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SURVEY AND EXCAVATIONS AT TE IKA-A-MARU BAY,
WELLINGTON, 1962-63.

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Abstract

In the summer of 1962-63. the Wellington Archaeological Society held a brief field season at Te Ika-a-maru Bay, west of Wellington. The season was seen as an opportunity to carry out an intensive survey of archaeological sites in the area, to map the largest of them, and to conduct a small excavation in two middens in the Bay in order to give members some training in this aspect of archaeological work. A limited field season from 28 December 1962 to 20 January 1963 accomplished these basic aims. While the excavations at the time yielded evidence of value in my own work on midden analysis, they also provided limited information of use in wider studies of the Wellington area, which it was always intended to publish. The results are presented here.

Te Ika-a-maru Bay is one of two adjacent northward-facing bays on the generally rugged and exposed west coast between Makara and Cape Terawhiti. Preliminary reconnaissance had suggested that it was unusually rich in sites, with two conspicuous pa, several areas of midden deposit, and other archaeological features. It thus seemed an eminently suitable location for a field camp which would combine recording and surveying with limited excavation by a small party of variable composition, the amount of work undertaken being limited by the size of the fluctuating labour force.

Analysis of material from the excavations was carried out in Auckland during 1963, and results of some aspects of the midden analysis incorporated in a wider study of that subject (Davidson n.d.:116-120). Although the fuller results, seen from the perspective of the present day, may seem slight, the present report has been thought worthwhile to place on record exactly what was recovered by one of the few archaeological investigations in the Wellington district.

THE SURVEY

A general map of the bay, on which the positions of sites were marked, was made by B.G. McFadgen (Fig.1). Thirteen sites (N164/13-25) were entered in the N.Z. Archaeological Association site record file. Large scale maps were made of the two pa sites (N164/13 and 14) and of an area of river flat with adjacent pit complex, regarded

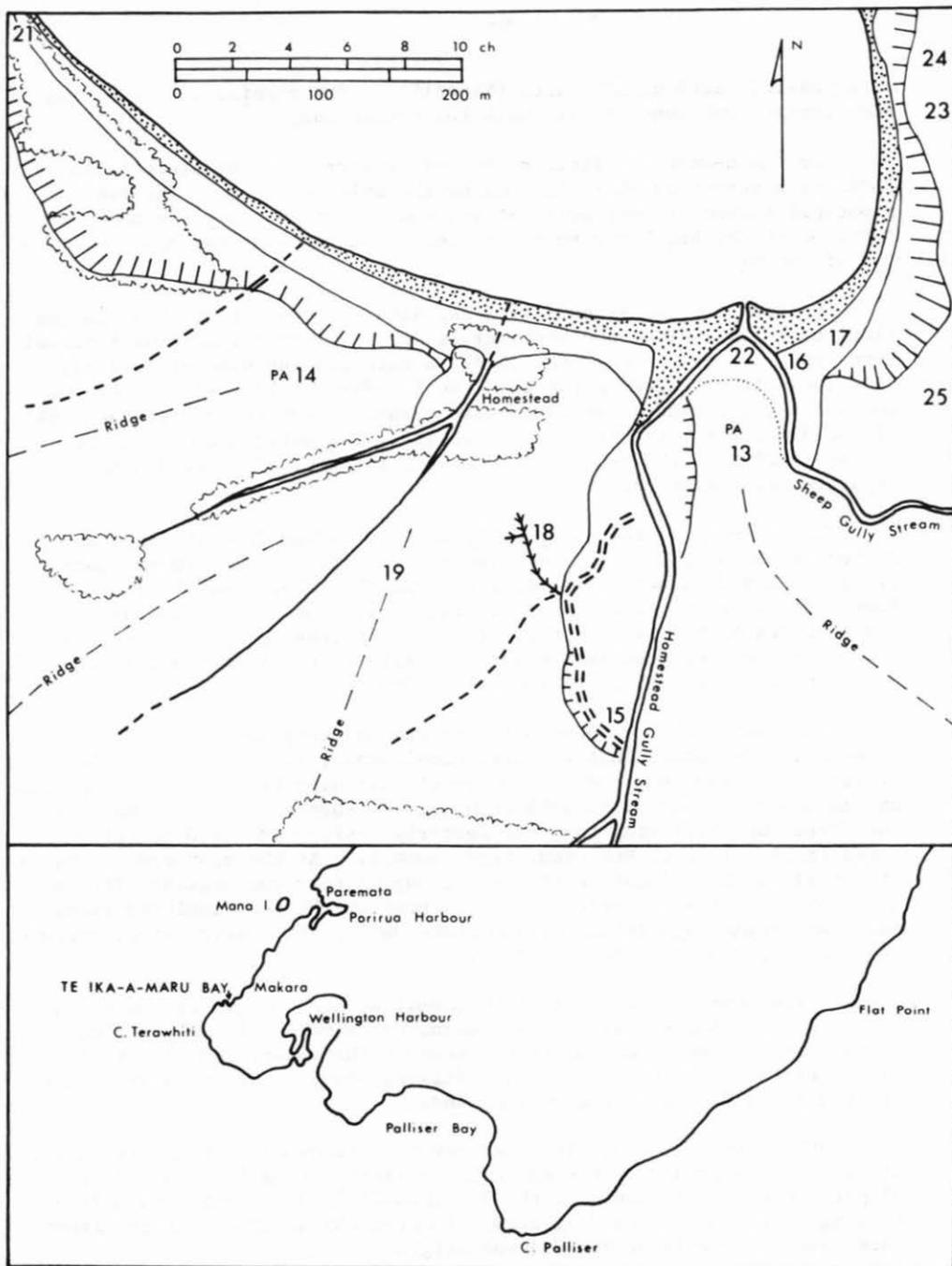


Fig.1 Location of Sites at Te Ika-a-maru Bay

as a possible agricultural area (N164/15). The mapping and recording were carried out concurrently with the excavations.

Te Ika-a-maru Bay faces north and is surrounded by steep hills. There is a narrow coastal flat behind the shingle beach. The two principal streams (Sheep Gully Stream and Homestead Gully Stream) converge at the beach and enter the sea as one towards the eastern end of the Bay.

Between the two streams is a pa, N164/13, consisting of a sloping ridge end with a ditch and bank across its neck and a series of internal terraces. It is thought that Te Ika-a-maru was the name of this pa, only recently extended to the bay itself (Adkin 1959:23-24). At the foot of the pa, midden exposures were evident, particularly in the bank of the Homestead Gully Stream. This area, including the midden and the small flat at the junction of the two streams, was recorded as a separate site, N164/22.

To the east of the Sheep Gully Stream, tucked into the eastern corner of the bay, is quite an extensive flat area. Scattered finds of midden and artifacts were reported from this flat, and there were some indications of possible agricultural clearance. The general area was recorded as N164/17. In the bank of the Sheep Gully Stream, near the beach, more concentrated midden deposits were observed and recorded as a separate focus of occupation, N164/16.

