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THE FIRST THOUSAND YEARS

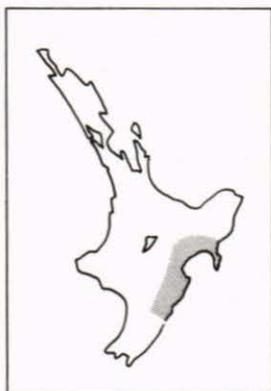
Regional Perspectives in New Zealand Archaeology

Edited by Nigel Prickett



HAWKE'S BAY

Aileen Fox



The modern province of Hawke's Bay comprises an extensive tract of the east coast of the North Island, extending from the Mahia Peninsula in the north to Cape Turnagain in the south. Inland, it reaches to the crest of the Ruahine-Kaweka-Huiarau ranges, 1,220-1,680 m high and some 65 km from the sea. In all, the province covers 13,600 km², much of it rugged country. The high mountain ranges form an effective barrier between Hawke's Bay and the central volcanic plateau, which even in the early 19th century, was only rarely breached by Maoris or crossed by European travellers like William Colenso, who made his celebrated trek across the Ruahines with much difficulty in 1845-7.¹

In early times access was by sea and as this chapter will show, contacts were made in both directions along the coasts. Penetration of the belt of undulating lowland between the coast and the mountains was by way of the principal river systems, the Mohaka, Tutaekuri, Ngaruroro and Tukituki, as the distribution of pa clearly shows (Fig.4.4). The sheltered waters of the former Napier lagoon (Ahuriri) provided an attractive harbour as well as good fishing and the shores were consequently heavily settled in prehistoric times² (Fig.4.5). Other reasons for coastal settlement were the abundance of shellfish, principally pipi, on the extensive sandy ocean beaches south of Cape Kidnappers, and of mussels and paua on the nearby rocky shores, as the numerous middens in the dunes and in settlement sites behind Waimarama testify.³

The relief of the region is well-defined and is determined by the geology; the oldest rocks, greywackes and argillites of Triassic times, make up the western ranges, which were the result of upthrust during the Pliocene period. These are partly overlaid by softer sedimentary rocks of the younger Tertiary series, sandstones, siltstones, limestones and conglomerates which, much dissected and eroded, form the central zone of foothills. Quaternary deposits of loess, alluvial sands and gravels occur in the larger river valleys and along the coast as in the Heretaunga plains around Hastings.⁴

In general the soils derived from the younger Tertiary rocks are fertile, being enriched by some volcanic ash and pumice. In early times the foothills would have been covered in a dense mixed podocarp forest and the broad river valleys and the adjacent low-lying country by extensive swamps of raupo and flax. Pollen analysis at Lake Poukawa, south of Pakipaki, has shown that matai and totara were common in this area, and rimu, beech, kahikatea, maire and tree-ferns were also present. Clearance by burning commenced here with the arrival of man, and bracken and scrub replaced the forest gradually from the 10th century onwards.⁵ At Tiromoana pa, Te Awanga, charcoals and pollens obtained from buried soils beneath the ramparts showed that by the 16th century the vegetation was dominated by bracken and shrubby growth, although totara was obtainable for palisade posts.⁶ Captain Cook, on the other hand, observed from the *Endeavour* in 1769 that 'the country round Hawke's Bay was well clothed in woods'⁷ and

contrasted it with Bare Island and the country south of Cape Kidnappers, indicating that clearance was still patchy. The process accelerated during the early 19th century, and when Donald McLean purchased the large Ahuriri block in 1850 he commented on the prevalence of grassland in central Hawke's Bay.

Hawke's Bay has a claim to be considered one of the birthplaces of modern field archaeology in New Zealand for it was here that the late J. D. H. Buchanan, headmaster of Hereworth School in Havelock North from 1936-51, started the systematic recording of Maori pa in the district. Several of his graphic plans dating from 1946-7 have survived and are splendid pioneer work.⁸ Because there was no obligation on the first official surveyors and map-makers to record the conspicuous Maori settlements in the area, these seldom appeared on published maps and Buchanan developed the idea of a local record to be compiled by amateur archaeologists. This consisted of a measured plan and description based on a visit to the site, with grid references to place the site accurately on the appropriate sheet of the one-inch-to-the-mile map. The maps, and the numbered 'site record' forms were formalised in 1951 by a committee of the Hawke's Bay branch of the Royal Society of New Zealand, of which Buchanan was convenor, and the scheme was introduced to the newly founded New Zealand Archaeological Association at its inaugural meeting in 1954.⁹ Four years later it was formally adopted by the Association at its Wanganui meeting for general use throughout New Zealand and in essence has remained unaltered to the present time.¹⁰

The development of modern archaeology

After the early retirement of Buchanan and his move to Wanganui in 1953, there was little archaeological activity in Hawke's Bay, other than the collection of artefacts from beach sites near Porangahau by the late Dr J. E. Simcox, which he carefully recorded and subsequently presented to the Hawke's Bay Museum in 1967-9¹¹ (Fig.4.1). Systematic site recording was resumed in 1975, at first in connection with the excavation at Te Awanga,¹² and then under the auspices of the Historic Places Trust at Waimarama in 1975,¹³ at Napier in 1976-80,¹⁴ at Waipawa in 1981 and at Waipukurau in 1977.¹⁵ Consequently, the number of sites recorded from these limited areas has increased from 59 to over 500, but these are only a proportion of what the region holds. Large areas remain unexplored, notably the Mahia Peninsula and Wairoa county with its hinterland of Urewera National Park in the north, and Patangata, Dannevirke and Woodville counties in the south.

