comprises two main occupations separated by several centuries. A range of activities are represented, including tool manufacture, fishing and hunting. A comparison is made with artefacts from other sites in the Cook Strait region.

Keywords: MANA ISLAND, COOK STRAIT, WELLINGTON, PREHISTORIC SETTLEMENT, HISTORIC SETTLEMENT, NGATI TOA, TE RANGIHAEATA, FISH HOOKS, ORNAMENTS, AWLS, ADZES.

INTRODUCTION

Mana Island, Te Mana o Kupe ki Aotearoa, lies in Cook Strait off Wellington's west coast (Fig. 1). There is a sheltered landing on the eastern side of the island and the main prehistoric settlement area (New Zealand Archaeological Association Site Number R26/141) extends for about 300 m along the beach ridge behind this. Part of this site was also occupied by a group of Ngati Toa in the nineteenth century.

Relatively little is known about prehistoric human subsistence in the Wellington region. The Paremata site (R26/122, formerly N160/50), on the mainland adjacent to Mana Island, is one of the earliest known sites in this area. It was also one of the most extensive before it was virtually destroyed by building development in the early 1960s. Rescue excavations were undertaken at Paremata in 1962, when three cultural deposits were distinguished: two prehistoric, the earlier containing remains of moa and other extinct birds, and the historic Paremata Pa (Davidson 1978: 203). A diverse range of faunal and artefactual material was recovered, although few artefacts could be ascribed to definite contexts. The disturbance and mixing of deposits encountered at Paremata and the small sample size enabled only very general conclusions to be made about the diet of the prehistoric inhabitants of this area.

For this reason an excavation was planned at Site R26/141 on Mana Island. The excavation took place over three weeks in early 1990 and involved a group of volunteers. The objectives were to explore the chronology of human settlement on the island; define prehistoric human subsistence; and, if possible, describe environmental change. Investigation of structures associated with the Ngati Toa occupation was not an objective.

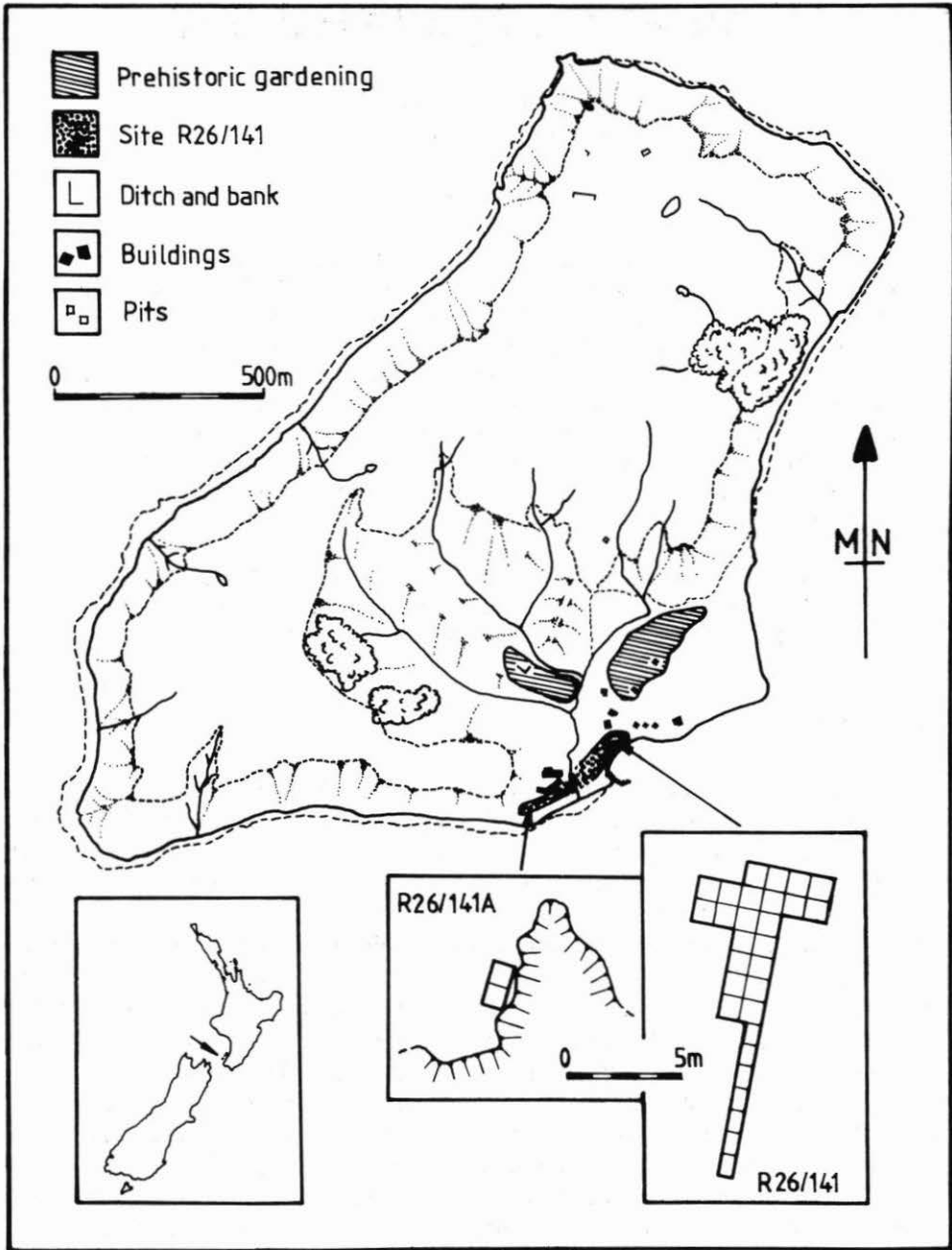


Figure 1: Location map of Mana Island, Cook Strait, showing archaeological features.

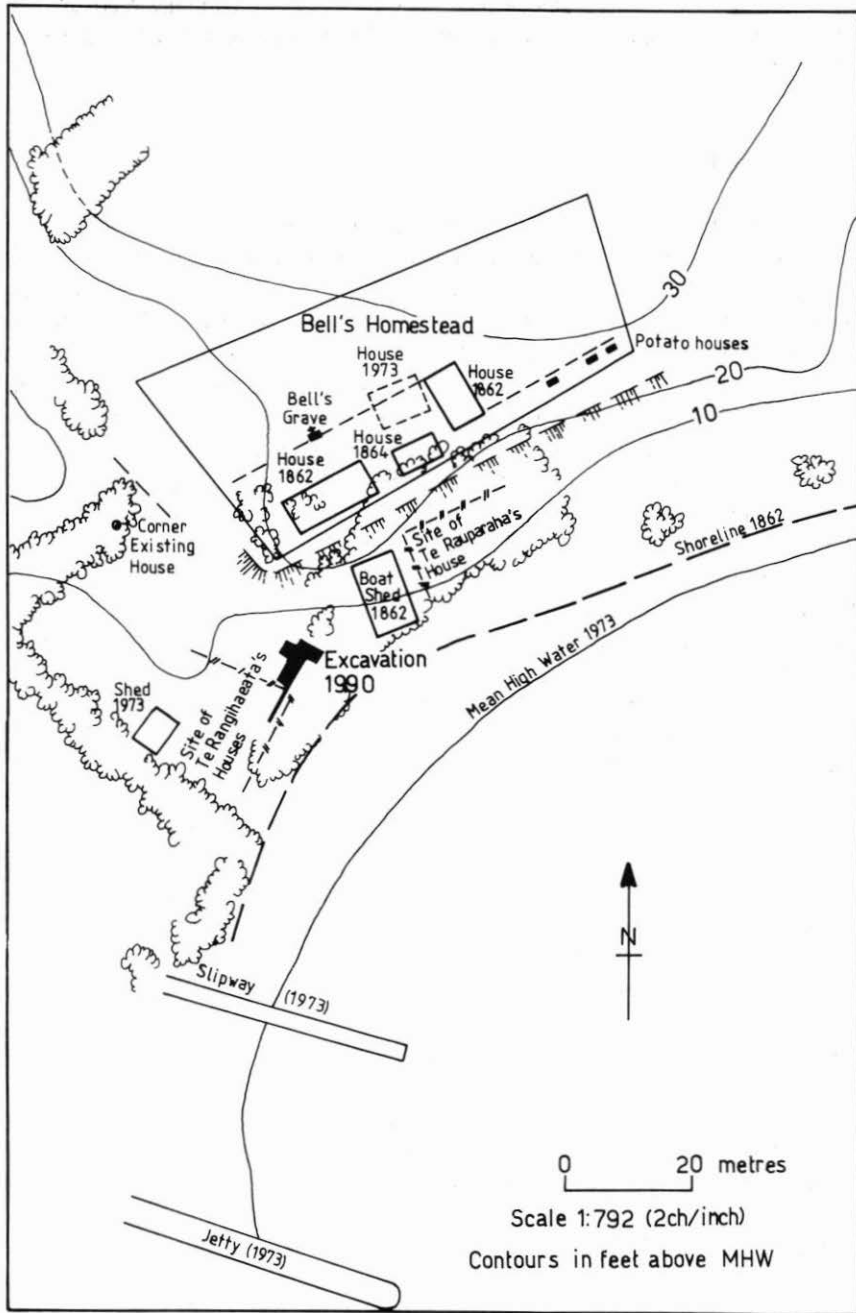


Figure 2: Location map of the landing area on Mana Island showing the Northern excavation at Site R26/141 as well as features from Swainson's 1862 map in relation to the modern topographical features (after B. G. McFadgen).

This paper describes the 1990 excavations and the artefact assemblage recovered. Studies of subsistence and environmental change are still in progress and will be the subject of a later publication.

PHYSICAL SETTING

Mana Island lies about 2.5 km off Titahi Bay and is about 2.5 by 1.2 km in extent. The island is an example of one of the oldest marine terraces in the Wellington region. Its basement rocks are dark grey argillites and greywacke sandstones capped by gravels of Pleistocene age (Timmins *et al.* 1987: 41). The island is bounded to the north, west and south by cliffs between 75 and 120 m high, which give it a flat appearance from a distance. It is in fact quite dissected on the eastern side by stream valleys which create a sheltered 'amphitheatre' enclosing a poorly drained flatland. Soils are silt or fine sand loams. In the vicinity of the bay, there is evidence of a long period of intermittent wind-blown sand deposition covering the slopes. The silty or sandy soils would have been well suited to prehistoric and nineteenth century gardening techniques (Jones 1987: 18). The climate is mild and frost free and prevailing winds, often gale-force, are from the north-west. The island is subject to drought.

The beach ridge on the eastern side of the island is of complex origin. Test-pitting showed that parts had been truncated by human action, especially in the immediate landing area. In places gravels and stones overlay mottled sands at a depth of about 1 m.

At the time of the earliest European contact, the vegetation appears to have been fire-induced grassland and shrubland (Jones 1987). In the early 1840s, Dieffenbach (1843: 112) visited the island and described it as follows:

Where trees formerly grew, in the hollows and indentations of the land, the soil is good; the rest is covered by fern, native and artificial grasses, and clover, which are all that can grow in the thin layer of vegetable earth that scarcely covers the yellow schistous clay of which the island consists. But this vegetation is suited for the pasture of sheep, of which there are about 200 on the island, in very good condition.

Timmins *et al.* (1987: 48-9) note a description of the island's vegetation in the unpublished field notes of B. C. Aston, written in 1911. The main vegetation cover, outside the 500-acre sheep run in grass, was "tussock Manuka and *Leptospermum*", with one deep gully containing a few native shrubs and trees. Today, the only indigenous forest stand on the island is in this gully. It is predominantly kanuka, with some mahoe, kawakawa, karaka and several understorey species. This stand merges into apparently fire-induced kanuka/manuka scrub (Timmins *et al.* 1987: 56). Shelter belts of pine and macrocarpa were planted earlier this century at several places on the island, including the beach ridge behind the landing area. Boxthorn is also present and makes a portion of the beach ridge inaccessible.

ISLAND HISTORY

Traditional accounts describe the Porirua region, including Mana Island, as occupied by several tribes, including the Ngai Tara and Ngati Ira, until the early nineteenth century

(Daniels 1965: 95). As the island's full name suggests, the traditional histories of the island go back to the famous explorer, Kupe (Reed 1952: 63).

The Ngati Toa tribe established a settlement on the island in the early 1820s after their migration south from Kawhia in 1821 and arrival on the Kapiti coast during the following year (Smith 1910: 392-3). The Ngati Toa leader, Te Rauparaha, occupied Kapiti Island (taken from the Muaupoko tribe in 1823), and also had a *pā* at Taupo (now Plimmerton) and a house on Mana Island. His brother, Nohoroa, the Ngati Toa *tohunga* (priestly expert), established a *pā* at Paremata (excavated by Davidson in 1962), while his nephew, Te Rangihaeata, settled on Mana. Its strategic position in Cook Strait, commanding extensive views north beyond Kapiti Island and south to the Marlborough Sounds at the northern tip of the South Island, as well as seaborne access along the coast and inland via the Porirua Harbour, was certainly advantageous for the war-like Ngati Toa. The proximity of abundant marine resources (described in the 1840s by Dieffenbach (1843: 110) for Kapiti Island, and Brees for the Porirua Harbour (Davidson 1978: 204)), sandy soils well suited to the cultivation of kumara (Jones 1987: 18), and the resources on the adjacent mainland, including European trade goods, were also attractions for settlement.

During this period, Te Rangihaeata built a beautifully carved house, Kai Tangata, on Mana. As Wakefield (1908: 196) wrote in 1840, Te Rangihaeata

had a magnificent wharepuni in the pa on Mana. The ridge-pole of the roof was at least twelve feet from the ground, and the front of the verandah was covered with the most elaborate carving (Wakefield 1908: 196).