The course of the Sheep Gully Stream is steep and narrow, but the Homestead Gully Stream has wandered considerably during the last 300 yards of its course and the result is a gravel flat with traces of old channels and meanders. A survey in 1855 (S.O. 11856) suggests that at that time the stream was following the more westerly course indicated by dotted lines in Fig. 1 (B.G. McFadgen, pers. comm.). At the southern extremity of the flat, on a slight knoll, is a group of four rectangular pits and a terrace. Possible agricultural features on the flat included stone heaps and faint suggestions of low stone walls. The entire area, including the pits, was recorded as N164/15.

Nearer the centre of the bay, a smaller stream reaches the beach near the old homestead site. The second pa, N164/14, is on the ridge formed between one branch of this stream on the south, and the steep slopes to the beach on the north. This pa, too, is defended by a transverse ditch and bank at the upslope end.

Other sites recorded included several groups of terraces (N164/19, 23, 24, 25), a group of terraces with an associated pit (N164/21), a group of pits on the hills south of the Bay (N164/20), and a drain (N164/18) running across gently sloping ground towards the Homestead Gully Stream. This last could well be of European origin.

The hills are now largely bare of trees, and many of the trees in and around the bay are macrocarpas and Norfolk pines. There are, however, a few karaka (Corynocarpus laevigatus) and taupata (Coprosma repens) trees, and some other indigenous coastal species. A considerable range of rocky shore shell fish can be found on the rocks towards the entrance to the bay, and fish abound offshore.

THE EXCAVATIONS

Excavations took place in two adjacent areas, and were designed to investigate the structure and content of middens in the bay.

The eastern flat had previously been investigated by H.W. Wellman, who had dug test pits in it and suggested the possibility that a "made soil" for Maori agriculture was present. Artifacts and moa bones were thought to have been found in this part of the bay in the past. The investigation here was two-pronged, and included excavation of three eight-foot squares close to the stream (N164/16) and the digging of a series of test pits across the centre of the flat (N164/17).

The second focus of excavations was the area at the foot of the pa, recorded as N164/22. Shortly before the field season began a burial had been discovered in this vicinity. Conflicting reports of its position led to the excavation of a square in the centre of the flat between the streams at the very base of the pa. (It was subsequently learned that the burial had probably been higher up on the pa itself.) Two trenches were dug to the west of this central square, at the edge of the Homestead Gully Stream, where thick midden deposits were being eroded.

In the final stages of the season, a quadrant was opened in one of the group of rectangular pits at the southern end of the river flat, N164/15. However, time did not permit the completion of this quadrant, which was back-filled and left.

The Eastern Flat

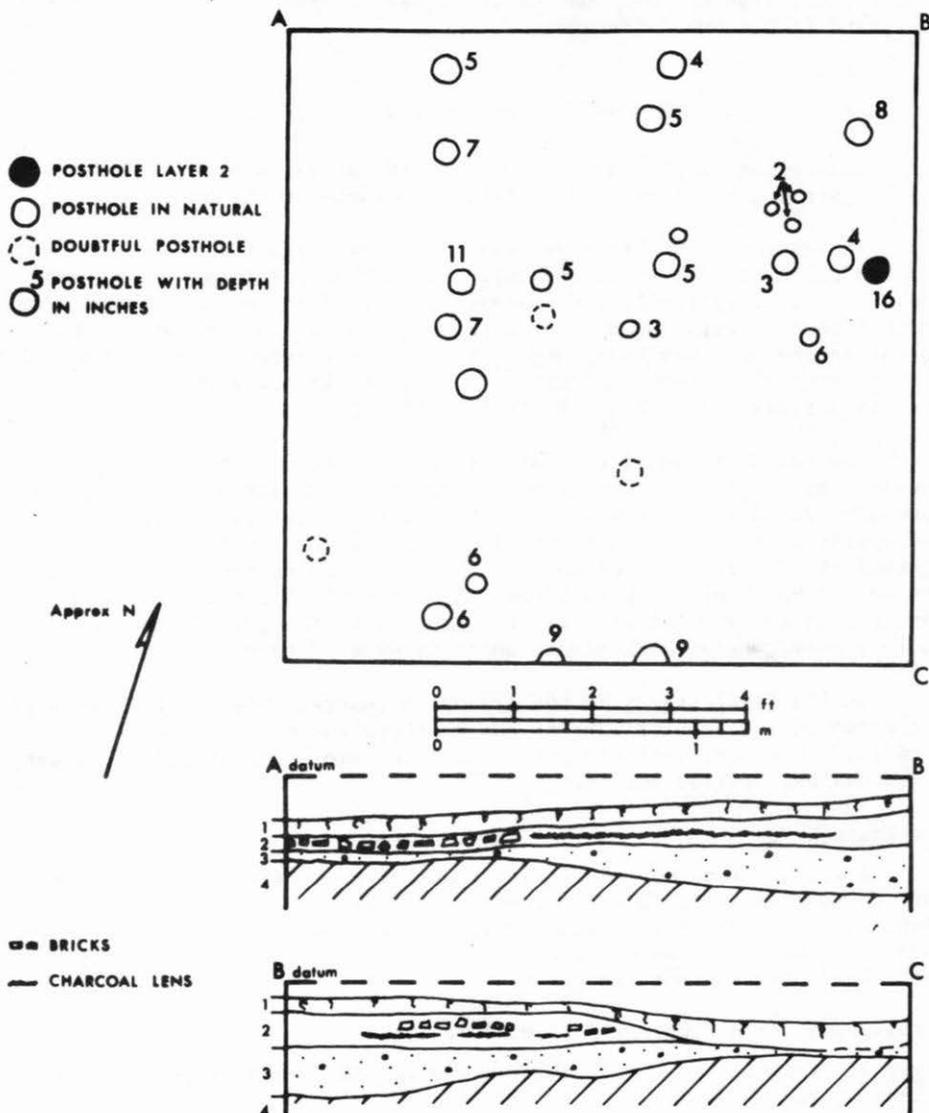
A line of ten-foot squares, set out at the western tip of the flat, more or less parallel to the stream, was referred to as Area 1. Two eight-foot squares were excavated within the ten-foot grid; B-2, at the corner where the stream met the beach and B-4, inland of B-2. The intervening B-3 was not excavated.

Stratigraphy in B-2 was as follows (Fig.2):

Layer 1: topsoil and humus, shallow towards the beach, thicker on the inland side.

Layer 2: a mixed layer of clay and brick fragments, with European artifacts associated. Varied from a complex layer of clay and brick separated by charcoal lenses from the underlying clay, to a thin scatter of bricks only between layers 1 and 3. One posthole without fill associated with surface of lower clay.