Some excavations have taken place in the region, the first being carried out by T. R. Price at Lake Poukawa from 1961 onwards.¹⁶ He investigated the deposits of moa and other ancient bird bones found in the peat on the former margins of the lake, which were stratified in relation to the Taupo and Waimihia falls of volcanic ash and pumice lapilli of about A.D. 130 and 1680 B.C. respectively. Some Maori artefacts were also found with the bird bones, allegedly beneath the Taupo ash layers. However, recent investigation by Bruce McFadgen has demonstrated that these were derived from a later settlement nearby and had slipped down through cracks in the peat and ash layers and that the association was invalid.¹⁷ The area had been disked subsequently by the farmer and the stratification deeply disturbed.

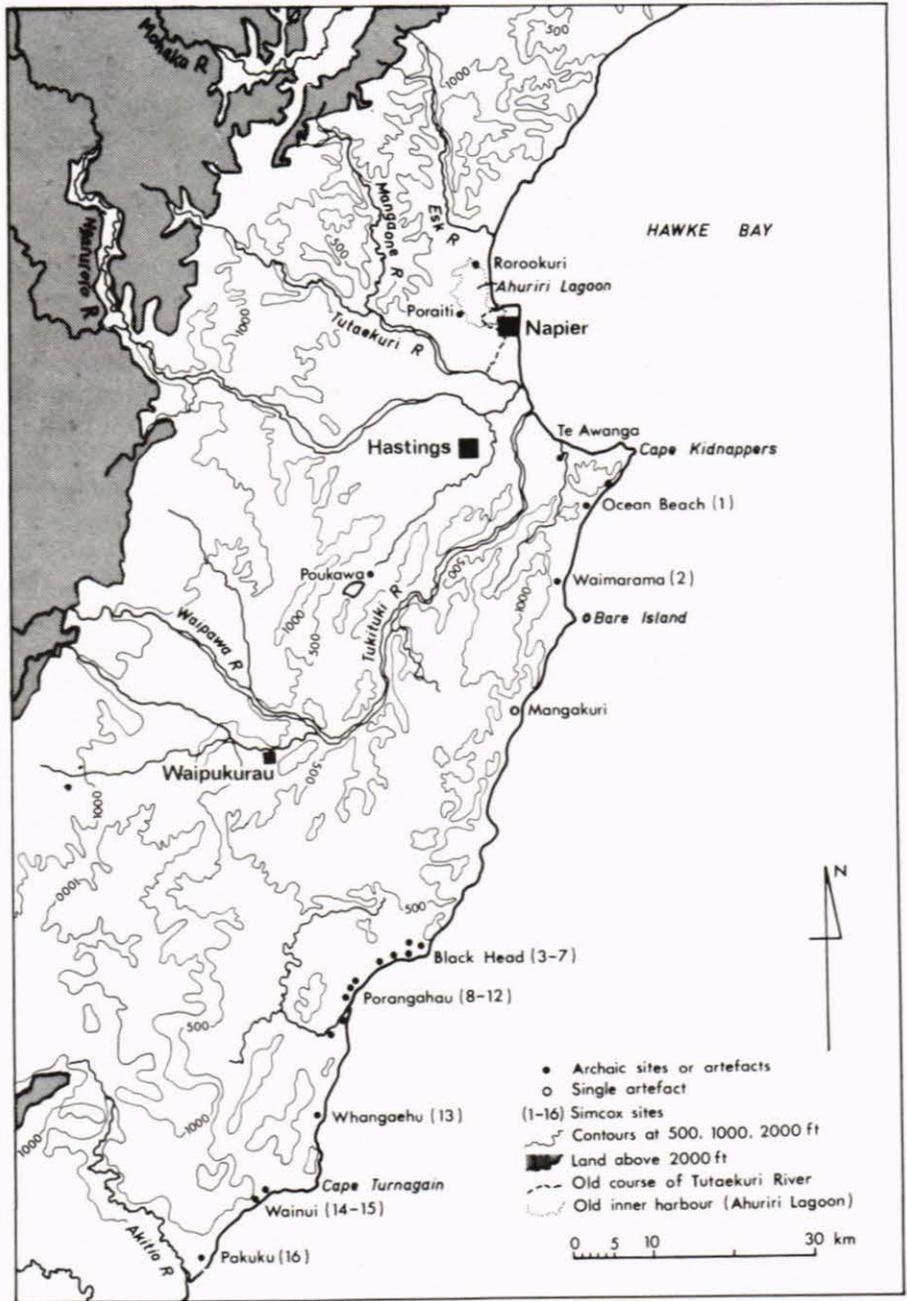
Excavations

Some small-scale excavations were carried out by the former Hawke's Bay Archaeological Society at Oneroa pa above Lake Rotokare, and Motukumera pa on Lake Oingo in 1964-6 but no reports were issued. The first major excavation in the area was at Tiromoana pa, Te Awanga, near the mouth of the Maraetotara River; this was carried out in 1974-5 by the Anthropology Department of the University of Auckland in association with the Auckland Institute and Museum, under the direction of the writer.¹⁸ Important results were achieved which have been utilised in this article.