This house was painted by George French Angas in 1844. When Angas visited the island, he found the settlement nearly deserted, but Kai Tangata as well as the tomb of Te Rangihaeata's mother (Te Rauparaha's sister), Waitohi, remained. Angas described Kai Tangata thus:

a wooden edifice in the primitive Maori style, of large dimensions, with the door-posts and the boards forming the portico curiously and elaborately carved in grotesque shapes, representing human figures, frequently in the most indecent attitudes; the eyes are inlaid with pawa shell, and the tattooing of the faces is carefully cut. The tongues of all these figures are monstrously large, and protrude out of the mouth... The portico or verandah... is about twelve feet deep, and the ridge-pole and frame-boards of the roof are richly painted in spiral arabesques of black and red... Above the centre of the gable-roofed portico is fixed a large wooden head, elaborately tattooed, with hair and a beard fastened on, composed of dog's tails (Reed 1979: 40).

Angas also painted Waitohi's tomb in 1844. Wakefield (1908: 81) described the *tangi* (mourning ceremony) for Waitohi on Mana Island on the 15th of November 1839 as "celebrated by some thousand natives of different tribes". The location of this structure is not certain, although Angas stated that it stood a short distance from Kai Tangata (Reed 1979: 84).

In 1832 the sale of Mana Island was negotiated between Maori and European. Te Rauparaha, Te Rangihaeata and Nohoroa 'sold' the island to Alexander Davidson, George

Bell and Archibald Mossman for a ship's cannon, two swivel guns, two kegs of gun powder and several shirts together valued at 24 pounds. Soon after this Davidson sold his share to Bell. Mossman sold his share to Frederick Peterson, a Sydney merchant (Day 1987: 8).

Bell was the first European settler on the island and began farming there in 1832 (Knocks MS: 1). In 1835 the brig *Children* called at Mana Island and collected the first wool clip from Bell's small flock of sheep. Mrs Bell and a nine-year-old orphan, John Knocks, joined Bell in 1836. At this time Bell also ran a small whaling station which was taken over by twin brothers, Alec and Thomas Fraser, in 1837 and leased from Peterson. The whaling station was still in operation in 1845 (Day 1987: 8).

Bell died in 1838 and was buried on the island in a rum cask because of the lack of suitable timber for a coffin. His wife is reported to have lived with Te Rangihaeata's people after this (Knocks MS: 4). Bell's estate passed to his father, Thomas Bell, who later sold his two-thirds share to Henry Moreing for 750 pounds. In 1841 Peterson sold his interest in the island to Moreing for 250 pounds.

Commissioner Spain investigated the purchase of Mana Island in 1843 and awarded the land title to Moreing, despite the fact that both the Ngati Toa and the Fraser brothers disputed Moreing's claim. The land ownership dispute continued until 1865 when the Crown purchased the island and paid 300 pounds compensation to the Ngati Toa (Day 1987: 8).

A map of the island produced by Swainson, a Government Surveyor, in 1862 and annotated by Walter Mantell in 1865 provides information relating to the Crown purchase as well as showing the area of Bell's homestead, the position of Bell's grave and several potato houses. The sites of Te Rangihaeata's houses, Te Rauparaha's house and a boatshed are shown adjacent to the homestead.

During a period of building construction on the island by the Ministry of Works in 1973, an attempt was made to correlate features on the 1862 map with modern landscape features in order to avoid damage to, or destruction of, important historic sites. However, a drainage trench excavated at the northern end of the beach exposed a cultural deposit.

When the present archaeological project was proposed, an area at the north end of the beach ridge was selected for investigation with the aim of relocating the 1973 trench and associated midden deposit. This area was thought to be adjacent to and north of Bell's homestead as shown on Swainson's map. Since the excavation, however, further consideration has been given to this map. It now appears that the homestead and settlement depicted by Swainson fit neatly on the low spur that runs down to the north end of the beach ridge, rather than on the beach ridge itself as earlier thought (Fig. 2). After this adjustment, the potato houses in Swainson's map correspond with the kumara pits, Site R26/134 (McFadgen pers. comm.), and the 1990 excavations are seen to be adjacent to the site of Te Rangihaeata's houses.

Following Crown purchase, Mana Island was advertised as leasehold for 21 years at a rate of one pound per week. It was not until 1873, however, that any interest was shown. At this time a Mr J. F. Wright leased the island. This was the beginning of a century of leasehold farming. In 1973 the island was taken over by the Ministry of Agriculture and Fisheries as an exotic sheep quarantine and breeding station. When all sheep were slaughtered following a suspected outbreak of scrapie in 1978, the island passed to the Department of Lands and Survey, who ran a temporary cattle farming operation (Day 1987: 12-16). Cattle were removed in 1986 and the Department of Conservation began an ongoing revegetation programme. Today Mana Island is a reserve for endangered species, including the Macgregor's skink, the gold-striped gecko, the giant weta and the takahe.

PREVIOUS INVESTIGATIONS

In 1963 the Wellington Archaeological Society surveyed Mana Island. Sites were recorded primarily around the landing area and included a midden deposit and several groups of pits. When the 1973 drainage trench exposed a cultural deposit, the section was examined by a New Zealand Historic Places Trust archaeologist, J. R. McKinlay, who collected a midden sample for analysis. The deposit contained fish bone, bird bone, shellfish, and several Maori artefacts.

In 1985 Kevin Jones carried out an archaeological survey and management evaluation of the sites on the island for the New Zealand Historic Places Trust. This was designed to reinterpret the 1963 survey and to cover such features as the abandoned nineteenth century lighthouse site (R26/242) in the northwest corner of the island and prehistoric and nineteenth century Maori occupation. Evidence of Maori occupation is concentrated on the eastern side of the island in a strip parallel to the beach, on the raised beach ridge and the spurs running on to the swampy flat behind.

Jones dug sections through ditch-and-bank enclosures near the lighthouse and landing areas, and test pitted possible garden soils. He concluded that the ditch-and-bank enclosures near the lighthouse belong to the period 1865–1889, while the landing area enclosure may have been constructed as early as the 1830s. Prehistoric kumara gardening had taken place near the Maori settlement area, on the low, sandy hill slopes behind the beach ridge (Jones 1987: 22).

In 1989, Pamela Chester undertook a palynological study on Mana Island to determine the pre-settlement vegetation and aid the current revegetation programme; to date first human settlement as revealed by vegetation disturbance; and to determine land use practices after initial human settlement. She analysed two pollen sequences from a former wetland behind the beach ridge, and collected pollen samples from the ditch-and-bank enclosure investigated by Jones in 1985, as well as surface pollen samples. Her results suggested that manuka/kanuka dominant scrub, similar to the present forest remnant on the island, was widespread before the nineteenth century grassland. A conventional radiocarbon age of 560 ± 160 yrs B.P. has been obtained for the initial disturbance of the original coastal forest giving rise to this vegetation cover. The most likely calendrical age range for this date is A.D. 1275–1516 (Chester 1990: 107; Chester and Raine 1990: 120).

THE EXCAVATION

The 1990 excavations investigated two areas of the main occupation on the beach ridge. The first and larger excavation was about 20 m from high water at the northern end of the site, in an area where beach gravels interleaved with soils, natural and disturbed, from the adjacent hill slopes. The second excavation took place at the southern end of the site, where modern quarrying for gravel had exposed a layer of midden beneath beach gravel. Although this fell within the area designated as site R26/141 (which includes the whole of the extensive band of coastal occupation), it was assigned the number R26/141A. The two excavations are referred to here as the 'Northern site' and the 'Southern site' respectively.

Test pitting had been carried out along the beach ridge in late 1989, to determine the extent of Site R26/141. Thirteen test pits were dug over an area of about 80 m, from the northern end of the beach ridge to the current boat shed (located at the end of the slipway on Figure 2). All test pits exposed cultural material. This varied in both concentration and

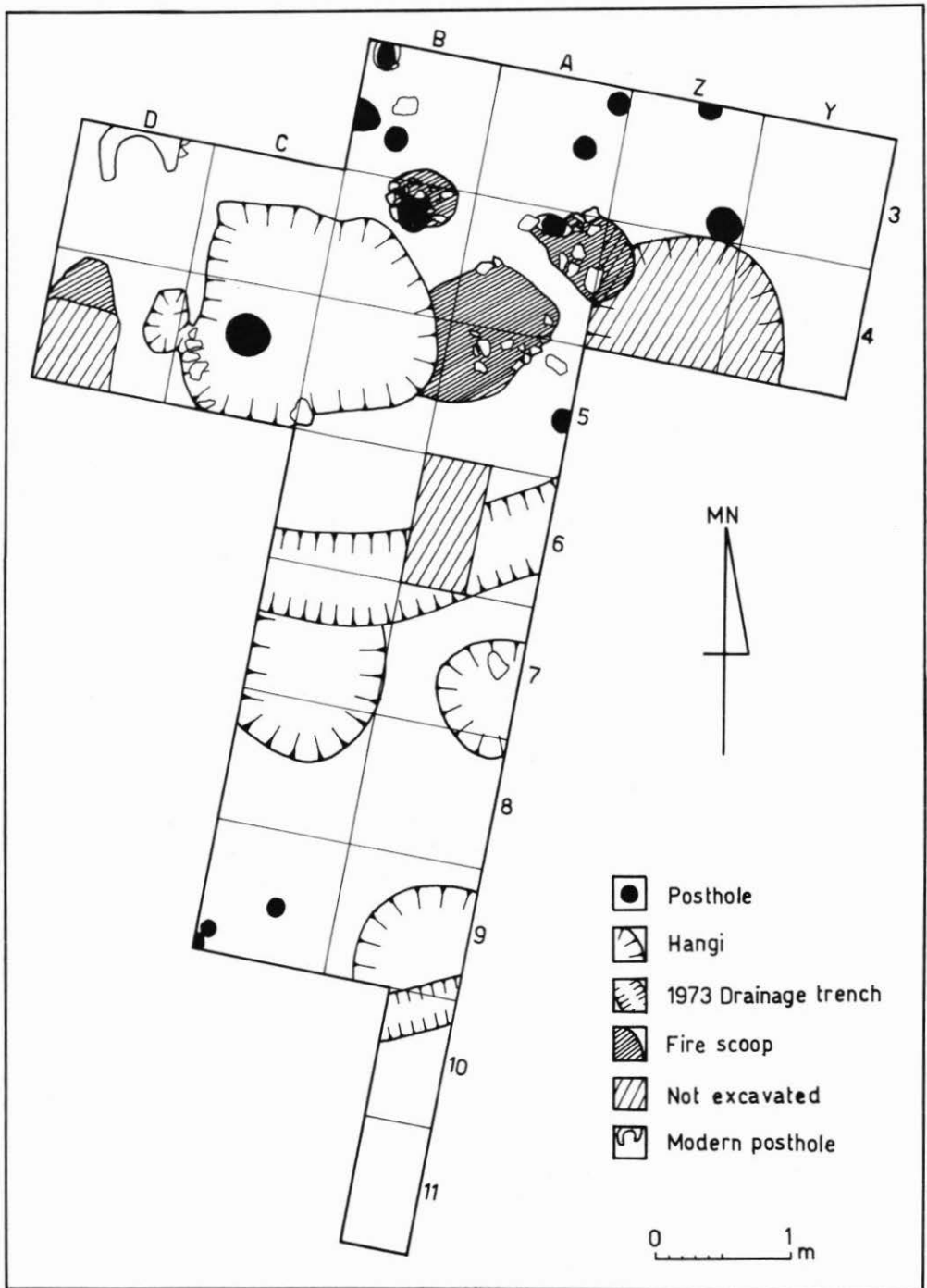


Figure 3: Plan of the Northern excavation, Site R26/141.

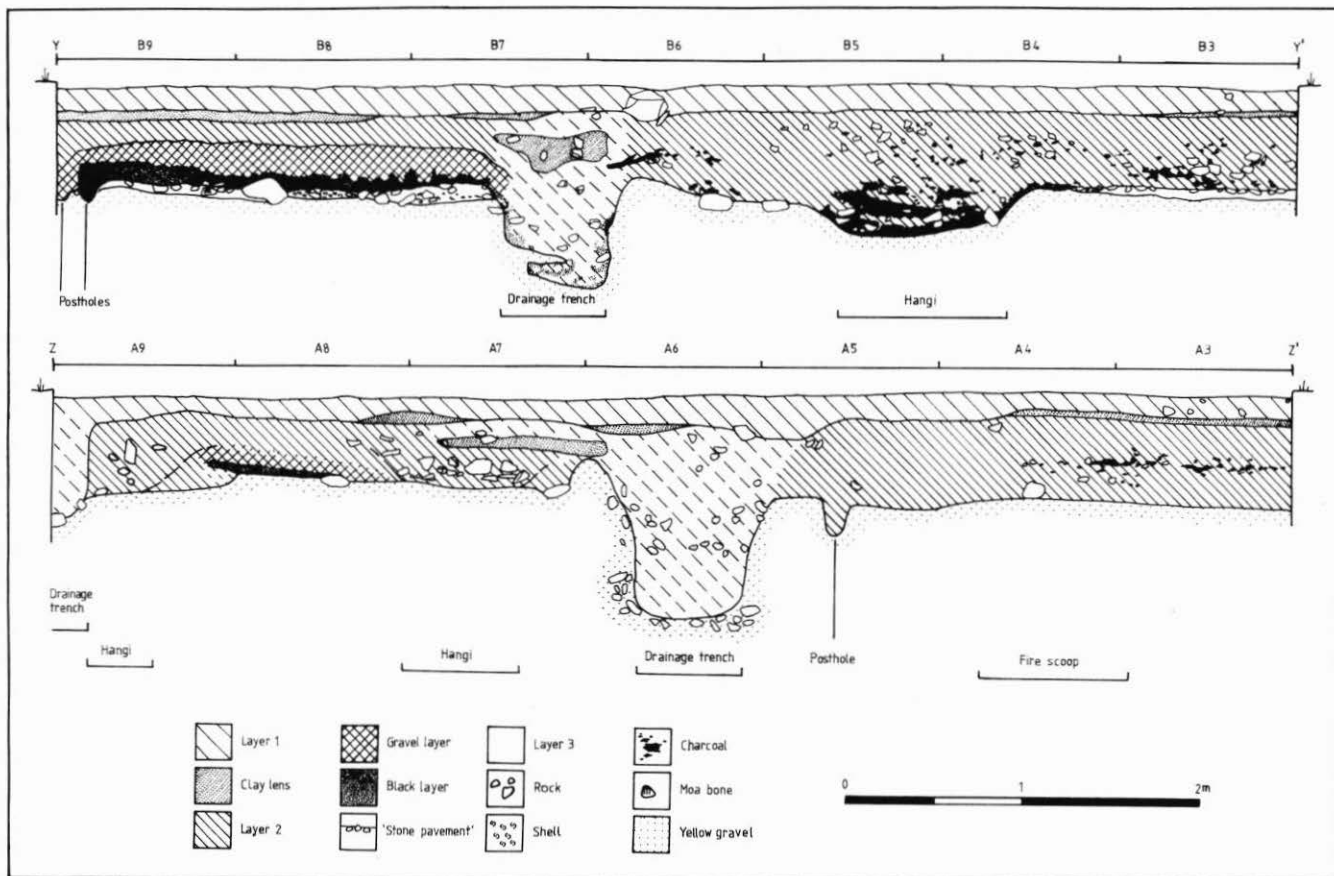


Figure 4: Cross-sections of the Northern excavation, Site R26/141. Upper: western section; lower: eastern section.

composition along the ridge. Although the drainage trench was not relocated at this time, it was clear that the cultural deposit at the northern end of the beach ridge contained abundant faunal material. South of the boat shed the deposit appeared very disturbed.