■ Base Line Peg



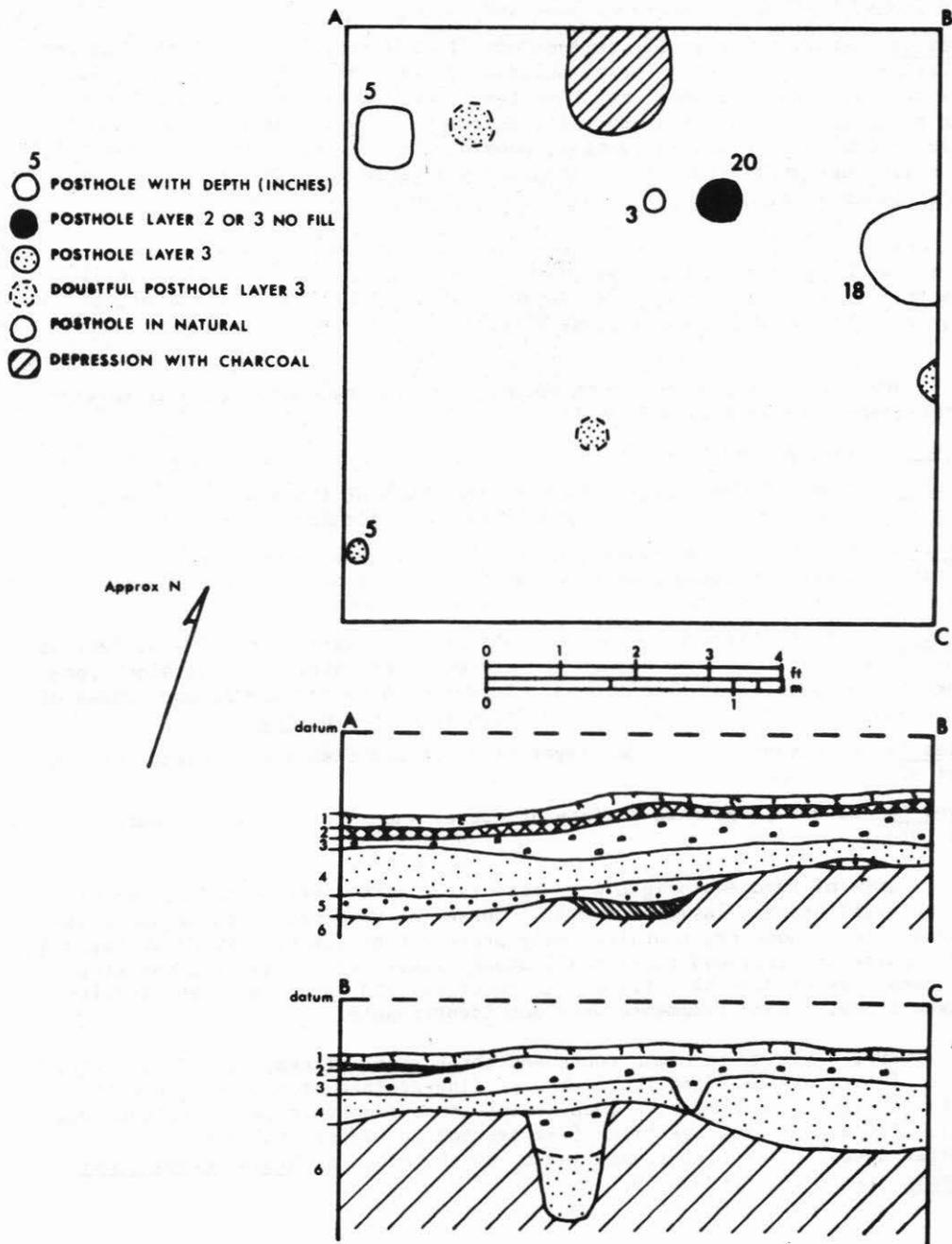


Fig.3 Plan and Sections , Square B-4 , N164/16

Layer 3: grey to black sandy soil with numerous small pebbles and occasional oven stones. Some fragments of bone and shell.

Layer 4: natural. Variable surface of silt and gravel, into which a number of features had been cut. These included 22 post and stake holes, and some less definite features which may have been root holes. Most were filled with blackish or brownish sandy soil, occasionally with charcoal and fish bones. One contained a rusty nail, possibly intrusive. Some of these postholes suggest a structure or structures aligned parallel to the stream and/or beach line.

Finds included fragments of a china cup from layer 1, a rusty nail and a clay pipe stem in the upper part of layer 2 and a square copper nail from the lower part. From layer 3 came part of a dog femur, a sliver of obsidian or glass and a small stone flake.

Deposits in square B-4 were deeper and contained more cultural material. Stratigraphy was as follows (Fig.3):

Layer 1: turf and humus.

Layer 2: a thin deposit of yellow clay over much of the square. In places this was separated from layer 3 by material very similar to layer 1.

Layer 3: a layer of fine loose gravel up to 6 inches thick in places, containing scattered fragments of bone and shell. Several postholes filled with this layer were dug into the surface of the next.

Layer 4: a thick layer with considerable internal variation. The surface of fine black greasy sand was markedly different from layer 3. Contained considerable quantities of oven stones, patches of bone and shell, and lenses of white and orange ashy material. No definite ovens in situ.

Layer 5: a concentrated midden layer of shell and fish bone present only in part of the square.

Layer 6: natural, variable surface of gravel and silt with a few features dug into it.

Finds of European origin were associated with layers 1 and 2, and with the material between layers 2 and 3. These included metal, china and glass. Layers 3 to 5, however, contained only pre-European items. Finds in layer 3 were sparse and included three small stone flakes, one of translucent grey obsidian, one of dark blue flint-like material, and one of whitish readily-flaked stone. Bone fragments were not identifiable.

Layer 4 yielded a human tooth and three stone flakes, including a tiny piece of grey obsidian and two flakes of fine-grained stone, both showing probable signs of use wear. Identifiable bone from this layer included dog, seal, fish and several sea birds (see section on midden analysis below). Charred seeds or kernels, identified by Dr. R. Mason as hinau (Elaeocarpus dentatus) were also recovered.

Layer 5 produced more kernels of hinau, a fragment of human skull, a cut piece of albatross bone, and a carefully worked but evidently unfinished bone artifact, possibly intended as a lure shank. Among the midden bones were fish, rat, dog, several sea birds and one bush bird.

Although the stratigraphy in squares B-2 and B-4 could not be directly connected, the associated European material suggests some correlations. Layer 2 in both squares appears to reflect post-European occupation, more concentrated in B-2, but extending into B-4. Although only two postholes, one in each square, were identified as probably belonging to this occupation, the bricks also suggest the presence of a structure.

Pre-European occupations were more fully represented in B-4 than in B-2. The midden evidence, described below, suggests reliance on fish and local shellfish supplemented with some bird and mammal foods. The midden was mostly in B-4; the structural remains (postholes) were largely in B-2. It is possible that only one occupation with different activity areas is represented. On the other hand, the prehistoric layers in B-4 (3, 4 and 5) may span several occupations and a considerable period of time.

A third eight-foot square was excavated in "Area 2" at the southern end of the eastern flat (still close to the stream). It was 160 feet from B-2 on the same base-line as B-2 and B-4. A dark sandy layer containing stones and filling several oven-like depressions lay between the topsoil and the underlying river gravel over the eastern half of this square, but no cultural material at all was found.