The artefacts and their sources (Fig.4.1)

Regrettably, very little study has been made of the important series of artefacts in the Hawke's Bay Museum and in private collections, and it is not yet possible to define the local types of tools and weapons, or to discover their chronological implications except in general terms. No microscopic examination has been carried out to find the exact sources of stone implements. Suitable stone for the manufacture of adzes and flake tools is not readily available in most areas of primary settlement on the coast, except in the form of water-rolled boulders and pebbles of greywacke from the beach or river beds.

South of Cape Turnagain in the northern Wairarapa there are bands of hard silicified limestone which flake readily and which was used for adze manufacture



4.1 Distribution of archaic sites in central Hawke's Bay (drawn by Caroline Phillips).

at an early date. Dr Simcox recorded a working floor in the dunes on the south bank of the Aohanga River; large trimming flakes and rough-outs for adzes of Types 1A, 3B and 4 ('hog backs') are exhibited in the Hawke's Bay Museum. Finished polished adzes of early similar types and material are in the museum collections from Blackhead and Makaramu in southern Hawke's Bay and in the Gordon collection from Ocean Beach; these indicate local trade and traffic between communities along the east coast.

Surface inspection of adzes in the Hawke's Bay Museum shows that the majority were imported from farther afield. Over 50 percent were made of metamorphosed argillite derived from D'Urville Island-Nelson mineral belt, where many quarries and flaking floors have been found.¹⁹ The fine-veined dense black or pale blue-grey stone flakes easily and takes a high polish. It is probable that the adzes were imported as finished tools from middlemen farther south, rather than as raw material. The majority have a quadrangular cross-section, Duff's Type 1A.²⁰ Many have been found in the sand dunes south of Blackhead; an exceptionally large specimen (50 cm long) was found in 1958 near the Mangakuri River mouth. Other early types represented are 2A, 3 and 4A, mostly in black argillite. At Putere creek near the mouth of the Porangahau River a Type 1A with small lugs in the local limestone was associated with a thin Type 2A in imported grey argillite, together with a greenstone chisel, now lost.

Other adzes of early type are made of basalt; three are of material derived from the Tahanga quarries at Opito in the Coromandel. Two of Type 4A came from Rangaiika, Ocean Beach, and 'Ruapanakei' (?Raupaki, Napier), and one of Type 1A from Herbertville, south of Cape Turnagain, all coastal sites. All these imports date from early prehistoric times, known as the Archaic or Mōa Hunter period, before about A.D. 1450. They are likely to have been brought to Hawke's Bay by sea, presumably by travellers and traders for gift exchange.

Other early artefacts in the Simcox collection are numerous one-piece bone fishhooks for line fishing and stone and bone minnow shanks used as lures for trolling, as well as waste material and blanks discarded during their manufacture. The fine ornamental necklaces and pendants of the period are represented by an unfinished whale ivory 'reel' bead from Porangahau and by two perforated shark's teeth found separately at Blackhead; one was 'from a hut site with five or six tattooing bone chisels, 15 bone needles and two argillite adzes'.²¹ Two more reel beads are in the Gordon collection from Ocean Beach. A necklace of 15 killer whale teeth with two ivory reels was found with a burial at Porangahau in 1930, and remains in the possession of Mr Paul Hunter. A magnificent large serpentine reel pendant was discovered at Pakuku near Herbertville, 6.5 km south of Cape Turnagain; it is unique in having decorative sunk circles drilled at either end²² (Fig.4.2). An attempt to saw the reel in half had been made but the cut was not completed. It came from a hollow in the sand from which the trussed skeleton of an old woman and three adzes of Types 1A and 2A were recovered, though not directly associated with the ornament. No other burials with grave goods are known, though many unaccompanied skeletons have been found in the dunes, both in the extended and trussed positions.

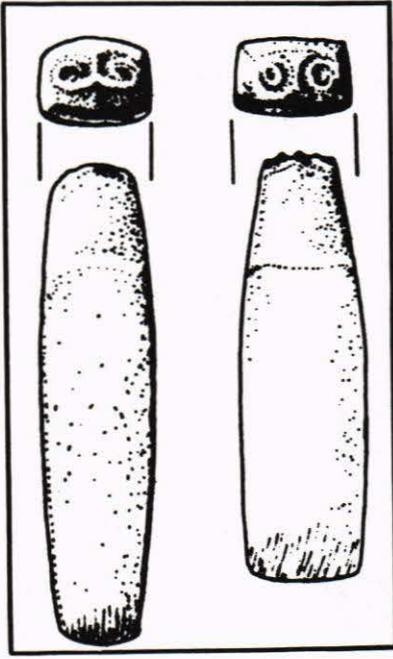
All this important Archaic material was recovered from beach and dune sites when exposed by wind erosion, usually near the mouth of a stream. Nineteen sites were listed by Simcox,²³ ranging from Ocean Beach in the north to the Aohanga River 50 km south of Cape Turnagain, north Wairarapa, and were marked on a map now in the Hawke's Bay Museum on which Figure 4.1 is based. To these can be added two sites on the shores of the Napier lagoon investigated by D. Bonica from which one-piece fishhooks, a grey argillite adze and a quantity of obsidian were recovered.²⁴

Turning to the later period, the so-called Classic Māori, greywacke adzes of



4.2 Serpentine pendant, reel form, decorated with drilled circles at ends. Found at Pakuku, Herbertville, probably with a burial (Hawke's Bay Museum).