THE NORTHERN EXCAVATION

As one objective of the present research was to recover faunal material to provide information on subsistence, the intention was to relocate the 1973 drainage trench and the adjacent faunal-rich midden deposit.

Fieldwork therefore concentrated on this part of the site. The main excavation was an area of 22 m², aligned roughly north-south, with a 50-cm-wide trench extending a further 7 m to the south (Fig. 3). This area was excavated down to natural except for the western half of Square A6, where a large taupata shrub (*Coprosma* sp.) was growing, and Squares YZ4, where test pitting showed that a large *hāngi* had been cut through earlier deposits to penetrate the natural substratum. Because of time constraints these two squares were only excavated to a depth of 50 cm.

STRATIGRAPHY AND FEATURES

The uppermost layer of cultural material, Layer 1, consisted of a gravelly brown soil through which recent metal, plastic, window glass, chips from bricks and field tiles, and bones of farm animals such as sheep and cattle had been mixed (Fig. 4). There were also contact period European artefacts such as blue glass trade beads, fragments of ceramics, clay pipes and glass, as well as numerous shells and fish bones typical of prehistoric middens, small quantities of fragmentary human bone, and occasional Maori artefacts such as bone fish hook fragments. This layer formed a deposit up to about 25 cm thick, as well as filling the trench cut by the mechanical digger in 1973. This trench crossed the excavation roughly from east to west and cut through all cultural layers underlying Layer 1, penetrating some distance into the natural, a weathered yellow sand or fine gravel. Layer 1 also filled a second, smaller V-sectioned trench, roughly parallel to the first and about 3 m further south (see Figure 3, Squares A9 and A10).

Scattered within Layer 1, but concentrated towards its base, were a number of lenses of yellow sand/gravel. These were similar to the yellow substratum, and were probably spoil from the digging of the bottom of the trench. Layer 1, therefore, was interpreted as a mixture of spoils from the various layers as well as surface material scraped together during the mechanical refilling of the trench and levelling of the area.

Beneath these deposits was Layer 2, a dark brown gravelly soil containing a range of contact period European artefacts, such as glass, ceramics, clay pipe fragments, blue glass trade beads and musket flints; numerous items of Maori material culture, such as bone fish hooks and stone tools; and abundant and diverse faunal remains.

The nature of the Layer 2 deposit varied over the site. The 1973 drainage trench appeared to dissect the site at a point where there was a change in the concentration of faunal and artefactual material. To the north of the drainage trench (Squares AB3456, CD45, YZ34), Layer 2 was a fairly concentrated, artefact-rich midden. To the south (in Squares AB789), although a stratum chronologically and physically similar to Layer 2 occurred, faunal and artefactual material were comparatively sparse. The vertical distribution of artefacts within this layer also varied. European artefacts, with the exception of two ceramic sherds and one

worked glass flake, were only recovered from the upper 30 cm of Layer 2, whereas Maori artefactual material, although present throughout this layer, was most concentrated beneath this to a depth of about 50 cm.

The main activities represented by Layer 2 appeared to be cooking and dumping. The excavation encountered five *hāngi* and four fire scoops associated with Layer 2; most of these were cut from a depth of about 35 cm and penetrated the lower part of Layer 2, earlier deposits and the natural substratum.

The presence of clay pipes, ceramics, glass, metal, and pig bones, particularly in the upper part of the layer, together with a range of Maori materials, means that the upper 30 cm of Layer 2 can be confidently attributed to the nineteenth century Ngati Toa occupation of Mana Island, and correlated with the settlement depicted on Swainson's 1862 map. The virtual absence of European material towards the base of this layer may indicate that the lower part was deposited before the Ngati Toa arrived on the island. However, it is more likely that the presence of European material primarily in the upper part of the layer reflects the occupation of the island by both Maori and European from 1832, almost ten years after the Ngati Toa first settled the area.

Below Layer 2 was a fine gravel which contained sparse faunal and Maori artefactual material. This gravel appeared to have been deposited by natural processes of wind and storm wave action. Cultural material was added as a result of natural processes and disturbances caused by later occupation. Pockets of similar gravel appeared in patches in Layer 2 above, but it could only be defined as an actual layer to the south of the 1973 trench in Squares AB789. It is probable that a continuous sheet of gravel was originally deposited over the whole of the excavation area, but only portions of it survived. As the ovens cut from Layer 2 were larger and more numerous north of the trench, the gravel deposit appeared to have been more disturbed and effectively destroyed in that part of the site. This suggests that considerable mixing of deposits occurred.

Below the Gravel Layer, and again only recorded to the south of the 1973 trench, was a charcoal-rich deposit in a fine gravelly matrix, containing some faunal remains and Maori artefacts. European material was absent. This Black Layer is almost certainly wholly prehistoric, and relatively early in the sequence at the site.

Below the Black Layer was a thin layer of pebbles and small stones which appeared to be a deliberately laid 'stone pavement'. This was present in patches in several parts of the excavation (Squares AB3, YZ3, A8, B9 and parts of AB4, B5, A7, B8, A9) and had probably once formed a single continuous surface. It is possible that this 'stone pavement' was naturally formed by wave action. However, the level surface of this layer, its composition as a single layer of closely spaced stones, and the fact that it did not seem to extend further west where the ground surface rose abruptly and then levelled off (as exposed in Squares C4 and D45) suggest it was a deliberately constructed feature. The function of the pavement is not known.

Beneath the remnants of the stone pavement was the earliest cultural deposit in this area, Layer 3. This layer contained moa bone fragments and one-piece fish hooks of moa bone, as well as fish, bird, fur seal and dog bone, shellfish and dog coprolites. It is likely that this was originally a continuous layer and the nature of the material it contained suggests that it was early.

Layer 3 rested on the natural, a weathered yellow sand or fine gravel. The level surface of the gravel and an abrupt rise on its western side suggest a terrace. Because of the proximity of the old shoreline it is possible that this terrace was formed by wind and wave

action. However, it may be artificial, cut into the natural substratum by the site's first occupants.

In summary, the stratigraphic sequence at the Northern site is: terrace (natural/artificial), Layer 3, Stone Pavement, Black Layer, Gravel, Layer 2, Layer 1.

Several postholes were evident in the northern excavation. Most were associated with Layer 2 and considering the proximity of Te Rangihaeata's houses, a number of possible interpretations of these features can be proposed. In Angas's 1844 lithograph, for example, a palisade is evident behind Kai Tangata; smaller houses are also depicted nearby. However, no regular pattern can be discerned in the excavated postholes, although several structures are obviously represented. A remnant of an adzed and burnt post butt was recovered from the posthole in Square A4. Two further postholes were cut into Layer 3 from the Black Layer, both in the southwest corner of Square B9.

In 1973 human bone was found in the cultural deposit exposed by the drain digging. Apparently the drain was then abandoned and a second drain dug. At this time specialists were called in to examine the deposit. The 7 m trench at the south end of the 1990 excavation exposed a disturbed area of cultural material intermixed with firecracked stone and various soils including the underlying yellow gravel. A sea mammal bone trolling lure shank was found near the surface in Square A13. The reason for this mixing of deposits was the presence of two further drains or trenches cut through the site at A12 and A13 and a considerable amount of disturbance adjacent to this. Far more disturbance by drain digging was encountered than expected.

Human bone was found in Layer 1 and the upper part of Layer 2 during the 1990 excavation. This bone was very fragmentary and some of it had been burnt. At least three individuals were represented. Several cranial fragments were found within the *hāngi* in Square C5. There are many accounts of cannibalism by the Ngati Toa, and several relate directly to Mana Island. For example, Wakefield (1908: 81) described this activity at the *tangi* of Waitohi, where Te Rauparaha "had killed and cooked one of the unfortunate Rangitane slaves...and had shared the flesh among his most distinguished guests." John Knocks, who lived on Mana Island as a boy for several years from 1836, described an episode involving the killing of a Maori slave, following which they "cut [the body] up and cooked it in the usual Maori manner, and shared out by Rangihaeata who kept a large share for his own use" (Knocks MS: 3). Evidence of cannibalism is, therefore, not unexpected at this site.

ARTEFACTS

The Bone Assemblage

The bone artefactual assemblage is dominated by fishing gear, reflecting the importance of the marine environment in the economy of the Maori inhabitants of Mana Island. Personal ornaments and other bone implements were also recovered from the northern excavation. Bone artefacts from Site R26/141 and R26/141A are listed in Tables 1 and 3.

Fish Hooks

Seven bone one-piece bait hooks or fragments were recovered; four from Layer 2, one from the Black Layer and two from Layer 3; one moa bone fish hook blank came from Layer 3

TABLE 1
FISH HOOKS BY TYPE AND LAYER
FROM SITE R26/141 AND R26/141A, MANA ISLAND

Site/Layer	Fish Hook Type								
	A	B	C	D	E	F	G	H	I
<i>R26/141</i>									
Layer 1	-	1	-	4	1	-	-	-	-
Layer 2 u	2	-	-	4	1	1	-	-	-
Layer 2 m	2	-	-	12	2	1	-	1	-
Layer 2 l	-	-	-	3	-	-	-	-	-
Gravel	-	-	-	-	-	-	-	-	-
Black	1	-	-	-	-	-	-	-	-
Layer 3	2	-	-	-	1	-	1	-	-
<i>R26/141A</i>									
	5	1	6	1	-	-	3	-	1
Total	12	2	6	24	5	2	4	1	1

A: one-piece bait hook; B: trolling lure shank; C: trolling lure point; D: composite bait hook point; E: barracouta hook point; F: undiagnostic fish hook point fragment or anomalous point; G: bone fish hook tab; H: shell fish hook tab; I: bone core from fish hook manufacture.

(NB: Layer 2 u = Layer 2 depth *c.* 25–35 cm, m = *c.* 35–50 cm, l = *c.* 50–65 cm.)

and one in paua shell from Layer 2. The bone used in one-piece hook manufacture included human, mammal and moa (see Table 2). All examples are broken, plain, U-shaped hooks. The most complete example (Fig. 5.3) would have had an incurved point and was from Layer 3. One further example, from the Black Layer, is represented only by the incurved point (Fig. 5.5). Two hooks are represented by the shank leg only (Fig. 5.2, 4) and one large moa bone example (Fig. 5.1), from Layer 3, has both the shank and point tips missing. A further specimen (Fig. 5.6) is represented by the point tip only and the final example (not illustrated) is a portion of a straight section from a one-piece bait hook in moa bone.

No one-piece hook from this site exhibits the ornamental serrations, lashing knobs, notches or barbs characteristic of the later (post-sixteenth century) styles of one-piece hooks. The presence of two moa bone one-piece bait hooks, or fragments, in Layer 2 may be a result of *hāngi* pits dug from Layer 2 which penetrated all earlier occupation layers at the site, thus mixing the different deposits. Alternatively, the later occupants at the site may have obtained moa bone from the earlier deposits for industrial use.

TABLE 2
FISH HOOK TYPES AND MATERIALS FROM SITE R26/141, MANA ISLAND

Fish hook type	Material							
	A	B	C	D	E	F	G	
Total								
<i>One piece hooks</i>	-	1	1	-	4	-	1	7
Subtotal	-	1	1	-	4	-	1	7
<i>Composite bait hook points</i>								
Plain, unbarbed	-	-	-	-	-	-	1	1
Plain, external barb(s)	-	-	2	1	-	-	-	3
Plain, internal barb	1	-	1	-	1	2	-	5
Fragment, most likely plain, internal barb	-	1	3	-	1	2	3	10
Plain double-sided barb	1	-	-	-	-	-	-	1
Serrated, internal barb	1	-	-	-	-	-	-	1
Serrated, multi-barbed "baroque"	-	1	1	-	-	-	-	2
Subtotal	3	2	7	1	2	4	4	23
<i>Barracouta hook points</i>								
Knobbed	1	-	-	-	-	-	-	1
Externally serrated	1	1	-	-	-	-	-	2
Serrated, knobbed	-	1	-	-	-	-	1	2
Subtotal	2	2	-	-	-	-	1	5
Total	5	5	8	1	6	4	6	35

A: sea mammal bone; B: human bone; C: mammal bone; D: dog incisor; E: moa bone; F: bird bone; G: unidentified bone.