The second investigation on the eastern flat consisted of the excavation and recording of a series of four test pits across the flat by B.G. McFadgen and I.W. Keyes. These revealed a dark layer, between the topsoil and the underlying natural, which contained scattered oven stones in the seaward and most inland pits, and scattered cultural material, including obsidian and fish bones, in the intervening two pits. Small stone heaps, apparently due to artificial clearance of the flat, were noticed in several places.

The limited investigations of the eastern flat suggest that cultural material is dispersed over much of the flat, with some areas of local concentration, notably that at B-4. No clear evidence of agricultural made-soil was obtained, and Dr. L.D. Swindale, who visited the area during the excavations and provided formal descriptions of some soils, gave it as his opinion that the soils in this area were natural and unmodified.

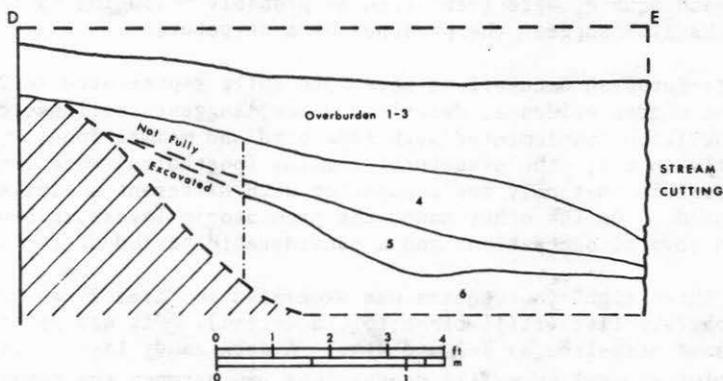
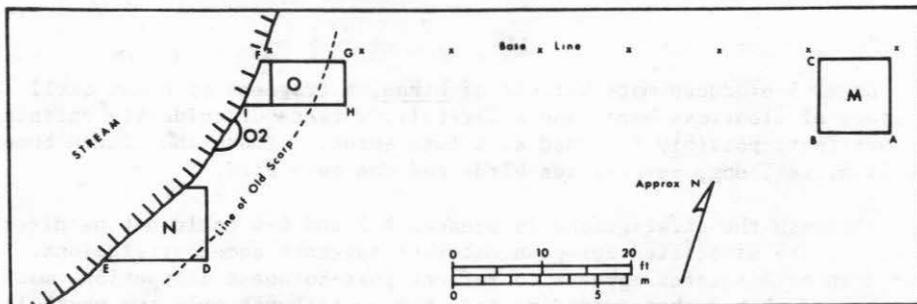


Fig.4 Plan of Excavations at N164/22

Fig.5 Southern Section, Excavation N, N164/22

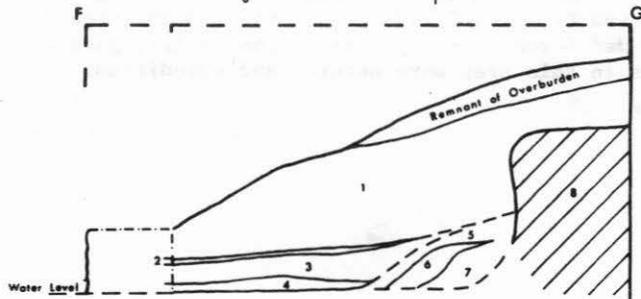
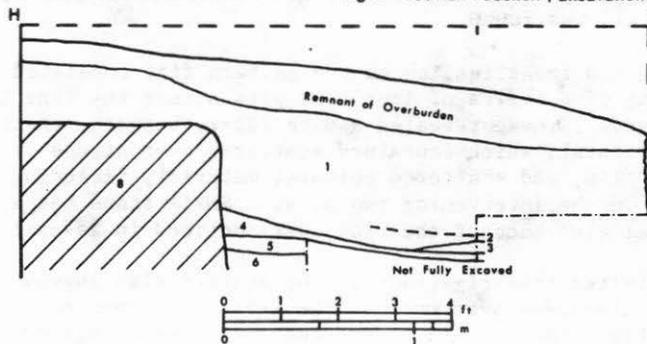


Fig.6 Sections, Excavation O, N164/22

The flat at the base of the pa

Thick and varied midden deposits were exposed in the bank of the Homestead Gully Stream, which in 1962-3 appeared to be cutting closer to the pa and eroding away the midden. The exposed section showed a considerable amount of bone, mostly fish bone, and concentrations of cooking debris and ovens. Excavations here were designed to sample the eroding midden and to see whether the deposits continued across the flat towards the Sheep Gully Stream. Three separate excavations were designated M (the square in the centre of the flat), N and O (trenches in the midden at the edge of the stream) (Fig.4).

Excavations M and O were aligned with square B-2 in Area 1 on a baseline at right angles to that connecting B-2, B-4 and Area 2. Excavation O was originally irregular in shape, extending right to the stream face. As it became deeper, however, this trench was reduced to a rectangle 8ft x 4ft 6ins. and a trapezoidal baulk was left between the trench and the stream. An additional small excavation adjacent to O and designated O2, was made to expose the surface of an oven which was sectioned by the stream, as part of a preliminary investigation of archaeomagnetism by J.W. Gellen.

During the excavation the entire area later recorded as N164/22, embracing excavations M, N, O and O2, was referred to as Area 3. A separate datum was established for each excavation.

The stratigraphy in excavation N was as follows (Fig.5):

Layers 1 to 3: sterile gravel and silt.

Layer 4: a thick layer of grey clay with charcoal, stones, and scattered bone and shell. Variable matrix noted during excavation but no distinctions visible in section. One large posthole or small pit in the surface of layer 5 was filled with layer 4.

Layer 5: a concentrated midden layer of bone and shell in a hard clay matrix.

Layer 6: similar to layer 4 but with more charcoal. This layer was not completely excavated, owing to lack of time following bad weather. In the north and centre of the square it overlay a deposit of sterile yellow sand, which was probably present throughout the square. Cultural material continued to the water table and below.

Although the stratigraphy was clear in section, considerable difficulty was experienced during excavation, particularly on the interface of layers 4 and 5, and to a lesser extent between layers 5 and 6. Some midden material, therefore, must be regarded as mixed, and was analysed separately from collections ascribed with certainty to a single layer.

A small quantity of artifactual material was recovered. From layer 4 came one small obsidian flake, a stone flake, a possibly worked piece of pumice, a piece of cut moa bone, a tattooing chisel, and a piece of greenstone. From the interface between layers 4 and 5 came a piece of obsidian and a possibly worked piece of pumice. Layer 5 yielded a piece of worked bone, an obsidian flake, seven flakes and a core of flint-like stone.

Stratigraphy in excavation O was as follows (Fig.6):

Overburden: layers of gravel and silt, partly removed by vehicle track.