Type 2B have been found at Puketitiri, some 30 km inland. There is also a variety of adze peculiar to the east coast which is made of the Tararua greywacke and decorated with a pair of hammer-dressed spirals on the butt, resembling eyes²⁵ (Fig.4.3), or with other simple devices. Some 40 examples are known, including one from the Poukawa excavations, a fine black polished example from Irongate pa, Waipawa, and others from Mohaka and Nuhaka. Outside the region, specimens have been recorded from Poverty Bay (Auckland Museum), from the Wairarapa and Manawatu (National Museum), from Waikato (Auckland Museum), and Taranaki (Otago Museum), presumably arriving as gifts exchanged during a chief's visit.



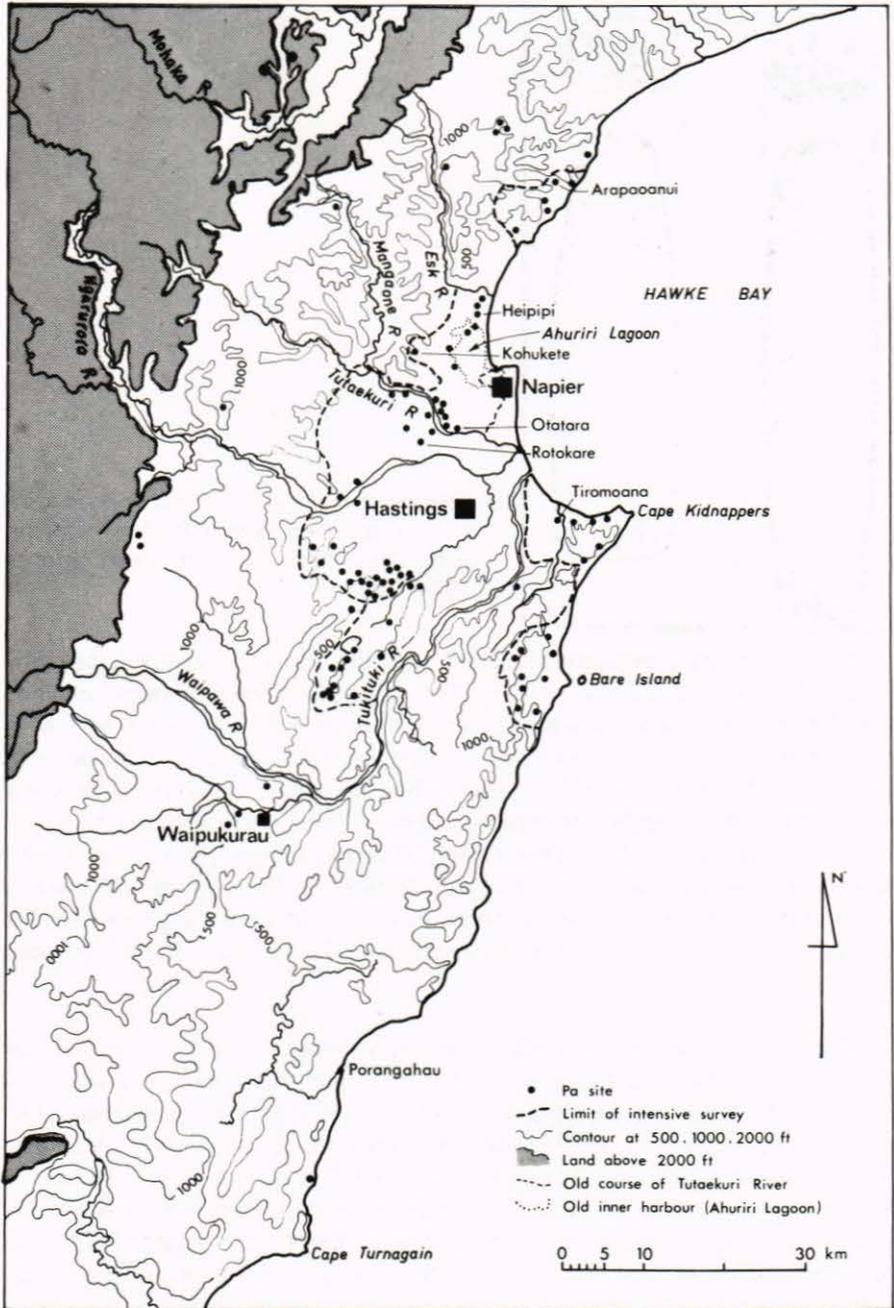
4.3 Greywacke adzes with hammer-dressed spiral motif on the butt: left, from Poukawa (25 cm); right, from Mohaka (22 cm) (after Skinner, 1974, p.24).

For small cutting implements, chert was the most commonly used raw material. It was obtainable as nodules along the axis of the Elsthorpe anticline, near Kahuranaki,²⁶ or from outcrops of the Whangai formation which appear in many areas on the coast south of Cape Kidnappers, as well as from pebbles deposited in the river beds. At Tiromoana, chert was worked in the large house on Site 1 in the 18th and early 19th century, but small pieces were also used throughout the previous occupation.²⁷ At this site obsidian was imported from Taupo and Mayor Island, according to the analysis undertaken by the geologists.²⁸ It was a scarce commodity; only 21 pieces compared to 237 pieces of chert were found at the pa, though it does appear to be more abundant at the early beach sites previously described.