One sea mammal bone trolling lure shank (Fig. 5.7) was recovered, unfortunately from disturbed material in Layer 1. It is circular in cross-section, grooved for lashing at the proximal end and tapered towards the distal end, the tip of which is missing.

Twenty-three of the fish hooks are composite bait hook points. The majority were from Layer 2, although four were from the fill of the 1973 drainage trench or disturbed surface material, probably originating from Layer 2. These bait hook points exhibit considerable variation in design. They are listed in Table 2, with the type of bone used in their manufacture (Ian Smith pers. comm.). It was not possible to determine the type of bone in five cases, nor to determine to species six of the mammal bone points. Mammals recovered from the site included dog, human and seal.

TABLE 3
BONE AND SHELL ORNAMENTS AND IMPLEMENTS
BY TYPE AND LAYER FROM SITE R26/141 AND R26/141A,
MANA ISLAND

Site/Layer	A	B	C	D	E	F	G	H	I
<i>R26/141</i>									
Layer 1	-	-	-	-	-	1	-	-	-
Layer 2 u	-	4	-	-	1	-	1	-	2
Layer 2 m	2	4	1	1	-	-	6	-	23
Layer 2 l	1	2	-	-	-	-	3	-	5
Gravel	-	-	-	-	-	-	1	-	-
Black	-	-	-	-	-	-	-	-	-
Layer 3	-	-	-	-	-	2	-	-	-
<i>R26/141A</i>	-	?1	-	-	-	-	-	3	6
Total	3	11	1	1	1	3	11	3	36

A: bone toggle; B: bone tube or fragment; C: human tooth pendant; D: shell imitation human tooth pendant; E: bone cloak pin; F: bone awl; G: bone needle; H: bone bird spear point; I: *Dentalium nanum* segment.

Plain, internally barbed hook points outnumber all other types of composite hook point. One composite hook point (Fig. 5.10), manufactured from human bone, is particularly spectacular. It was recovered from *hāngi* fill (Layer 2 m) in Square B5. This 'baroque' point is 112 mm in length, has one internal and two external barbs, an ornate lashing knob, two perforations for lashing, and serrations from the internal barb to the tip and the length of the external edge. The tip (Fig. 5.11) of what may have been a similarly ornate hook point was also recovered from Layer 2. Several unusual examples include one plain point (Fig. 5.16) with an external barb and a flat, circular base, and one point with an external barb and a straight shank that tapers towards the base (Fig. 5.15). One point (Fig. 5.14) has been manufactured from a dog incisor. It is externally barbed with grooves for lashing on the lower external edge.

Barracouta lure points were less numerous. One was recovered from the drainage trench, three from Layer 2, and one from Layer 3. Two of these are externally serrated, one possibly in human bone (Fig. 5.34), the other in sea mammal bone (Fig. 5.35); two are externally serrated with a knob, one possibly in human bone (Fig. 5.36), the other in unidentified bone (Fig. 5.37); and one in sea mammal bone has a knob only, although very eroded (Fig. 5.33). The last example is from Layer 3.

Two further fish hook points were recovered from Layer 2. One undiagnostic fragment is the tip of a fish hook. The other, anomalous, example (Fig. 5.32), is a small, fine, curved point (3.25 mm in width) with no barb and a straight base, the end of which is missing.

Ornaments

The most common personal ornaments from the Northern site were toggles, and bone tubes, which may be partly completed or fragmentary ornaments. These comprise three complete toggles and two complete tubes of albatross bone, one further fragment from an albatross bone tube, and fragments from one dog bone and five unidentified small bird bone tubes. All were from Layer 2. The most complete toggle (Fig. 6.2) is a beautifully finished example with a central perforation and notches cut into each end on the lower side.

The other ornaments, all from Layer 2, comprise a perforated human incisor, an imitation human incisor in shell (Fig. 6.8), 30 segments of *Dentalium nanum*, and a possible bone cloak pin (Fig. 6.19) with the perforation missing; this could also be a large needle. Ornaments are listed in Table 3.

Needles and Awls

Two awls were recovered from the Northern site, both from Layer 3. The larger example (Fig. 6.9) was manufactured from a mammal long bone, possibly human (Ian Smith pers. comm.), and is polished. The second awl (Fig. 6.11) is from the long bone of an unidentified small bird. A small albatross bone fragment with a polished point (Fig. 6.10) may represent the tip of a third awl. This last object was recovered from disturbed material on the surface of the 1973 drainage trench.

Ten bone needles were recovered from Layer 2 and one from the Gravel Layer. Smith (pers. comm.) has identified the bone where possible. It includes mammal (Fig. 6.14, 20) and bird (Fig. 6.21, 22) bone. Four needles are complete and range in size from 17.8 mm to 55 mm in length. One (Fig. 6.23) is rounded in section and has been burnt. All others have been worked from the shafts of long bones and in most cases still exhibit traces of the marrow cavity. One example (Fig. 6.14) appears to be the unfinished blank for a small needle. The two largest needles lack both the perforation and the tip. The four remaining examples are fragments only. One (Fig. 6.16) is a fragment including the perforation, two (Fig. 6.18, 17) are represented by the tip only, and the final specimen (Fig. 6.24) consists of two pieces from a section of long bone that may have been a needle.

Worked Bone

In addition to the unfinished bone tools and ornaments discussed above, 27 sections of worked moa, albatross, dog, ?human, small unidentified bird, whale and other mammal bone as well as sea mammal ivory were recovered. The industrial use of bone was evident in all occupation layers in this excavation except the Black Layer (see Table 4).

Moa bone makes up 30 percent by number of the worked bone and was present in both Layers 2 and 3. Most of the worked bone consists of sawn sections or flakes of bone which do not appear to be parts of finished artefacts. There were, however, several pieces of bone

TABLE 4
WORKED BONE BY SPECIES AND LAYER
FROM SITE R26/141 AND R26/141A, MANA ISLAND

Site/Layer	A	B	C	D	E	F	G	H	I	J
<i>R26/141</i>										
Layer 1	1	-	-	-	-	-	-	2	1	-
Layer 2 u	2	-	-	-	-	-	1	1	1	-
Layer 2 m	3	3	-	1	-	1	2	-	-	1
Layer 2 l	2	-	-	-	-	-	1	1	-	-
Gravel	-	-	-	-	1	-	-	-	-	-
Black	-	-	-	-	-	-	-	-	-	-
Layer 3	1	-	1	-	-	-	-	-	-	-
<i>R26/141A</i>	18	-	4	-	-	2	4	2	-	10
Total	27	3	5	1	1	3	8	6	2	11

A: moa bone; B: moa or human bone; C: bird bone; D: whale ivory; E: whale mandible or rostrum; F: whale bone; G: dog bone; H: mammal bone; I: human bone; J: unidentified bone.

that had been fashioned into objects for which the purpose can not be determined. One section of dog bone (Fig. 6.12) from Layer 2 has been sawn to form a curved end with a notch each side. Below this the bone has broken. It may be a broken tattooing chisel. One small section of moa bone (Fig. 6.13) from Layer 2, a fragment of a larger object, is polished and has a rounded end that is bruised. One section of bird bone from Layer 3, a possible awl, has been sawn down the long axis and a point fashioned at one end. A section of whale mandible or rostrum, recovered from the Gravel Layer in Square A8, has been sawn into a square, possibly a tab for a fish hook or ornament.

Pumice and Kōkōwai

Seven pieces of worked pumice were recovered, four from the upper part of Layer 2 and three from Layer 3. One piece, roughly 6 cm in diameter, resembles a lid for a pigment pot, as one surface has been cut flat although it has been shaped to a point at one end. One piece has been cut into a rectangle measuring 5.3 by 4.4 cm, and has flat surfaces, probably from use as an abradant. The remaining pieces have no particular shape and all exhibit scratch marks and abrasion wear from use for grinding or polishing.

Small pieces of *kōkōwai* (red ochre) were evident throughout Layer 2, and two fragments were collected from Layer 3.

The Lithic Assemblage

Analysis of the lithic assemblage from the 1990 excavations is still in progress. All stone has been sorted on the basis of artefact type (adze, adze preform, drill point, flake, file, saw/cutter) and stone type (metasomatised argillite or mudstone, argillite, greywacke, nephrite, sandstone, quartz, meta-tuff, schist, obsidian, chert, and unidentified stone (Phil Moore pers. comm.)). This information for stone artefacts excluding flakes (which are still under analysis) is presented in Table 5.

Adzes

Similar stone types, metasomatised argillites or mudstones and nephrite, appear to have been utilised for adze manufacture throughout the occupation sequence. A 'local' argillite was a

TABLE 5
STONE ARTEFACTS BY STONE TYPE AND LAYER
FROM SITE R26/141 AND R26/141A, MANA ISLAND

Site/Layer	A	B	C	D	E	F	G	H	I	J	KL
<i>R26/141</i>											
Layer 1	-	1	-	-	-	-	-	-	-	-	--
Layer 2 u	-	1	-	-	-	-	2	1	-	-	--
Layer 2 m	2	6	2	-	-	-	-	2	-	-	-1
Layer 2 l	-	1	-	-	-	-	-	-	-	-	1-
Gravel	-	-	-	-	-	-	-	-	-	-	--
Black	-	-	-	-	-	-	-	-	-	-	--
Layer 3	1	1	1	-	-	1	-	-	-	-	--
<i>R26/141A</i>											
	-	5	2	1	1	1	-	13	1	2	1-
Total	3	15	5	1	1	2	2	16	1	2	21

A: nephrite adze fragment; B: metasomatised argillite adze fragment or adze preform; C: Ohana metasomatised argillite adze or adze fragment; D: ?local argillite adze fragment; E: siltstone or very fine sandstone adze preform; F: adze fragment of unidentified stone; G: chert drill point; H: metasomatised argillite drill point; I: Ohana metasomatised argillite drill point; J: ?local argillite drill point; K: schistose/quartzose sandstone file; L: ?local argillite cutter/saw.

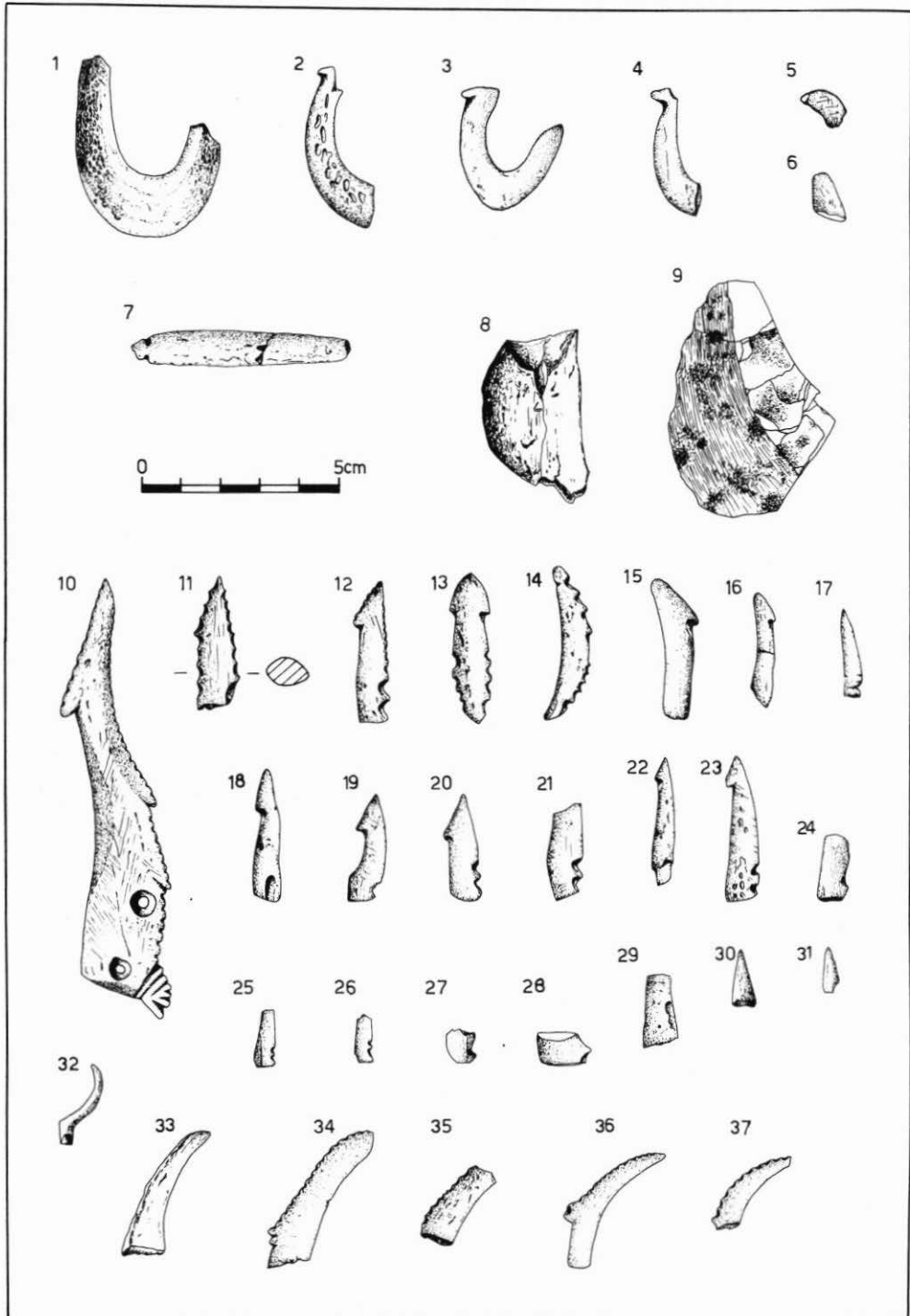


Figure 5: Fish hooks from the Northern excavation, Site R26/141. 1-6: one-piece bait hooks; 7: trolling lure shank; 8, 9: one-piece fishhook tabs; 10-31: composite fish hook points; 32: anomalous fish hook point; 33-37: barracouta lure points.