Layer 1: a thick and undifferentiated layer of dark earth containing oven stones, charcoal and scattered midden, mostly fish bones. In the eastern part of the square this layer rested directly on a natural surface of fine silt and gravel (layer 8), which formed a vertical face, possibly an old stream bank, over which the midden layer spilled.

Layer 2: a thin layer of very fragmentary bone mixed with stones, thicker in the northern part of the trench but fading out to the east.

Layer 3: fine grey silt with considerable charcoal and stone, present in the west of the trench, running out to the east.

Layer 4: a distinctive layer of yellow sand and silt, very compacted in the southeast and present over the entire trench except the northeast corner, where layers 1, 3 and 5 merged.

Layers 5 to 7: a series of layers of dark soil with charcoal and stone interbedded with river gravel and silt. Excavated only in the east of the trench where they ran out against the natural scarp. Continued below the water table and were not fully excavated.

Layer 8: natural silt and gravel, exposed in the east of the trench only.

Despite the depth of cultural deposit, no artifacts were found in this trench, which consisted almost entirely of cooking debris, and fragmentary fish bones.

Excavation O2 was carried down through the overburden and material equivalent to layer 1 in excavation O to an oven in situ in the lower part of the layer. A flake and some charred kernels of hinau were found around the oven, and scattered midden material was collected throughout.

The interpretation of the deposits in the edge of the stream was not easy. The midden represented a considerable build-up of refuse from cooking, eating and food preparation, but whether these activities were concurrent with occupation of the pa or quite separate was not determined. Although most of the oven debris represented dumped rake-out, the oven in O2 appeared to be in situ. Problems were also posed by the continuation of the deposits below water level, although it seemed clear that in 1962-3 the stream had moved much closer to the pa than it had been previously.

In both N and O the natural formed a low scarp running parallel with but east of the stream bed of 1962-3. The midden layers had been deposited on the low surface at the base of this scarp, either in an old stream channel or on a more extensive stream-cut flat, and had gradually accumulated to the point where they spilled over the top of the scarp on to the higher ground to the east. The build-up appeared to have been continuous and, in view of the absence of European artifacts, entirely prehistoric. The steady erosion of

the midden immediately before and after the excavation suggested that it would soon be completely destroyed.

No connection could be traced between the midden and the stratigraphy of excavation M, which was as follows (Fig.7):

Layer 1: virtually no turf or topsoil were present, as a result of erosion and the fact that the vehicle access track to the bay passed over this area.

Layer 2: a very hard compacted layer of grey soil with oven stones, charcoal and scattered cultural remains. Two small ovens, a possible hearth and some indistinct shallow postholes associated with this layer were found in the surface of layer 3.

Layer 3: a variable layer of clay and gravel, probably largely deposited as a result of activity on the pa above, containing scattered cultural material. Upper part, yellow brown clay with charcoal, beneath this, particularly in the north of the square, fine gravel, underlain in parts by more clay. In north side of square, a thin layer of black soil with much charcoal at the base.

Layer 4: natural, yellow clay. A number of features were cut into the natural. Some were filled with layer 3, others had soft dark fills. An earlier oven lay directly beneath the layer 2 oven near the centre of the square.

The features indicate two actual occupations, one on the natural surface, probably associated with the thin charcoal layer, and a later one on the surface of layer 3. Much of the scattered cultural material, however, was incorporated in layer 3 and probably derives from activity higher up the slope. Layer 2 contained both traditional and European items, including a stone drill point, two obsidian flakes, other stone flakes, metal pieces, glass, a copper nail, and a fragment of a clay pipe stem. Layer 3 contained 17 pieces of obsidian and 6 other stone flakes, 4 of them apparently derived from ground stone tools. Most of this material was in the gravel rather than the clay.

Faunal remains were sparse. Small amounts of shell and fish bone were collected from layer 2 and the upper part of layer 3. The shell fragments in layer 2 were small and powdery, but a considerable quantity of shell epidermis, probably from mussel shells, was found in one part of the square. No faunal remains were found in the lower part of the deposit.

Midden analysis

The excavation technique required an attempt at total collection of faunal remains. In both N164/16 and N164/22, excavators were instructed to collect all bone and shell from each layer. In practice, with various excavators, mostly inexperienced, working in a difficult matrix, total collection was not achieved. N164/16, with a fine sandy matrix, was trowelled but not sieved. In the harder, more clayey matrix of N164/22, excavation was more difficult. Eventually, in excavation N a time-consuming method was adopted whereby lumps of midden were broken away, sieved through a mesh in the nearby stream, spread out to dry, and faunal material selected and bagged.