Since detailed and up-to-date site recording is limited in extent, a complete distribution map cannot yet be produced for the region. It is, however, possible to obtain some idea of the later settlement pattern by using the pa as the most conspicuous and easily recognised type of earthwork (Fig.4.4). It is clear that intensive settlement was confined to low ground; most pa were constructed below 150 m and few are above 200 m. There are some exceptions; three pa with transverse defences have been recorded near Te Haroto, at a height of 600 m in the territory of the Ngati Hineru, and two with carved palisade posts survived in the Gwavas State Forest at 500 m, whilst near Te Pohue, pa and pit groups have been identified from air photographs at 330 m above sea level. These indicate some penetration of the high country, probably related to the Mohaka River valley and at a late date. A few fortifications are also known up the Ngaruroro River and the Mangarakau Stream in the territory of the Upokoiri.

Three major concentrations of pa are apparent in the lowlands; between the Esk Valley and Bay View on the Ahuriri lagoon; in the lower valley of the Tutaekuri River; and at Raukawa, south-west of Pakipaki. Other focal points are the inland lakes, Rotokare, Poukawa and Rotoatara (now Te Aute swamp) with their natural sources of food and access from the main river system, as well as the Waimarama coastal area including the nearby Ocean Beach. When one concentration is examined in detail at a larger scale, (Fig.4.5, Ahuriri lagoon) it is apparent that two major pa, Heipipi and Kohukete, dominate a tract of country containing a few smaller pa and many open settlements. These occur in clusters along the old

The settlement pattern



4.4 Distribution of pā in central Hawke's Bay (drawn by Caroline Phillips).

coastline and are clearly related to the exploitation of the fishing and shellfish beds (the lagoon was renowned for flounder).

In the eastern Raukawa area, pā outnumber open settlements, but in the nearby area west of Valley Road, small open settlements are by far the most numerous. The narrow range of hills between the two zones is practically devoid of sites, suggesting it was bush-covered and acted as a barrier. These localised variations in the density of nucleated and discrete settlements are interesting and require further study; they may reflect differences in landholding among sub-tribal groups.

The character of the open and defended sites will now be discussed separately.

**Open settle-
ments, culti-
vation and
storage pits**

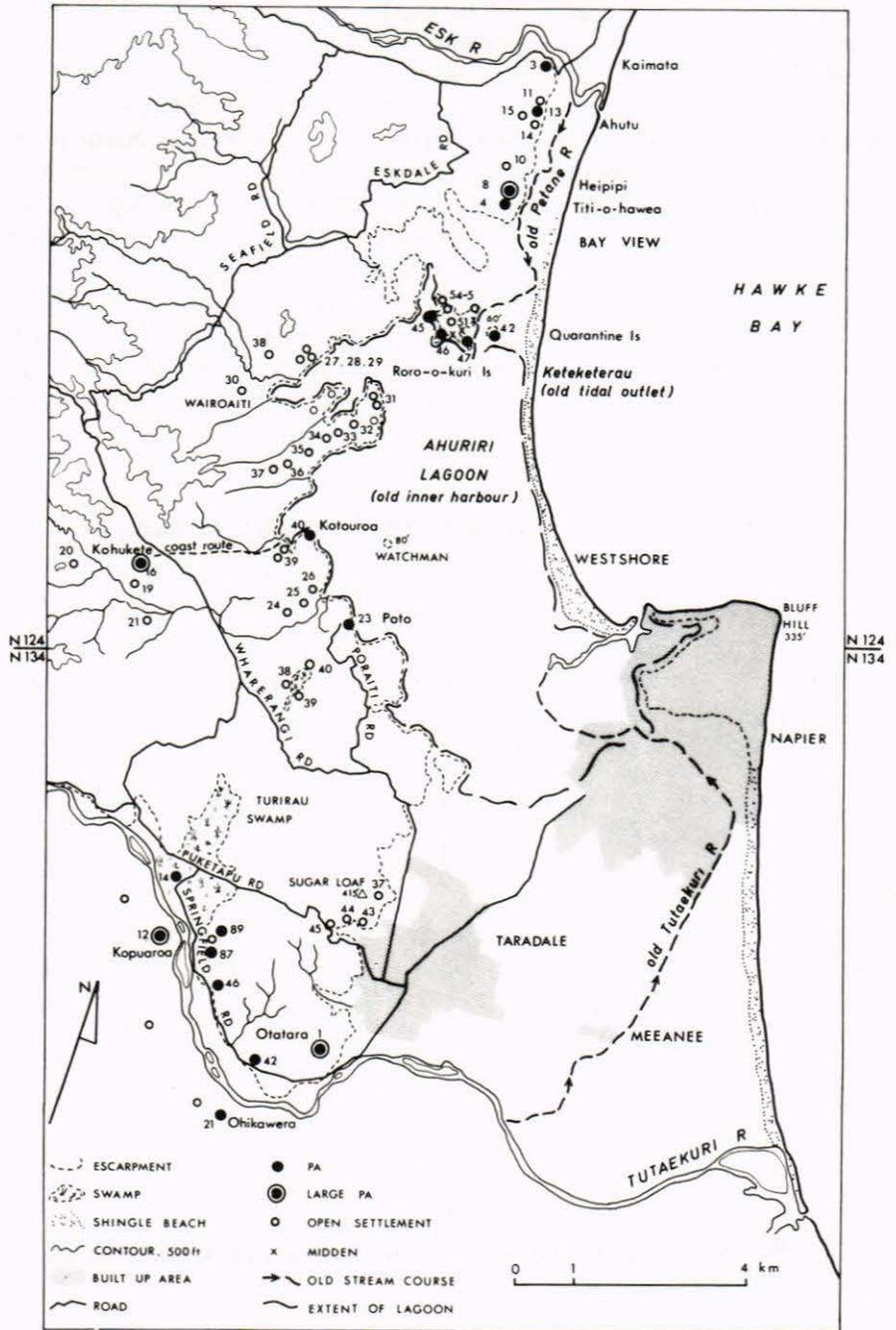
The majority of settlements which have been recorded are small-scale and without surface indication of any defences; they now number 212 in contrast to the 78 fortified pa in the areas intensively surveyed to date (Tables 1 and 2). They show as a cluster of three or four small terraces — artificial levellings — with which several storage pits, visible as rectangular depressions, and exposures of midden — shells and dark soil — are usually associated. The settlements are to be found scattered along the crest or upper sides of a ridge, above the easy slopes suitable for clearance and cultivation. Some notable concentrations have been recorded near a small lake on the Haddington estate near Haumoana²⁹ (Fig.4.6), at Wairoaiti on land overlooking the former Ahuriri lagoon (see Fig.4.5), and in the Te Aute Trust road area, all of which are at some distance from the nearest pa. None has been excavated as yet, but investigation of similar terracing at Tiromoana showed that wooden buildings of slight construction had been erect-