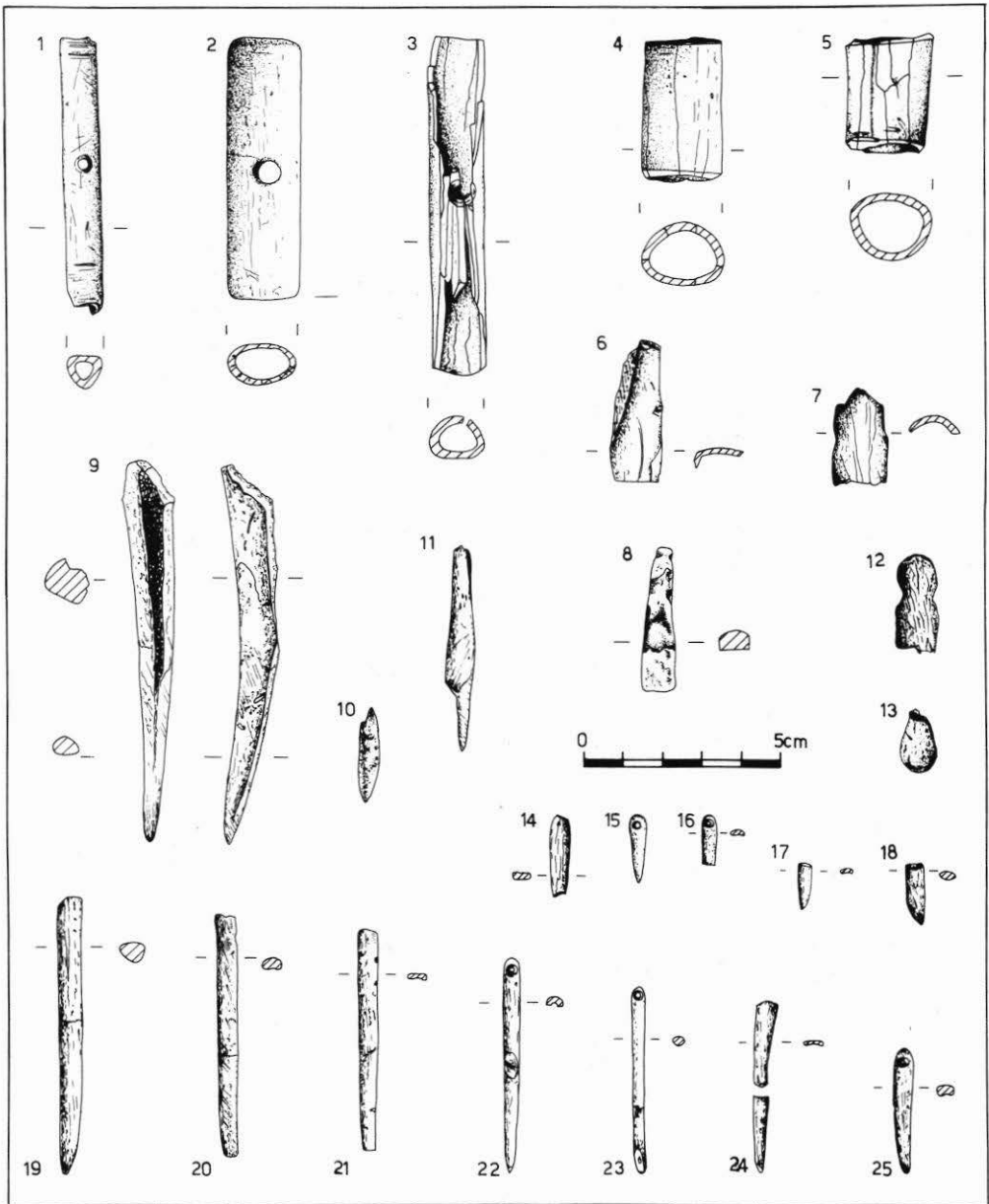


Figure 6: Ornaments and implements from the Northern excavation, Site R26/141. 1-3: bone toggles; 4-7: bone tubes; 8: shell imitation tooth pendant; 9-11: bone awls; 12, 13: worked bone; 19: possible bone cloak pin; 14-18, 20-25: bone needles.

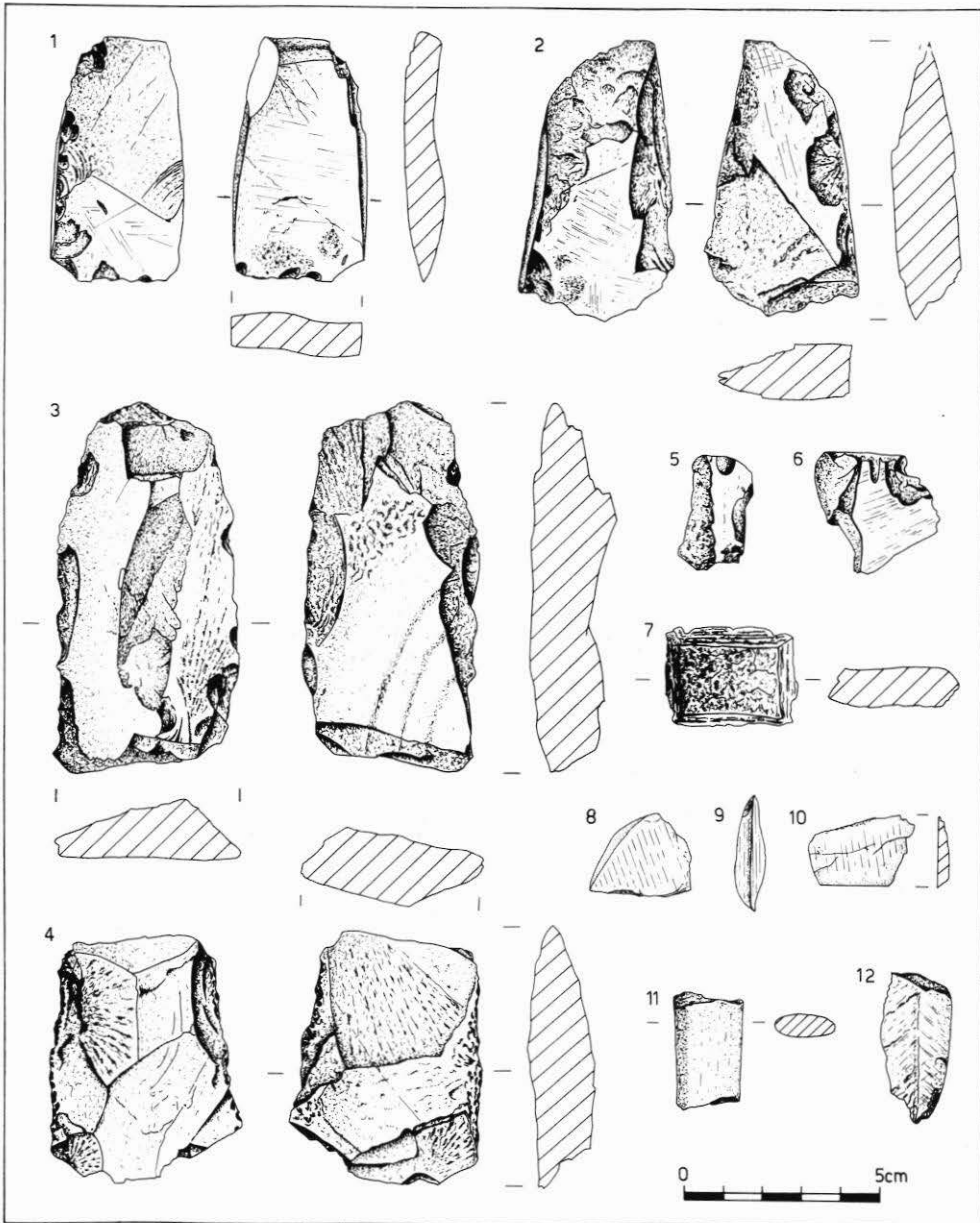


Figure 7: Stone artefacts and a possible metal adze from the Northern excavation, Site R26/141. 1-6, 8-10: stone adzes and adze preforms (note that in 1 the back of the adze is shown on the left); 7: possible metal adze; 11: file; 12: cutter/saw.

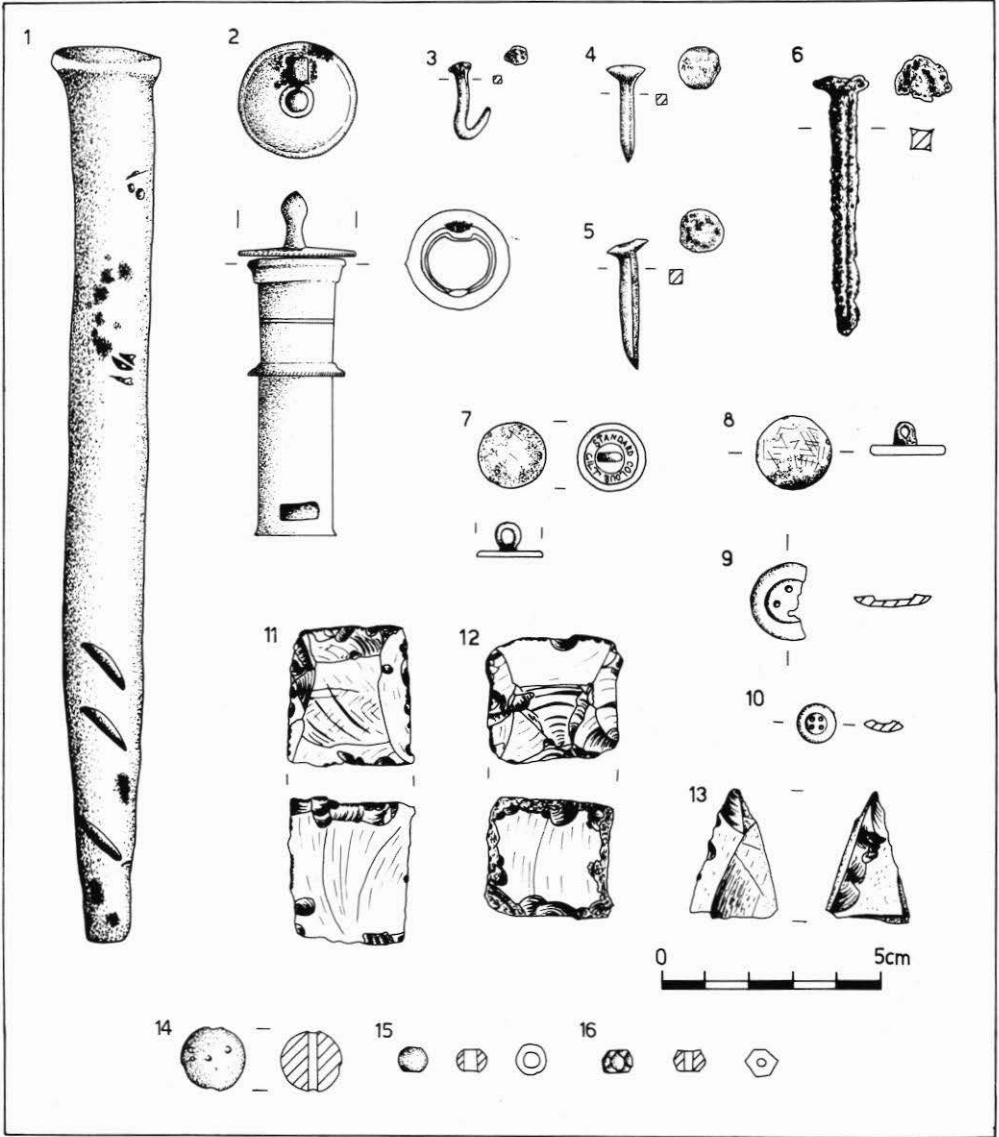


Figure 8: European artefacts from the Northern excavation, Site R26/141. 1: chisel; 2: percussion cap dispenser; 3-6: nails; 7-10: buttons; 11, 12: musket flints; 13: worked glass flake; 14-16: beads.

minor source during the earlier occupation period. Seventeen adzes, adze fragments and adze preforms were recovered. Unfortunately most were fragmentary. The most complete example is a small adze in Ohana metasomatised argillite (Fig. 7.1) from Layer 2 which has been reworked from a larger adze and polished on all surfaces. The butt has been broken. This adze most closely resembles a Type 2A in Duff's (1956) typology. The second finished adze (Fig. 7.2), also from Layer 2, is of black Nelson/D'Urville metasomatised argillite. Remnants of polishing remain on the front and back surfaces although the bevel and butt have been broken and most of the polished surface on one side lost.

The two adze preforms are both manufactured from a light grey metasomatised argillite. One (Fig. 7.4) is from Layer 2 and lacks the bevel end. The second (Fig. 7.3), a larger adze, is from Layer 3 and lacks both the butt and bevel. The remaining examples of adzes are only represented by chips that exhibit one or more polished surfaces. Two are depicted (Fig. 7.5, 6). Four types of metasomatised rock are evident, the pale grey stone with black veins from the Ohana source, a slightly darker grey stone, a black stone with grey stripes and the typical black Nelson/D'Urville metasomatised argillite.

Three fragments of nephrite, possibly from adzes, were recovered. One example from Layer 2 may be a polished section from the bevel edge of a small adze (Fig. 7.10); another may be a section (Fig. 7.9) from the side of an adze with two areas of polishing. Both of these fragments could also be from ornaments. The third fragment (Fig. 7.8), from Layer 3, is a thin sliver of nephrite with one surface polished and appears to be from the butt of an adze.