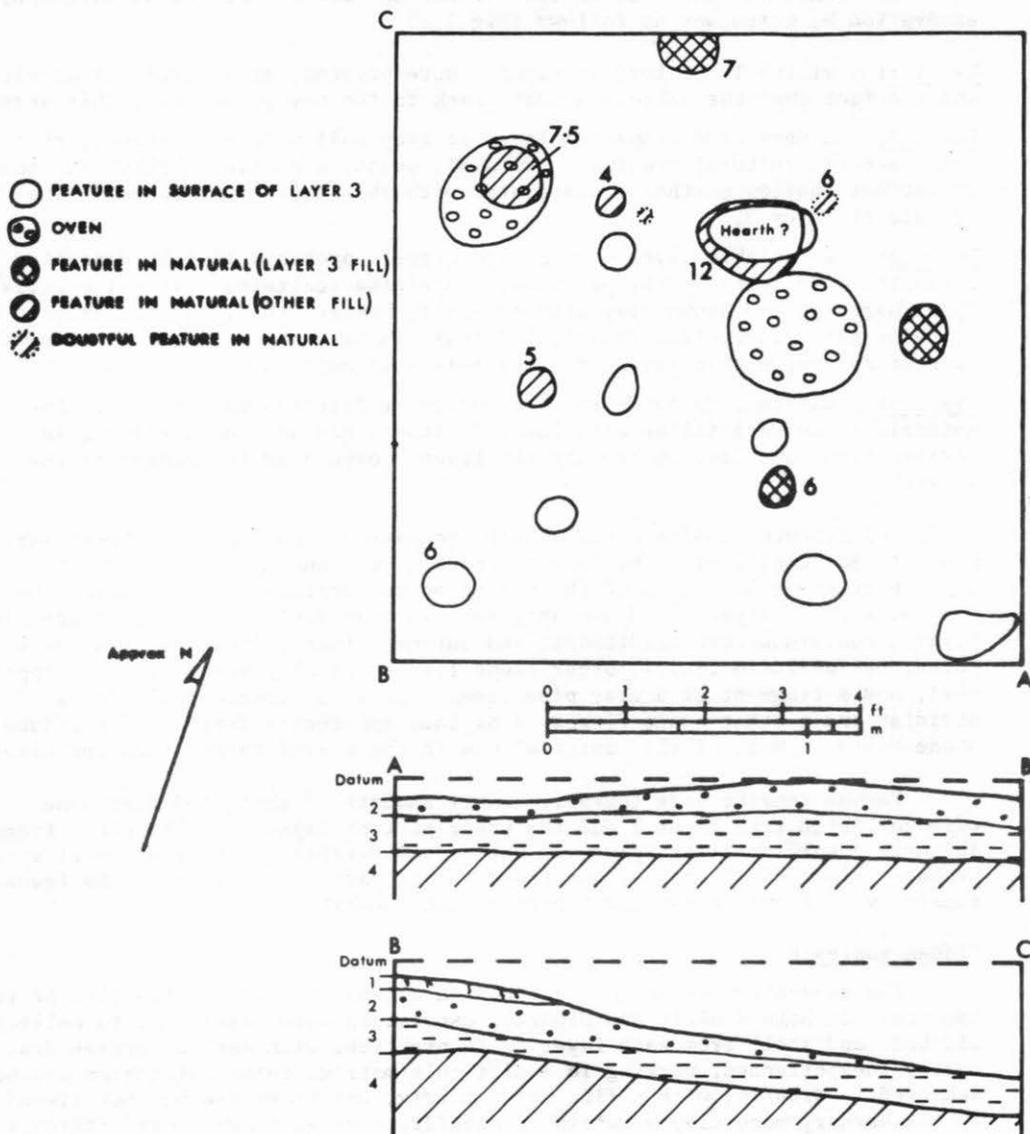


Fig. 7 Plan and Sections, Excavation M, N164/22

In addition to the quantifiable remains, other faunal items collected were examined. In N164/16, small amounts of fish bones and rocky shore shellfish were found in the fills of some features, as well as in the main layers. From excavation M came small amounts of fish bone and shell, including Chione stutchburyi as well as rocky shore species.

Excavation O yielded almost entirely fish bones. In addition to the material from above the oven (layer 1) in O2, listed in Table 1, there were 11 gm of fish bone and 1 gm of shell (cat's eye) from around the oven itself. In excavation O, 102 gm fish bone, a dog tooth and 5 gm shell (mostly paua) was collected from layer 1; 138 gm fish bone and a minute amount of paua from layer 2; and 4 gm of fish bone from layer 3. It was noted during excavation that cat's eyes were unevenly distributed in excavation N and tended to occur in pockets, and it is probable that the high proportion of cat's eyes in O2 represented such a pocket.

Bone other than fish from the excavations, and from a small surface collection from the stream face of N164/22, was identified by Mr R.J.Scarlett (Table 2). The bone collection was not large, and in most cases only one individual is represented by a few bones only.

The most numerous bones are dog, and although in some layers only one or a few bones were present, there were sufficient from layer 5 in excavation N to suggest a minimum of two adults and one immature individual. An immature dog was also represented in B-4. The bones from the various layers include most parts of the skeleton, cranial fragments, jaws and teeth. The seal bones are few and fragmentary. The rat is also not well represented, although a minimum of three individuals was present in layer 4 of excavation N. Human bone is represented by a tooth in layer 4 of B-4, a skull fragment in layer 5, and a split incisor in layer 4 of excavation N. Of the mammals, therefore, only the dog can be regarded as making any real contribution to the diet on the basis of the bones in the midden.

The bird bones show a general similarity between the sites. Again, only one or two individuals are represented in most cases, often by a very few bones; the bones are mostly wing or leg bones and coracoids. Where a species is present both in layer 5 and in the mixed layer 4/5 collection, it could in each case be a single individual involved.

Although there are some differences between the two sites and between the different layers, the similarities are more striking. Small numbers of various locally available sea and bush birds were being caught and used to supplement the heavy reliance on fish and shellfish. The middens do not reflect systematic hunting of any particular bird from any specific habitat.

Unworked stone and charcoal were not systematically collected or analysed (except in the case of the grab samples described below), but any unusual or not immediately identifiable material was collected for later laboratory consideration.

A grab sample was taken from layer 5 in square B-4 in N164/16, and another from layer 4 in excavation N, N164/22. These were compared with the near total samples from the same layers to see whether the time devoted to total collection could be justified by the superior results obtained.

Both total samples and grab samples were processed in the laboratory by sieving, sorting of constituents, and weighing. Experiments in the usefulness of washing and drying, and the use of various screen sizes, were conducted. A large amount of material passed through the $\frac{1}{2}$ " sieve, and also through the $\frac{1}{4}$ " sieve. Time prevented analysis of material beyond that retained by the $\frac{1}{4}$ " sieve, although the residue was retained for possible future study.

The comparison of the total samples and grab samples showed that the grab samples provided a reasonable indication of the proportions of shell species and fish bone, but were quite inadequate for sampling the presence of individual species of birds and animals, and of minor but important constituents such as charred kernels and faeces (Davidson n.d.:117-120).

The faunal remains consisted of a high proportion of fish bones, some other bone, and a range of predominantly rocky shore shellfish, much of it in so fragmentary a condition that counting of individual shells was difficult or impossible. The crude proportions by weight of bone and shell in the principal midden layers are shown in Table 1. Although the samples in some cases are far too small, it is apparent that fish and paua (Haliotis sp.) are consistently more important in N164/22 than in N164/16, whereas cat's eye (Lunella smaragda) and some of the minor constituents were more important in the latter. Conversion to meat weights would probably emphasise this distinction further, since the ratio of meat to shell or bone weight is likely to be higher for fish and for the fragmentary paua shell in the middens than for cat's eyes.

The reliance on local food found in or near the bay is very clear. Although the fish bone has not been analysed, it was noted during excavation to contain mouth parts of species such as barracoutta (Thyrssites atun) and hapuka (Polyprion oxygeneios), which are likely to have been available locally. No survey was made of shellfish availability, but some of the species present in the midden featured on the menu of the field camp and were obtained without difficulty. A major present day food resource which is rare in the midden is the kina or sea egg, but this may be a result of differential survival or sampling error. The nearest source of the shells identified as Protothaca crassicosta was not definitely established, although its relative importance in N164/16 suggests a local source. It is reported to be present in the bay. The only species which must certainly have come from further afield are the few examples of A. subtriangulatum from N164/22 and some fragments of Chione stutchburyi found in excavation M. The Porirua Harbour and the sandy beaches to the north are possible sources for these species.