Table 1:
Settlement types in areas surveyed in 1976-81: fortified pa.

| NZMSI/ | Natural defences* | Transverse defences | Transverse and lateral defences† | Total |
|---------------|------------------------|---------------------|----------------------------------|-----------|
| 124 | 2 | 6 | 2 | 10 |
| 125 | 3 | 1 | 0 | 4 |
| 134 | 1 | 25 | 9 | 35 |
| 135 | 0 | 3 | 2 | 5 |
| 141 | 2 | 7 | 4 | 13 |
| 142 | 5 | 3 | 1 | 9 |
| 146 | 1 | 0 | 1 | 2 |
| Total: | 14 | 45 | 19 | 78 |
| | * Terraced pa included | | † Ring-ditch pa included | |

Table 2:
Settlement types in areas surveyed in 1976-81: open settlements.

| NZMSI/ | Terraces and pits | Pit groups | Total |
|---------------|-------------------|------------|------------|
| 124 | 19 | 4 | 23 |
| 125 | 3 | 5 | 8 |
| 134 | 38 | 14 | 52 |
| 135 | 10 | 3 | 13 |
| 141 | 8 | 12 | 20 |
| 142 | 48 | 40 | 88 |
| 146 | 2 | 6 | 8 |
| Total: | 128 | 84 | 212 |



4.5 Distribution of pa and open settlements in the region of the Ahuriri lagoon, Napier. The numbers are those of the Site Recording File, on maps N124 and N134 (drawn by Caroline Phillips).

ed on them, including a sleeping house and an open-fronted shed.³⁰ These small sites, therefore, can be interpreted as isolated farms or small holdings occupied by a single family of five or six persons.³¹ The larger examples, which have 6-8 terraces and up to 12 storage pits, suggest a hamlet occupied by a larger kin group.

Traces of Maori cultivation are difficult to detect; since the loess soil of central Hawke's Bay is stone-free, there are no alignments or stone-heaps marking the plots as in the Wairarapa or in the central Bay of Islands. Occasionally, there are

drainage channels or low banks running down the hillside as in the lower Waitio valley which were presumably the boundaries of the plots serving the groups of small settlements below.³² In the Waimarama district some exposures of cultural soils, enriched with ash and charcoal, have been identified.³³ In the Napier district small levelled flats, 3-4 m long, 1-2 m wide, have been tentatively identified as cultivation patches. They occur on north-facing slopes, are irregularly aligned and are associated with small groups of storage pits placed at intervals up the hillside and with a terraced occupation site at the crest.³⁴ Presumably, the pits were placed for convenience of harvesting the crop from the gardens in preference to the security to be gained by having them close to the settlement. There are also groups of up to 20 pits situated on the ridges apparently in isolation; a fine series can be seen on the air photographs of the Raukawa district.³⁵ These can be interpreted provisionally as food stores located near the cultivation, but only excavation could show whether the pits were associated with dwellings, and so formed part of a settlement.



4.6 An undefended settlement near Haumoana now shows in favourable light as a group of small depressions and terraces (A. Fox).