A broken schist file (Fig. 7.11) was recovered from Layer 2, as well as a thin, presumably 'local' argillite cutter or saw (Fig. 7.12). Six drill points from Layer 2 have been manufactured from two types of metasomatised argillite, including stone from the Ohana source, chert, and possibly a 'local' argillite (see Table 5). No drill points were recovered from Layer 3, although there is clear evidence that one-piece fish hooks were being manufactured.

Numerous stone flakes were recovered. Preliminary examination suggests that stone types include metasomatised argillites and mudstones, a pale green meta-tuff, a 'local' greywacke and a 'local' argillite, quartz and several types of chert and obsidian.

At least some of the metasomatised argillite recovered from this site was clearly derived from the Ohana source(s) on southern D'Urville Island, and it is possible that all metasomatised argillite came from D'Urville Island. The meta-tuff may be from a single source, presumably in the Nelson region. The chert is probably derived from Marlborough/Kaikoura or southeast Wairarapa sources (Phil Moore pers. comm.). Very little 'local' greywacke or argillite appears to have been exploited.

European Artefacts

European material is confined to disturbed material in Layer 1 and the drainage trenches and to the upper part of Layer 2. This is consistent with the known European contact and settlement history of the island.

One impressive object is a bronze spike (Fig. 8.1), 205 mm in length with a flat head, tapering from there to a point. The point has been modified to form a chisel-like tool. Best (1912: 295) describes the uses of such an object:

The natives of New Zealand...were not long in finding out the superiority of metal tools over those of stone, and soon showed their eagerness to acquire axes, hatchets, iron spikes, &c., the latter being ground to an edge at the lower end, and used as chisels in wood-carving, piercing holes in timber, &c.

Sixteen trade beads were recovered (Fig. 8.14-16). All except two were dark blue, transparent glass, faceted to form six sides, with a central perforation. The two exceptions comprise a similar although unfaceted bead, and half of a large, spherical, turquoise, opaque glass bead.

The ceramic fragments represent at least 19 vessels. One or more of three different types of stoneware jar are represented. Eight fragments are from one dish with an anchor motif and the word "SAILOR" on the base, and a maritime design on the upper side. Seven fragments exhibit variations on the willow pattern design and represent as many vessels. The remaining fragments are from an assortment of plain white tableware. The glass fragments were generally small and are predominantly black or green bottle glass. At least one fragment (Fig. 8.13) has been worked by flaking one edge. The clay pipe fragments include both stem and bowl sections, predominantly the former. Three bowls are decorated with vertical striations.

Two musket flints (Fig. 8.11, 12) and a percussion cap dispenser (Fig. 8.2) (Winant 1959: 260) were recovered. Other items included buttons in metal, glass and bone (Fig. 8.7-10), and a late eighteenth or early nineteenth century French copper coin or token (marked "pour 25 sous" on one side). Numerous metal objects include lead fishing weights, copper wire, percussion caps, iron and copper nails (Fig. 8.3-6). What might have been a small iron adze (Fig. 7.7) was recovered from Layer 1.

THE SOUTHERN EXCAVATION

On the beach ridge about 20 m beyond high water and 260 m south of the Northern excavation, a shallow midden deposit was exposed in section by the quarrying of beach gravels for fill within the last ten years. Fish bone, primarily snapper, dog and bird bone and shell were evident. The midden is located in an area that would have been advantageous for settlement as it is adjacent to the principal stream outlet on the island. It was initially assumed that this was the remnant of a once more substantial midden deposit now virtually destroyed by quarrying, erosion and fossicking. The intention of excavation within this area was to obtain a sample of this rich and apparently early deposit before it was completely destroyed by erosion and further fossicking.

The section was cleaned down to expose a single, shallow midden deposit about 5 m long. Leaving a baulk of 20 cm behind this section, a 2 x 1 m trench was excavated to natural.

A patchy surface layer appeared to be redeposited material resulting from the quarrying (Fig. 9). Beneath this was a 20-cm-thick layer of sandy soil, beach gravels and water worn rocks. The cultural deposit below this consisted of an extremely compacted, dense midden layer up to 22 cm deep with some stones but very little soil. Because of the richness of the midden and the small size of the excavation, the entire cultural deposit was removed for later sorting and analysis. Below this was another layer of beach gravels. This was exposed in the adjacent quarry scoop to a depth of 1 m, and is therefore regarded as the natural substratum of the site.

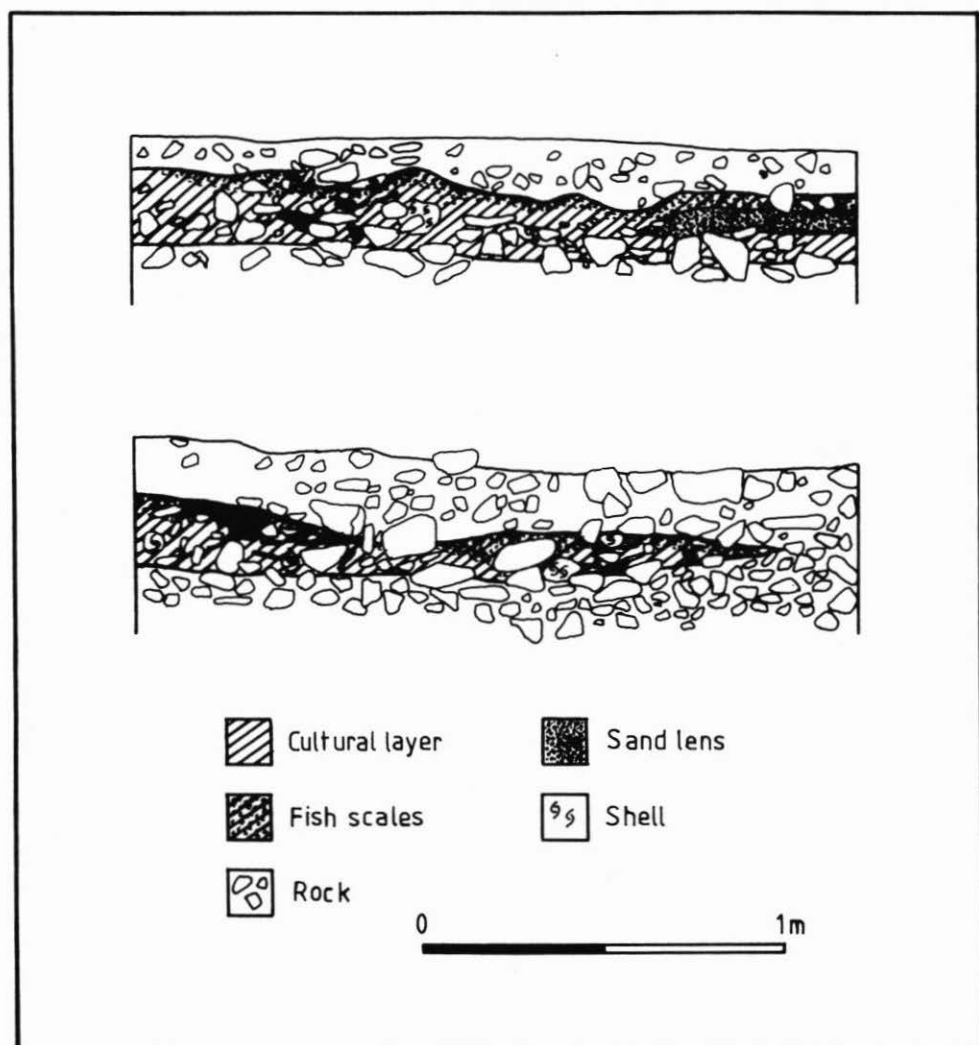


Figure 9: Cross-sections of the Southern excavation, Site R26/141A. Upper: western section; lower: eastern section.

Two discrete lenses were evident within this cultural deposit. In the northern half of the trench, in particular, although it did extend slightly south, a lens of fish scales about 3 cm deep was exposed. Below this a lens of black, clean sand was evident in the northern half of the trench only. This contained little faunal or artefactual material.

This part of the beach ridge settlement (called R26/141A) proved to be the eastern edge of a still substantial cultural deposit. Several test pits were dug in the vicinity to determine the extent of the site. Cultural material appeared to extend for more than 10 m to the west and south, and about 30 m to the north to the edge of the old stream channel.

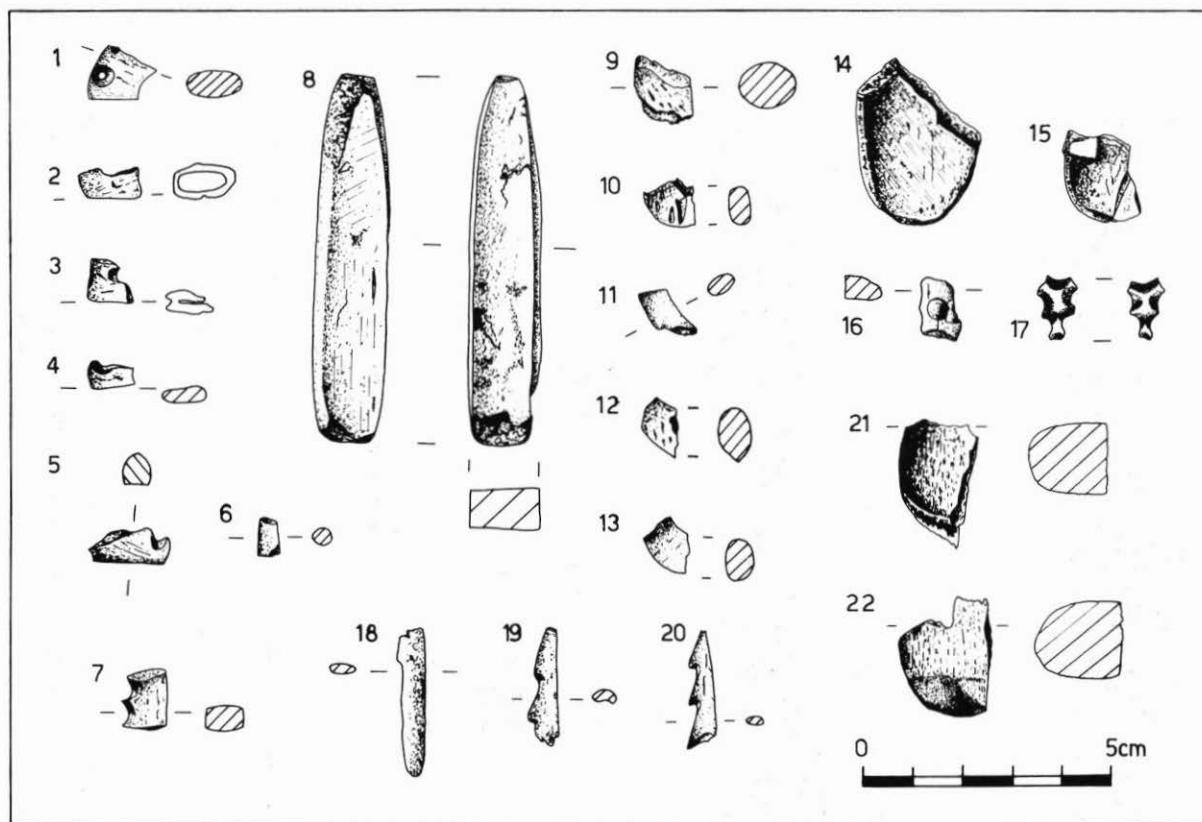


Figure 10: Fish hooks and bird spear points from the Southern excavation, Site R26/141A. 1-6: trolling lure points; 7: composite hook point; 8: stone trolling lure shank; 9-13: one-piece bait hooks; 14-17: one-piece fish hook tabs and core; 18-20: bird spear points; 21, 22: worked bone.

ARTEFACTS

A diverse range of artefacts were recovered from the 0.4 m³ of deposit excavated. Virtually all are fragmentary, but they illustrate a number of activities that were being carried out in or around the area of the Southern site (see Tables 1, 3, 4 and 5).