TABLE 1. PERCENTAGES OF BONE AND SHELL BY WEIGHT, TE IKA-A-MARU BAY

	B-2	N164/16		N164/22					
	4	4	B-4 5	4	4/5	N 5	5/6	6	02
Fish bone	20.5%	3.5%	16.9%	42.4%	36.4%	33.7%	77 3%	54.5%	29%
Other bone	2.6	8.6	1.8	2.5	5.4	3.2	22.7	12.7	1
<u>Haliotis</u> sp.	10.3	12.4	21.0	32.7	22.6	46.7	-	32.7	1
<u>Lunella smaragda</u>	33.3	49.6	29.0	12.6	22.9	10.3	-	-	57
<u>Cellana</u> sp.	1.3	-	5.8	4.4	8.9	2.8	-	-	-
<u>Cookia sulcata</u>	3.8	11.0	1.8	-	1.7	x	-	-	-
<u>Neothais/Haustrum</u> spp.	-	9.6	6.5	1.3	1.2	1.2	-	-	5
Mussel	-	-	x	4.2	x	x	-	-	-
<u>Protothaca crassicosta</u>	5.1	5.0	14.4	-	x	x	-	-	-
Sea-egg	-	-	x	x	x	x	-	-	-
<u>Zediloma</u> sp.	-	x	1.4	x	-	x	-	-	-
<u>Amphidesma subtriangulatum</u>	-	-	-	-	-	x	-	-	-
<u>Cominella</u> sp.	-	-	x	-	-	-	-	-	-
Chiton	-	-	x	-	-	-	-	-	-
Barnacle	-	-	x	-	-	-	-	-	-
Unidentified	23.1	-	x	x	x	x	-	-	-
Total weight (gm)	60	296	2334	1879	1151	5784	44	55	100

x less than 1%

The presence of the Little Grey Kiwi, Apteryx oweni, at Te Ika-a-maru was one more in a series of midden finds which at that time had helped to document the former presence of the species in the North Island (Scarlett 1962). In this particular case, however, the proximity of the site to the shortest Cook Strait crossing, and the evidence, particularly from stone flakes, for quite widespread contacts, make it impossible to exclude the possibility that this particular bird crossed the Strait in a food parcel.

The worked moa bone fragment had in Mr. Scarlett's opinion (pers. comm.) been cut both transversely and longitudinally while green. Although there is a reliable report of at least one earlier find of moa bone at Te Ika-a-maru (Yaldwyn 1959:23) there is no real evidence that it was a moa-hunting area. Cut fresh moa bone, however, does suggest that the people who visited N164/22 either indulged in moa hunting elsewhere, or were in contact with people who did. In the Cook Strait area, the latter possibility is very likely. Te Ika-a-maru is intermediate between the rich South Island moa-hunting sites, exemplified by Wairau Bar (Duff 1942, 1950) and the early Palliser Bay sites, in which very little moa bone has been found (B.F. and H. Leach, pers. comm.), and not far from the small moa-hunter site at Makara (Davis 1962, Yaldwyn 1959) and the richer site at Paremata (Davidson ms). The worked albatross and mollymawk bones at Te Ika-a-maru, on the other hand, are more likely to derive from locally caught birds, since unworked bones were also present.

It was disappointing that no artifacts relating to the exploitation of the various food resources were found. Fishing was obviously a major activity, but the techniques remain in doubt, and if spears were used to catch birds, they did not find their way into the midden.

Without analysis of the fish bone it is not possible to discuss the food remains at Te Ika-a-maru fully. However, the data presented indicate exploitation of the local resources, and a pattern which varied only slightly from layer to layer and site to site.

Other items found in the middens included charred kernels of hinau berries (present in small quantities in layers 4 and 5 of B-4, N164/16, and in excavation O2, and layer 4 and 5 of excavation N, N164/22); and faeces thought to be from dogs, present in small amounts in layer 5 of B-4 and layers 4 and 5 of excavation N. Pumice, charcoal and unworked stone, including oven stones, were also present in most layers.

Artifacts

Previous surface finds from Te Ika-a-maru were reported to include a variety of adzes, a stone minnow shank and a stone sinker. The general lack of artifacts in the excavations was therefore disappointing. Not only were the artifacts very few, but they were hardly diagnostic. It is noteworthy that those which have most claim to be considered diagnostic - the cut moa bone, the piece of greenstone, and the tattooing chisel - were all found in the upper part of the midden in excavation N.

TABLE 2. BONE IDENTIFICATIONS, TE IKA-A-MARU BAY

	N164/16				N164/22				O	O2
	B-2	B-4		S	4	4/5	N			
		4	5				5	5/6	6	
Mammals										
Dog (<u>Canis familiaris</u>)	x	x	x	x	x	x	3	x	x	x
Seal (? <u>Arctocephalus forsteri</u>)	-	x	?	xc	-	x	x	-	?	-
Rat (<u>Rattus exulans</u>)	-	-	x	-	3	x	x	-	-	-
Man	-	x	x	-	x	-	-	-	-	-
Birds										
<u>Pelecanoides urinatrix</u> (diving petrel)	-	x	x	-	-	-	-	-	-	-
<u>Puffinus gavia</u> (fluttering shearwater)	-	x	-	-	2	-	x	-	x	x
<u>Pachyptila</u> sp. (petrel)	-	2	-	-	-	-	-	x	-	-
? petrel	-	x	-	-	-	-	-	-	-	-
<u>Puffinus</u> sp. (smaller than <u>P. gavia</u>)	-	-	2	-	-	-	-	-	-	-
<u>Puffinus griseus</u> (mutton bird)	-	-	-	-	-	x	x	-	-	-
<u>Eudyptes p. pachyrhynchus</u> /E. cretatus (penguin)	-	-	-	-	-	x	-	-	-	-
<u>Eudyptula minor</u> subsp. (penguin)	-	x	-	-	-	x	x	-	-	-
<u>Diomedea exulans</u> /D. epomophora (albatross)	-	-	xc	-	-	x	x	-	-	-
<u>Thalassarche cauta</u> (mollymawk)	-	-	-	x	-	x	xc	-	-	-
<u>Larus dominicanus</u> (black-backed gull)	-	-	x	-	-	-	-	-	-	-
moa (medium sized)	-	-	-	-	-	xc	-	-	-	-
<u>Apteryx oweni</u> (little grey kiwi)	-	-	-	-	-	x	-	x	-	-
<u>Prothemadera novaeseelandiae</u> (tui)	-	-	-	x	-	-	x	-	-	-
<u>Callaeas cinerea wilsoni</u> (kokako)	-	-	x	-	-	-	-	-	-	-
<u>Hemiphaga novaeseelandiae</u> (pigeon)	-	-	-	-	x	-	-	-	-	-

x present

xc worked bone

2 minimum number of individuals

The tattooing chisel (field number 25), which was very fragile and broke during excavation, was made on a thin segment of bird bone and is very simple, with a narrow cutting edge and a small number of broken teeth. There is no perforation or shaping of the butt, which may, however, be incomplete. The specimen is 40 mm long, 7 mm wide, with a cutting edge of about 4 mm wide.

The unfinished bone artifact (number 12) from layer 5 of B-4 is of more solid bone. It is 57 mm long, subtriangular in section, some 6 mm wide and 5 mm thick at the centre. One end tapers almost to a point and there is a facet at the other end suggesting that the item may have been intended as a small lure shank, although there are no grooves or other lashing device.

Other worked bone includes the moa bone fragment from layer 4, excavation N (no. 21); a small piece of mollymawk bone from layer 5, excavation N (no. 29/3), a cut piece of albatross bone from B4, layer 5 (no. 11/11); and a seal tooth with cut marks (stone tool cuts, according to R.J. Scarlett) from the N164/22 surface collection.