Many of the storage pits in Hawke's Bay are surrounded by a low bank, known as a 'raised-rim', with an external gutter on two or three sides (Fig.4.7). The usual size is about 4 x 3 m but there are some very large pits measuring 8-9 m long and 1.5 m deep, as in Otatara pa. Such pits are found in both open settlements and fortified pa, where plain rectangular pits may also occur. Raised-rim pits are distributed along the east coast, from the eastern Bay of Plenty, continuing round East Cape down to Hawke's Bay and to the Wairarapa and across Cook Strait to Marlborough. Excavation at Te Awanga (Fig.4.8) and at Palliser Bay has shown that the rim is composed of fine surface soil obtained from the first stage of digging the pit, probably supplemented by extra turf and packed hard. The pits were roofed in the usual way with a ridge pole supported on two or three central uprights embedded in the floor,³⁶ it is presumed that the rafters and eaves rested on the rim top. There was an entry at one end, sometimes with an earth step (the so-called 'buttress') to descend into the floor of the pit or cellar. At Te Awanga a timber-sill was found at the entry and indications of divisions on the floor for bins or racks for storing the crop.³⁷ In contrast to the rimless pits which have been excavated in the Auckland region, there were no internal drains on the pit floor; they were not needed because the surface water was caught in the external

gutters and drained away down the slope. The raised rims would also act as a barrier against sudden flooding in the heavy rainstorms characteristic of Hawke's Bay. Occasionally five or six pits were built in rows or clusters, sharing a common rim and divided by similar banks; good examples can be seen in Tuhirangi pa (N134/11) west of Moteo (Fig.4.7). It is not clear how such pits were roofed, or whether they were all in use at any one time or whether, as seems more likely, some were replacements utilising parts of pits that had been abandoned. Raised rim pits apparently functioned from an early date; at Te Awanga a radiocarbon date of A.D. 1200 \pm 80 was obtained from the charred remains of one of the roof supports.³⁸



4.7 Group of raised-rim storage pits within Tuhirangi pa, Motea (N134/11) (M. Jeal).

The fortified settlements or pa

The term 'pa' has been loosely applied to a variety of Maori settlements, ranging from the strongly defended hilltops like Oneroa, near Rotokare, to flat land settlements of recent times, for example Omahu, a Maori township at Fernhill. Strictly speaking, the name is limited by archaeologists to sites that were defended by earthworks, that is by banks and ditches. Such restrictive terminology breaks down in Hawke's Bay where there are a number of major settlements carefully sited in relation to natural defences, which are generally accepted as pa and known as such to the Maori people. The sites will therefore be considered in three categories: (1) pa with natural defences, (2) pa with transverse defences, (3) pa with lateral and transverse defences, including ring-ditch pa (Table 1).

Pa with natural defences are usually situated at the end of a ridge or spur, or on a coastal promontory. Such sites have the advantage of steep natural slopes on three sides whilst the fourth side is usually related to a narrowing of the ridge or

promontory beyond which the hill or cliff top may widen out again. A good example is the pa at Arapaoanui (N125/10) situated on a 180-200 m high ridge, in a position of great natural strength where the neck between a sheer cliff to the river and the head of a steep-sided gully is only 5 m wide. Other pa of this type, such as Rangitoto near Waimarama (N142/21), which occupies the summit of a complex of steep-sided spurs, use an artificial scarp to bar the narrow approach along the ridge. It is probable in most cases that timber palisades were erected as a barrier on the line of approach, of which the post holes could be found by excavation. Terraced pa are not common in Hawke's Bay with one outstanding example, the great pa at Otatara (N134/1) (Fig.4.9), which will be discussed later. Other examples are at Waimarama (N142/1), at Horonui (N134/122), at Kahotea (N141/16) and Ohikawera (N134/21) where the terraces are combined with transverse earthwork defences.

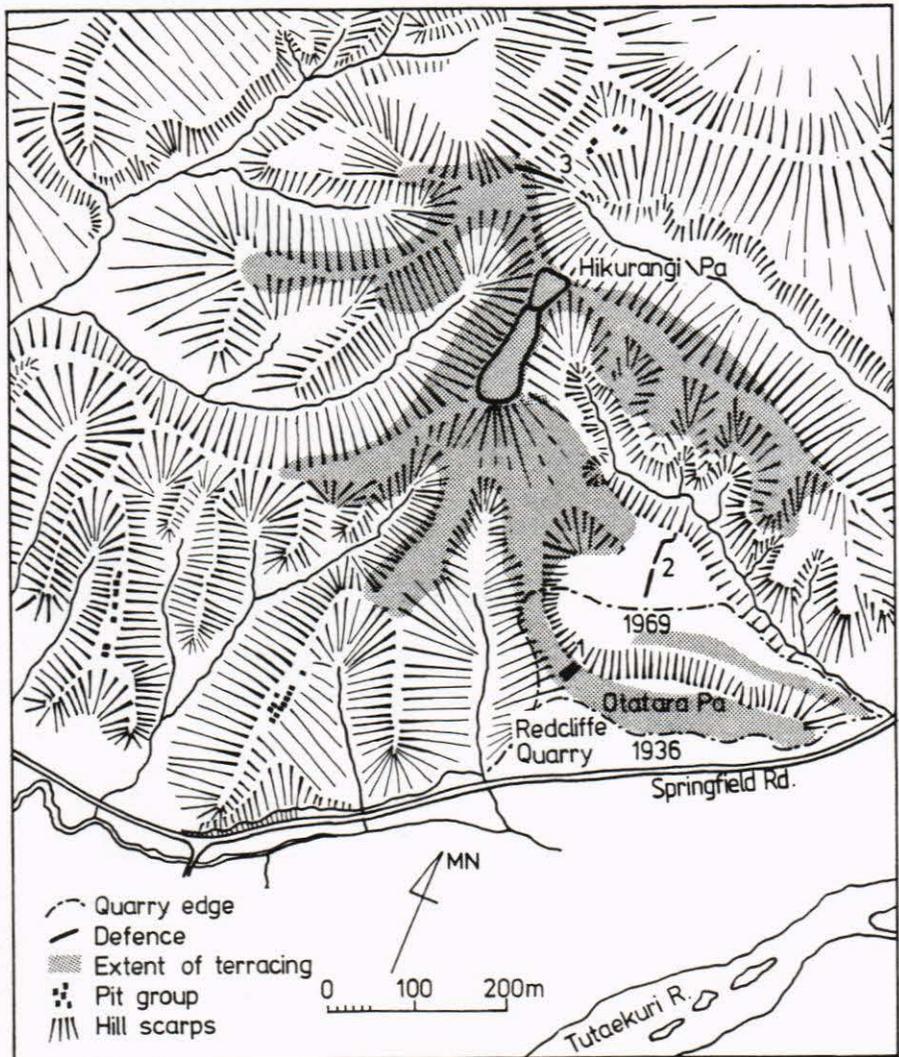
Pa with transverse defences are by far the most common in Hawke's Bay as in New Zealand generally; of the 78 pa recorded to date, 45 are of this type (Table 1). The defences are all small-scale in comparison with those in Taranaki or in the Bay of Plenty, consisting of one or more banks and ditches aligned across the narrow portion of a ridge or promontory (Fig.4.10). In a few examples the banks and ditches are close together, forming a strong multivallate defence, as for example the three lines at the small Motukumera (N134/8) on the southern shore of Lake Oingo. In the majority, they are spaced out along the ridge and face the