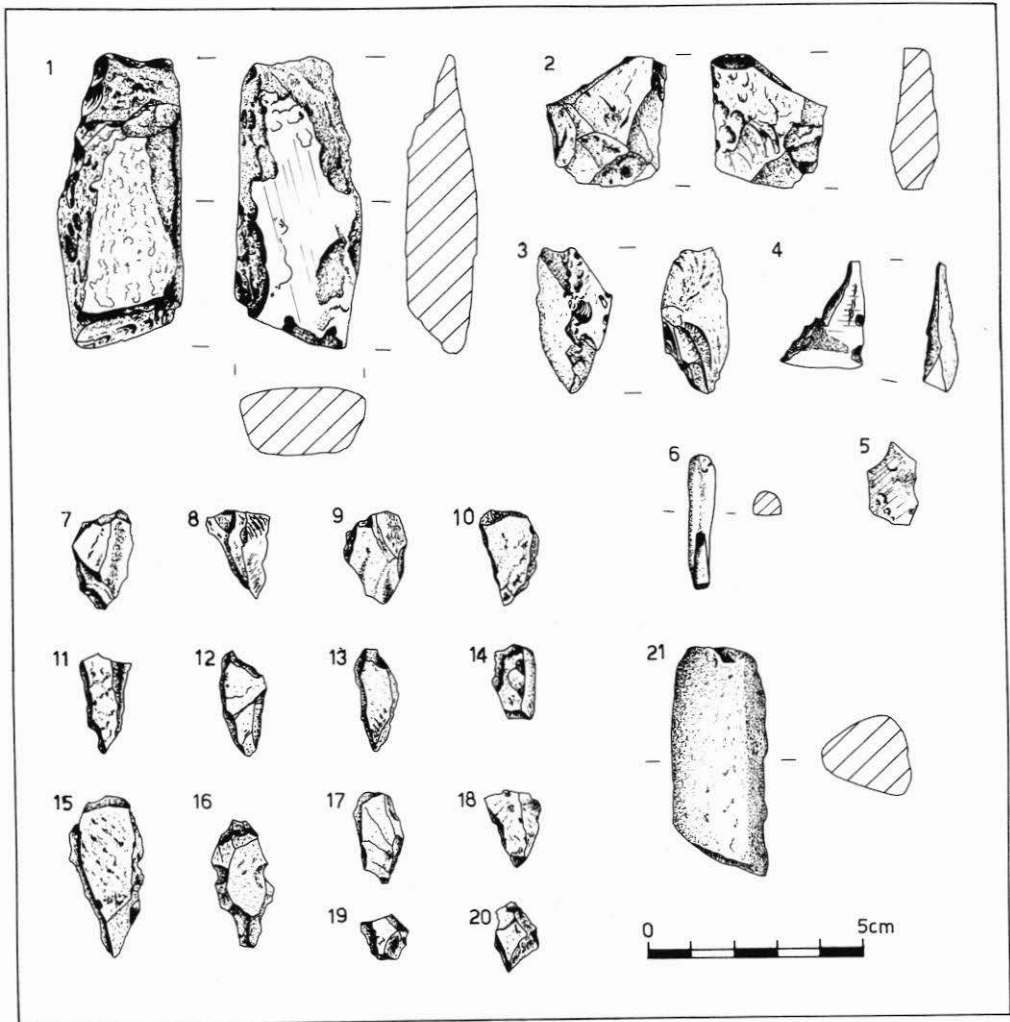


Figure 11: Stone artefacts from the Southern excavation, Site R26/141A. 1-5: adzes (note that in 1 the back view is shown on the left); 6: chisel; 7-20: drill points; 21: file.

Fish Hooks

Fragments of five bone one-piece bait hooks were recovered (Fig. 10.9–13). All are small sections from the bend of the hook, one in moa bone, one in sea mammal bone, one in mammal bone and two in unidentified bone. The sea mammal example is from a large hook and the mammal bone fragment appears to be burnt. One composite hook point (Fig. 10.7) in mammal bone is represented by a section of the shank with two lashing notches.

A stone trolling lure shank preform (Fig. 10.8) was collected while cleaning down the original exposed profile before excavation. This lure shank is rectangular in section, tapers towards one end and is manufactured from what appears to be a 'local' argillite. All surfaces have been ground. Fragments from the bases of five bone trolling lure points were extracted from the midden material during sorting. One, in mammal bone, has a single perforation and a lashing notch (Fig. 10.1). Another, broken at the single perforation (Fig. 10.4), has been burnt. Two other lure point fragments (Fig. 10.2, 3), one in sea mammal and one in mammal bone, each have a trace of a single perforation and one also has a cut mark across the base. The final trolling lure point (Fig. 10.5) is a different type with no apparent perforation. It is probably of sea mammal bone, has been burnt, and is represented by the base only with a distal extension for two lashing grooves. A small fragment of bone fish hook (Fig. 10.6), with a small (4.3 mm), circular cross-section and polished surface, may represent the mid-section of the tip from a sixth trolling lure point.

Evidence of hook manufacture includes two broken fish hook tabs (Fig. 10.14, 15) in moa bone with one or both sides polished, a small section of moa bone from the edge of a tab with two drill holes (Fig. 10.16), and one bone core (Fig. 10.17).

Bird Spears

Sections from three bone bird spear points were also extracted from the midden. Two (Fig. 10.19, 10.20) are from the tips of spear points. The smaller example is oval in cross-section and broken below the third barb, the other is broken below the second barb and is crescentic in cross-section, exhibiting traces of the bone marrow cavity on one side. The third section is from the butt of a spear point (Fig. 10.18), oval in cross-section and broken above the lowest barb. The remains of more than 100 tui (*Prothemadera novaeseelandiae*, by far the most common species present) were recovered from Site R26/141A. The appearance of bird spear fragments in this midden deposit is therefore not surprising.

Ornaments

The only possible ornaments recovered from this excavation were six small segments of *Dentalium nanum* and one possible bird bone tube fragment.

Worked Bone

Thirty-eight sections of worked bone were recovered (see Table 4). Eighteen are moa bone tabs and pieces of worked moa bone, four are bird bone, including the fragment of a bone tube mentioned above, four are dog, two unidentified mammal, and ten cannot be identified.

The bone from this site, in particular the moa bone, was very degraded. This made the identification of moa species extremely difficult, although *Euryapteryx curtus* and *Euryapteryx geranoides* were present (Phil Millener pers. comm.).

Most of the worked bone was fragmentary. However, eight sections of moa bone had been fashioned into tabs of various sizes. Four further fragments of bone, three bird and one dog, had been cut into small, parallel-sided objects which may represent needle blanks. One section of dog bone had been cut into a parallel-sided object with what appears to be a bevelled end, perhaps a small chisel. Finally, two small pieces of worked whale bone (Fig. 10.21, 22) were recovered. These fragments, 11–15 mm thick, are from the edge of a large object and exhibit traces of polishing on two sides. They may be fragments from a *patu* (short club) or a very large fish hook tab.

Pumice

Two pieces of worked pumice were recovered as well as several possibly worked examples. The former show definite traces of use for polishing or grinding and their presence is consistent with the other evidence of hook manufacture and bone working at this site.

Adzes

A range of worked lithic material was recovered amongst the midden debris. Although it is yet to be analysed in detail, the assemblage includes 7 adze fragments, 2 adze preforms, 16 drill points, almost 100 obsidian flakes, several stone flakes, a small modified pebble and a broken schist file (Fig. 11.21).

The most complete adze is a small preform (Fig. 11.1), manufactured from what is possibly a siltstone or very fine sandstone. It has been ground on one side and has a slightly trapezoidal section. The second preform (Fig. 11.2) is a fragment only from the bevel end of a small adze in a dark grey metasomatised argillite. The largest finished adze fragment (Fig. 11.4) is from the bevel edge of a small adze in metasomatised argillite with polished surfaces. The remaining adze fragments are very small flakes exhibiting one polished surface each, four in black and two in greenish-grey (possible Ohana) metasomatised argillite; two are illustrated (Fig. 11.3, 5). A small, elongated, possibly local argillite pebble (Fig. 11.6) with one end modified to form a bevel edge was also recovered. The 16 drill points (14 are illustrated—Fig. 11.7–20) are mostly made from a range of metasomatised argillites, although one example is possibly of a weathered 'local' argillite. Obsidian from several sources may be represented, although a grey obsidian predominates.

Some of the metasomatised argillite from this site was almost certainly derived from Ohana sources, and much of the rest could also be from D'Urville Island. Only minor use of 'local' argillites was apparent (Phil Moore pers. comm.).

DISCUSSION

Although radiocarbon dates are not yet available, it is clear the cultural sequence at Site R26/141 comprises two main periods of occupation, separated by several centuries. The earlier period is represented by at least three discrete cultural layers. Estimates of the ages

of the various deposits can be based on the faunal and artefactual components recovered, although the preliminary nature of the faunal analysis must be kept in mind.

The moa bone, both worked and unworked, from the Southern site and the earliest layer at the Northern site suggests an early date for these deposits. Worked moa bone was also recovered from Layer 2 in the Northern site, which is known to have been deposited during the first half of the nineteenth century. However, all moa bone in the upper layers at the Northern site was from the area north of the 1973 drainage trench and, apart from one hook fragment, from the surface of Layer 2 or from *hāngi* fill. In this part of the site, some mixing of deposits and the formation of Layer 1 had resulted from drainage activity. *Hāngi* construction during the Layer 2 occupation, which had penetrated earlier deposits and the natural substratum in several places, had also contributed to the mixing of deposits. Where Layer 3 was intact, particularly in Squares AB3, part of AB4 and the area to the south of the drain, moa bone was not found in Layer 2. The moa bone in Layer 2 may therefore be a result of the upward movement of material from Layer 3 during later activities. The one exception is the tip of what appears to be the straight point of a one-piece bait hook, from the lower part of Layer 2 in Square A3. This was the only such hook recovered from Site R26/141 and may indicate use of this type of hook by the Ngāti Toa on Mana Island. It is possible that moa bone was obtained from the earlier deposits through *hāngi* construction and used industrially.

The southern deposit is wholly prehistoric in character and interpretations of its components are not confused by mixing with later deposits as in the Northern site.

The stone trolling lure shank preform and the five (possibly six) lure points support a fairly early date for the Southern site, as this type of lure is an early form known to have been in use in the North Island until about A.D. 1400 (Davidson 1984: 65). Two types of lure points were recovered: four are uni-perforate with no extension of the base, a type well represented at Wairau Bar (Duff 1950: 202–3); the remaining example, with a grooved or notched distal extension of the base, was the only type found at Palliser Bay (Leach 1979: 103) and is represented by one example from Wairau Bar (Duff 1950: 212). This point from Mana Island differs slightly from the other Cook Strait examples, as it has two lashing notches rather than one. It is unfortunate that the stone lure shank was incomplete and the only fishing gear of this type from the Northern excavation, a notched or grooved bone lure shank, was from disturbed material. However, the former was *in situ* and shows that this type of fishing gear was being manufactured at the site from what appears to be a 'local' argillite. A local argillite was also used by the Palliser Bay inhabitants for the manufacture of this type of fishing gear (K. Prickett 1979: 172). The bone trolling lure shank is probably from the earlier deposits at the Northern site, as shanks of this type have been recovered from other early contexts, for example, the Sunde site on Motutapu Island (Davidson 1984: 64). A broken stone lure shank of a similar type from an uncertain but probably early context at Paremata (Davidson 1978: 220), and a further stone example from the Moikau site in Palliser Bay (N. Prickett 1979: 38) indicate that this grooved form, in stone, was in use in the lower North Island from the twelfth century.

Plain one-piece bait hooks are found in early sites throughout New Zealand, although it is not clear how long they continued in use (Davidson 1984: 67). The fragmentary nature of the bone one-piece bait hooks from the Southern excavation prevents detailed comparison with hooks from other early sites in the Wellington region. However, no decorative notches or serrations, typical of later bone one-piece bait hooks, occur on any fragment. The one-piece bait hooks from the Northern site do retain sufficient diagnostic characteristics to enable such a comparison. All are of the plain U-shaped type with a circular or oval

cross-section, with no bait notches or serrations. Three examples exhibit shank knobs similar to those on hooks from Wairau Bar (Duff 1950: 216), Palliser Bay (Leach 1979: 105) and Paremata (Davidson 1978: 220).

The notched shank fragment of a bone composite hook point from the Southern site indicates that this type of hook was used by the early inhabitants of Mana Island, although it does not appear to have been common during this period. This conforms with evidence from other early sites in the Cook Strait region. No hooks of this type were recovered from the earliest deposits at the Northern site, although two moa bone examples were recovered from *hāngi* fill in Layer 2. It is possible these points originated in Layer 3. However, as already mentioned, the moa bone may have been made available to the Layer 2 occupants for industrial use by *hāngi* construction which penetrated earlier deposits.

Bone bird spear points were fairly common in several Palliser Bay sites and Leach (1979: 106) classified them into several different types. The three fragments from the Southern excavation can be allocated to two of the categories defined by Leach. One tip and the butt fragment, having solid oval cross-sections, fit Leach's Type A, which in the Palliser Bay examples had four barbs. The remaining tip fragment is crescentic in cross-section and therefore fits Leach's Type C, which in the Palliser Bay examples is nearly always of bird bone with three barbs. The bird spear points from sites in Palliser Bay, dating from between the twelfth and fourteenth centuries, appear to have been predominantly used for taking tui (Leach 1979: 91). Tui were taken in abundance on Mana, as the faunal analysis from the Southern site indicates (Nichol pers. comm.). This may reflect a similar pattern of exploitation in a similarly early site. Bone bird spear points did, however, continue in use in New Zealand until the nineteenth century.

A date of 550 B.P., or A.D. 1400, is suggested for the Southern site. However, Nichol (pers. comm.) considers that the southern deposit cannot be a product of the earliest occupation on the island because the rather poorly rated shellfish present show the local environment to have been previously exploited.

The artefact assemblage from the Southern site reflects a diverse range of activities including fishing using trolling lures, one-piece and composite bait hooks, bird spearing, and tool manufacture and/or maintenance utilising mainly imported but also local lithic resources. Bone from a range of species, predominantly moa, dog and unidentified small bird, but also whale and possibly fur seal, was being worked at the site.

Settlement at the Northern site may have begun soon after A.D. 1400, if not before. The one-piece fish hooks from Layer 3, as well as the fish hook tab and worked section of moa bone, support an early date. It is possible that this material is not, however, the first evidence of occupation at the Northern site. Layer 3 was deposited upon a terrace, and if it is artificial, the construction and use of this terrace predated Layer 3.

The one barracouta point from Layer 3 at the Northern site, although incomplete, is plain, flares at the base and has what appears to be the remnant of a knob on the outer edge. The remaining barracouta points from this site are all from Layer 2, generally from the lower part of the layer, and all exhibit notching or serrations which, from South Island evidence, are typical of the later development of these points. No similarities beyond purported function exist between points of this type from Mana Island and the plain examples recovered from Palliser Bay. Barracouta points have not been recorded from archaeological sites further north than Palliser Bay (Davidson 1984: 65), and none were reported from Wairau Bar (Duff 1950: 213).

Bone awls have been found at early sites in both the South and North Islands. They are generally manufactured from bird or mammal long bone sharpened to a point with either

the proximal or distal end retained. At Wairau Bar, awls of this type have been found in association with bone needles (Duff 1950: 221), and an awl-like case containing needles was recovered from Palliser Bay (Leach 1979: 114). Examples of a more robust type of awl in moa bone were also found at Wairau Bar (Duff 1950: 222). The two awls from Layer 3 at the Northern site resemble the latter type. One is manufactured from mammal bone, possibly human, sharpened to a point and polished, the other is a fragment of bird bone shaft worked to a point at one end and polished. No needles were recovered from the earliest layers at this site although numerous examples were recovered from Layer 2. No bone awls were encountered in the later deposits.