From excavation N came two possibly worked pieces of pumice. One, from the mixed layer 4/5 collection (no. 26/50) is a small flat disc-like piece with one worn or cut edge. The other, from layer 4 (no. 23/53) has an apparently artificial hollow in one surface, like a tiny bowl or lamp.

The remainder of the assemblage consists of small pieces of worked stone. Only one, a drill point, could be considered a formal tool, although many small flakes show use marks, or suggest derivation from ground tools. The drill point (no.14) from layer 2 of excavation M, is made on a relatively broad flat flake and has been shaped to a point by flaking both edges of the flake from one side only (the side away from the principal flake scar in both cases).

Most of the obsidian came from excavation M, where four flakes from ground tools were also found, but other flakes were rare. Obsidian was not common in the midden excavations, and was matched or outnumbered by other stone flakes, mostly of a variety of flint-like stones. The midden obsidian is all grey; green is most numerous in excavation M, although grey is also present. The obsidian from N165/16 consists of a used grey flake from B-4 layer 3, a tiny unused grey chip or core from layer 5, and an almost colourless sliver of obsidian or glass from B-2. From N164/22 (excavation N) there is a used grey flake from layer 4, a possibly used small grey flake from the mixed layer 4/5 material, and a small unused grey core from layer 5. The two pieces from layer 2 of excavation M were inadvertently excluded from the midden analysis. The assemblage from layer 3 consists of nine used green flakes and two others possibly used; three used grey flakes and one other possibly used; and one unused grey core. There is no obsidian and only one other stone flake from excavation O. The midden obsidian is also smaller than that from excavation M - four pieces have maximum dimensions less than 20 mm and the largest is still less than 25 mm. By contrast, 9 pieces from excavation M are smaller than 25 mm, but 8 are larger, ranging up to 45 mm in maximum dimension.

The stone assemblage from excavation M also includes four flakes or chips with one or more ground surfaces suggesting derivation from adzes, and two other stone flakes. Apart from the small piece of greenstone, there are no ground flakes from the middens, but a larger number of other small stone flakes, mostly of flint-like stones of a variety of colours. These were most numerous in layer 5 of excavation N. Two of the eight examples show possible signs of use.

The single piece of greenstone is an irregular and generally rough small piece, about 22 mm in diameter with two small ground areas on one surface.

Identification of the sources of the stone flakes is one of the outstanding tasks arising from the analysis. Such a study, more feasible now than it was in 1963, would be of value in comparing the distribution of stone from different sources throughout the Wellington area.

The small assemblage of European artifacts includes some items such as the clay pipe stems and copper nail which almost certainly relate to relatively early post-European Maori settlement in the bay, as well as others which may be more recent, and could well be studied in conjunction with material from other 19th century Maori settlements in the Wellington area.

SUMMARY AND DISCUSSION

The field evidence, particularly the two pa, is unusual on the generally sparsely occupied Wellington coast. One reason for the concentration is probably the value of a relatively sheltered bay on this part of the coast in using or controlling the crossing of Cook Strait. The midden analysis, however, suggests that the resources of the area itself were an attraction to those who visited the bay, and that they came there to fish and exploit other local food resources. As might be expected, the middens are concentrated near the stream mouths, in the most attractive places for open settlements, or what would be the most attractive if the streams did not change their courses and erode the camp sites.

The extent to which early historic or prehistoric agriculture was practiced at Te Ika-a-maru is debatable. In the early 1960s, the evidence of agricultural clearance and walls in the bay seemed slight, and authorities were not in agreement over the interpretation of the soils. The terraced sites were mostly badly slumped, to the point where their artificial nature was doubtful, although it was customary to think of such terraces as possibly agricultural (Daniels 1965:100). There was, however, little doubt about the artificial nature of the pits at the southern end of N164/15, although no indication of their age was obtained.

The excavations revealed clear evidence of both post-European and prehistoric occupation. In addition to the European artifacts from B-2, B-4 and excavation M, such material was also found on the surface of the pa (N164/13) along with a considerable range of stone flakes. William Spain (Native Land Commissioner) mentions visiting a native settlement at Te Ika-a-maru in 1844 (National Archives: G30/6, p.706). Charles Heaphy, reporting in 1879 about Native Reserves around Wellington, said that reserves had been made at Waiariki, Oterongo and Ika Maru (sic) because there were "small settlements" at all these places up to 1847. Most of their inhabitants returned to Wanganui and Taranaki at that time (National Archives: Lands File 81/1872, memorandum of 19.9.1879). These references date the 19th century Maori settlement precisely, and show that the inhabitants were members of the Te Ati Awa and allied tribes, who were newcomers to the district. The distribution of European artifacts shows that the settlement probably included N164/16, part of N164/22 and possibly the pa, N164/13. The extent to which other sites, such as terraces or pits, also belong to this period, remains a problem for future investigation. Although the occupants of Te Ika-a-maru in the 1840s were relative newcomers to the district, this need not have meant a new and different pattern of occupation, for at Paremata (N160/50) not far to the north, the incoming group of the 1830s and 1840s occupied the harbour mouth site in a manner very similar to that of their prehistoric predecessors (Davidson ms.). Some of the European material from the upper part of the deposit at N164/16 is probably later than 1847, and may belong to European farming activity in the bay, rather than Maori settlement.

The prehistoric layers sampled are undated, and could with equal justification be ascribed to most periods of a hypothetical Wellington prehistoric sequence. It can be said, however, that they represent occupation of the bay by people who certainly differentiated various activities in their settlements, who had contacts in various directions outside the district, but whose principal preoccupation, as reflected by their middens, appears to have been the exploitation of the food resources of the immediate vicinity. This resulted in middens with an unmistakably Cook Strait flavour in which the rich Cook Strait sea coast resources were supplemented by more casual exploitation of the adjacent coastal forest. The extent to which the people who deposited the midden layers were also responsible for other archaeological sites in the bay, and the duration of their occupation, cannot be determined from the limited investigations described above.

The field archaeology of the Wellington district has been spasmodically studied for three quarters of a century. The results of a modern field recording programme building on the basis laid by earlier workers such as Best and Adkin were very well summed up by Daniels (1965). It does not seem to have been fully appreciated, however, that this body of data provides an excellent base from which to approach specific problems by small controlled excavations. In particular, the restricted possibilities for settlement in much of the Wellington district mean that 19th century Maori settlements are often found adjacent to or superimposed upon prehistoric settlements, providing an excellent opportunity to contrast the settlement and economy of the two. The very limited investigations at Te Ika-a-maru showed that something worthwhile could be achieved, even with small resources and a loosely defined set of objectives, and offer hope that the application of more modern techniques and dating methods to small excavations in the area could provide results of great value.

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It should be stressed again that the fieldwork took place thirteen years ago and the analysis was completed during the following year. Although the Wellington Archaeological Society initiated the project, the duty of publication was mine, and I bear the responsibility for the long delay in publication and for the interpretations here advanced.

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