After the deposition of Layer 3 there appears to have been an interval before the overlying Black Layer was deposited. During this time the 'stone pavement' was formed. The general similarity in fauna from the two deposits (Nichol pers. comm.), however, indicates that the interval was brief.

It is difficult to estimate the age of the Gravel Layer, which seems to have been naturally deposited as a result of wind and storm wave action. The faunal and artefactual remains within it are of little assistance as they appear to be derived from both the lower layers and Layer 2 above, and include several pig bones.

The presence of glass, metal and ceramics in the upper part of Layer 2 indicates that this deposit is post-European and associated with the Ngati Toa settlement on Mana Island in the nineteenth century. It is likely that the virtual lack of European material in the lower half of Layer 2 is due to the formation of this part of the deposit before European settlers arrived on the island.

The most numerous finished bone artefacts from the Northern site are composite bait hook points. These number 23 and encompass six different types. All were recovered from the area north of the 1973 drain except for one from the drain itself and two from disturbed surface material. Artefacts at this site were concentrated to the north of the drain. However, this area was also the most disturbed by Maori activities. It is likely that the majority of artefacts recovered from Layer 2 in this area did in fact originate in that layer. However, upward movement of some items originally from Layer 3 cannot be discounted.

Few similarities exist between the composite hook points from this site and those from other sites in Cook Strait. One exception is a point (Fig. 5.19) with a step at the base for attachment to the shank, a feature evident on points from the Washpool Midden (Leach 1979: 103, Fig. 17/N) and Black Rocks middens (Anderson 1979: 57, Fig. 3/H) at Palliser Bay, although the straight outer edge of these points is not repeated in the Mana Island example. This point was recovered from the base of Layer 2 in Square C4, a square in which remnants of Layer 3 were evident, and is probably of moa bone (Ian Smith pers. comm.). Layer 3 cannot be completely discounted as the original source of this point. Composite hook points from Paremata have some similarities with points from Mana Island, although in general there is more decorative notching on the Paremata examples. In the Mana Island assemblage, the only decorative notching is on the two large baroque hook points and one internally barbed example. Although many of the composite hook points are fragmentary, it is clear that the preferred form was a plain point with an internal barb.

Some similarities exist between the ornaments from Site R26/141 and those from Paremata, which was also occupied during the first half of the nineteenth century by Ngati Toa. One large bone toggle was recovered from a likely nineteenth century context at Paremata. In addition, a perforated human incisor, an imitation incisor in shell, a possible cloak pin fragment and several segments of *Dentalium nanum* are present in the Paremata assemblage (Davidson 1978: 221).

The imitation incisor pendant from R26/141 is a more realistic version of a tooth than that recovered from Paremata. Moreover, the 'tooth' itself is white, whereas the 'root' is stained by a naturally deposited red/brown material that was evident on a large number of shells in the midden deposit.

The one saw or cutter from the Northern excavation is of a slaty argillite (probably local) and is the only tool made from this type of stone from this part of the site. What appears to be a similar material was used in Palliser Bay for cutters or saws, particularly during the Level II occupation at the Washpool Midden Site dated to A.D. 1350 (K. Prickett 1979: 173).

Some change from prehistoric to post-European technology is evident within Layer 2, although many aspects of the former were retained throughout the layer despite the availability of European materials. Glass was used as a cutting tool but obsidian remained common throughout this occupation layer. The modified bronze spike indicates the adoption of metal tools for carving on the island. Only 4 of the 19 composite bait hooks from Layer 2 came from the upper 10 cm of the deposit. One of these is the moa bone example mentioned above, which may have moved upward in the deposit as a result of later activities. Alternatively, moa bone and other materials, much as metasomatised argillite, may have been obtained from the earlier deposits for industrial use by the nineteenth century occupants of the site. Although no metal fish hooks were recovered from this site, the less common occurrence of bone hooks during the latter part of the Ngati Toa occupation of the site may reflect access to European goods and consequent use of these new materials. However, it may also reflect the gradual abandonment of the site by Ngati Toa during the mid-nineteenth century.

The main activities represented by Layer 2, within the area excavated, were cooking, as indicated by fire scoops, *hāngi* and large quantities of firecracked stone, the dumping of food debris and other waste, and tool maintenance or manufacture. *Hāngi* had been dug from the middle of the Layer 2 deposit and penetrated earlier layers and in some cases the natural substratum. Bone from a range of species including dog, mammal, whale, human, albatross and small unidentified bird was being worked at the site, as well as stone from a number of sources.

The distribution of artefactual and faunal material within Layer 2 at the Northern site and to some extent the distribution of postholes indicate that activities varied within this area. Artefactual material, including worked bone and stone flakes, and the postholes are concentrated to the north of the drain. Immediately to the north of the drainage trench the two largest *hāngi* encountered at the site had been dug. To the south of the drain Layer 2 is a much shallower deposit containing less concentrated faunal and artefactual material. One posthole and three *hāngi* were encountered here. The *hāngi* had not penetrated earlier deposits to the same extent as those to the north of the drain.

The excavated area would have been within the nineteenth century Ngati Toa settlement, adjacent to the houses of Te Rangihaeata depicted on Swainson's 1862 map. An approximate date for Layer 2 can be derived from historical records relating to the movement of the Ngati Toa to the Porirua region and settlement on Mana Island by the early 1820s, and the arrival of John Bell in 1832. The exact duration of the Ngati Toa settlement on Mana is not clear. Te Rangihaeata is reported as stating on May 4th 1843, that the number of Ngati Toa residing on Mana at that time was "a hundred, backwards and forwards" (MS Case 257: 10). By 1844 the settlement appears to have been virtually abandoned; George French Angas found it nearly deserted when he visited the island to paint Kai Tangata (Reed 1979:40). This is reflected in the contemporaneous Ngati Toa

settlement at Paremata. Paremata Pa was still occupied by Ngati Toa in 1843 when the original survey of this area was undertaken. It was abandoned shortly after this, following the deterioration of relations between Maori and European settlers, and the commencement of the military occupation in 1846 (Davidson 1978: 207).

As Layer 1 is considered to be disturbed material largely derived from Layer 2, most of its contents probably also date from the early nineteenth century, while its formation is dated to the digging of the drainage trench in 1973.

CONCLUSIONS

The artefactual assemblage from Site R26/141 has some similarities with assemblages from other sites in the Cook Strait region. During the earlier period of settlement on the island there appears to be a mixture of styles previously known from sites on the northern side of the Strait and from Wairau Bar to the south. Trolling lures in stone and bone were in use. The associated bone points included both the uni-perforate type with no extension of the base and an unperforated type with a grooved distal extension of the base. Plain, U-shaped, one-piece bait hooks were also a relatively common piece of fishing equipment. Barracouta points and composite bait hook points were rare in the earlier period. However, when the island was reoccupied in the early nineteenth century, composite hooks had completely replaced the trolling lure and barracouta lures were more commonly in use. One-piece bait hooks were still common. Fish hooks were manufactured using stone drill points, schist files and pumice abraders during all occupation periods on the island.

Lithic material was imported from D'Urville island, the southeast Wairarapa or Kaikoura coast and possibly other sources, probably in the form of finished stone tools which may have been reworked on the island. Local stone appears never to have been especially important, although it is represented in all stone artefact types from the earlier occupation period.

Birds were hunted with bone pointed spears during the earlier occupation period. This tool was not represented in the nineteenth century assemblage, although this may reflect a decline in the availability of birds on the island. Bone awls were used by the early inhabitants but apparently not during the nineteenth century, whereas bone needles were found exclusively in the later deposit.

Evidence of early ornaments is restricted to segments of *Dentalium nanum*. By the nineteenth century, however, pendants were common as indicated by the numerous toggles and worked bone tubes, as well as tooth pendants, including an imitation form. Bone cloak pins were possibly present.

The midden at the Southern Site, reflecting previous exploitation of the local environment, was probably deposited around A.D. 1400, not long after first settlement of the island. At this time a range of activities took place, including tool manufacture, with fishing and bird spearing important. The first occupation at the Northern Site may have begun about this time, but the precise function of the site then is not known. The Layer 3 midden appears to be slightly later than the southern midden. The overlying deposits at the Northern site suggest a fairly rapid succession of changing functions with a 'stone pavement' overlying Layer 3 and the Black Layer immediately on top of the 'stone pavement'. The site then appears to have been abandoned from perhaps the late fifteenth century until the early nineteenth century. In the interim a natural gravel deposit blanketed the site. After

reoccupation by the Ngati Toa, the Northern site was a cooking and dumping area adjacent to Te Rangihaeata's residential complex.

ACKNOWLEDGEMENTS

Foss Leach and Janet Davidson encouraged me to initiate this project, and provided support and advice once it was underway. The Ngati Toa of Porirua, and particularly Lou Solomon, supported the project.

The excavators were Caroline McGill, Reg Nichol, Debbie Foster, Nigel Chang, Sue Wilson, Jadwiga Karas, Jon Verstappen and Jim Williams. Reg Nichol gave advice and assistance both in the field and during analysis. Trevor and Jan Hook and Phil Todd, Mana Island, offered hospitality and enthusiasm during the fieldwork.

Kevin Jones, Bruce McFadgen and Tony Walton assisted with fieldwork. Their discussions on settlement of Mana Island were greatly appreciated. Ian Smith, Trevor Worthy, Phil Millener, Rod Wallace and Phil Moore identified some of the various midden components. The New Zealand Lottery Board provided the financial assistance that made the project possible. The Department of Conservation gave permission for the site to be investigated, made storage facilities available and, together with the Wellington Archaeological Society, provided equipment. Staff of the Porirua Museum assisted with reference material. Three weeks leave to undertake the fieldwork was granted by the Board of Trustees of the Wanganui Regional Museum. The Museum also provided facilities for the faunal analysis.

REFERENCES

- Anderson, A. J. 1979. Prehistoric exploitation of marine resources at Black Rocks Point, Palliser Bay. In B. F. Leach and H. M. Leach (Eds), *Prehistoric man in Palliser Bay*, pp. 49–65. National Museum of New Zealand Bulletin 21.
- Best, E. 1912. *The stone implements of the Maori*. Dominion Museum Bulletin 4. Government Printer, Wellington.
- Chester, P. 1990. Quaternary palynology on Mana Island. *Archaeology in New Zealand* 33 (2): 107–108.
- Chester, P. I. and Raine, J. I. 1990. Mana Island revegetation: data from Late Holocene pollen analysis. In D. R. Towns, C. H. Daugherty and I. A. E. Atkinson (Eds), *Ecological restoration of New Zealand islands*. Conservation Sciences Publication 2, Department of Conservation, Wellington.
- Daniels, J. R. S. 1965. Site types and their distribution in the Wellington area. *New Zealand Archaeological Association Newsletter* 8 (3): 94–103.
- Davidson, J. 1978. Archaeological salvage excavations at Paremata, Wellington, New Zealand. *Records of the National Museum of New Zealand* 1 (13): 203–236.
- Davidson, J. 1984. *The prehistory of New Zealand*. Longman Paul, Auckland.

Day, K. (Compiler) 1987. *Mana Island*. Porirua Museum History Series 2. Porirua Museum and Department of Lands and Survey.

Dieffenbach, E. 1843. *Travels in New Zealand; with contributions to the geography, geology, botany and natural history of that country. Volume 1*. John Murray, London.

Duff, R. 1950. *The Moa-hunter period of Maori culture*. Canterbury Museum Bulletin 1.

Jones, K. 1987. Early gardening on Mana Island, Cook Strait, New Zealand. *New Zealand Geographer* 43 (1): 18–22.

Knocks, J. A. MS. Reminiscences of early Wellington and Mana Island, 1832–1840. Alexander Turnbull Library, typescript.

Leach, B. F. 1979. Excavations in the Washpool Valley, Palliser Bay. In B. F. Leach and H. M. Leach (Eds), *Prehistoric man in Palliser Bay*, pp. 67–136. National Museum of New Zealand Bulletin 21.

MS Case 257. Henry Moreing's claim to ownership of Mana Island before Commissioner William Spain, Porirua, 4 May 1843. 25 pp. Porirua Museum, typescript.

Prickett, K. E. 1979. The stone resources of early communities in Palliser Bay. In B. F. Leach and H. M. Leach (Eds), *Prehistoric man in Palliser Bay*, pp. 163–184. National Museum of New Zealand Bulletin 21.

Prickett, N. J. 1979. Prehistoric occupation in the Moikau Valley, Palliser Bay. In B. F. Leach and H. M. Leach (Eds), *Prehistoric man in Palliser Bay*, pp. 29–47. National Museum of New Zealand Bulletin 21.

Reed, A. W. 1952. *The story of New Zealand place names*. Reed, Wellington.

Reed, A. W. (Editor). 1979. *Maori scenes and portraits: illustrated and described by George French Angas*. Reed, Wellington.

Smith, S. P. 1910. *History and traditions of the Maori of the west coast North Island of New Zealand prior to 1840*. Memoirs of the Polynesian Society 1. Avery, New Plymouth.

Timmins, S., Ogle, C. and Atkinson, I. 1987. Vegetation and vascular flora of Mana Island. *Wellington Botanical Society Bulletin* 43: 41–74.

Wakefield, E. J. 1908. *Adventure in New Zealand from 1839 to 1844. With some account of the beginnings of the British colonization of the islands*. Whitcombe and Tombs, New Zealand.

Winant, L. 1959. *Early percussion firearms*. Herbert Jenkins, London.

Submitted 29 October 1990

Accepted 2 April 1991