4.8 Tiromoana pa, Te Awanga. Raised-rim pit after excavation showing centre post holes for roof supports and at far end, entrance with timber sill and step (A. Fox).

direction from which an attack was expected. They are not necessarily all contemporary; at Tiromoana (N135/1) the outer line proved to be unfinished and so probably was the latest. At Oneroa above Lake Rotokare (N134/36) the three separated lines of defence appear to belong to a late phase of the occupation because they are either superimposed on raised rim pits, or cut across terracing. There are also some pa with transverse defences at either end as at Tuhirangi, Moteo (N134/11), implying that the inhabitants feared an attack from more than one direction.

The most impressive of all the pa in Hawke's Bay is Otatara at the eastern end of a 150 m high ridge and its flanking spurs on the left bank of the Tutaekuri River above Taradale (Fig.4.9). According to Maori tradition there were originally two pa belonging to the Whatu Mamoe people — a lower one at Redcliffe near the river which has been entirely quarried away, and a higher one on the crest, known as Hikurangi. When attacked by Taraia and the Ngati Kahungunu in the early 16th century, it is said that Hikurangi was captured but the Redcliffe pa held out, after the occupants had dug a ditch to defend it overnight.³⁹ An air photograph taken in



4.9 Otatara pa, Taradale (N134/1). Diagram plan, showing the probable positions of the two 16th century pa, and the final extent and defences of the fortified settlement. Based on 1936 and 1969 air-photographs.

1936 before the quarrying began shows a transverse defence line across the neck of the Redcliffe spur, confirming the existence of the lower pa and the validity of the Maori tradition.⁴⁰

The upper pa, provisionally located at the apex of the spur, was defended by scarping only (Fig.4.9). From these two focal points, terraced settlement with associated storage pits expanded to cover 35 ha of the slopes and crest of the ridge and the branching spurs. There was extensive cultivation on the lower slopes outside the occupied area, shown by groups of raised rim storage pits. Two lines of transverse defences were constructed to mark the final limits of the great Otatara pa. These are visible on the air photographs; one lies across the ridge facing north-west, the other across the lower slopes facing south-east (Fig.4.9). Both are small-scale earthworks, probably the foundations for palisades; they are designed to block the relatively easy routes to the pa. The gap in the centre of the lower line suggests a ceremonial entrance from the river approach.

It is obvious that in the less rugged country of the foothills and lower river valleys pa were open to attack on the flanks and the transverse defences needed to be supplemented by lateral constructions. At Tiromoana, Te Awanga (Fig.4.10), the side facing the approach up from the river was twice fortified by a palisade. The first line preceded the construction of the transverse bank and ditch, whilst the second palisade was contemporary with the earthworks and incorporated a fighting stage.⁴¹ These fortifications were dated by radiocarbon to about A.D. 1500-1550 by averaging two dates from the fighting stage posts of A.D. 1380 and 1520 \pm 60. At Te Whaeo, Te Hauke (N141/13), the actual stumps of a lateral palisade are still visible in the grass, supplementing the two lines of transverse earthwork defences across the narrow neck of the spur. At several other pa, as at Springfield Road (N134/42) or Raukawa Road (N134/121) a narrow terrace backed by a scarp continues the line of a transverse ditch and bank along the contour of the hillside, and presumably likewise carried lateral palisades.



4.10 Tiromoana, Te Awanga (N135/1), showing transverse defences and slots for lateral palisade posts, and raised-rim pits in the interior (A. Fox).

It is from this practice of lateral terracing and palisades that a form of ring-ditch pa developed in central Hawke's Bay. This type is concentrated in the Raukawa hills with extensions to Opapa and to the Ngaruroro River valley. The area corres-



4.11 Raukawa Road pa (N134/105). The rectangular outline of the defences is characteristic of the Hawke's Bay type of ring-ditch pa. Raised-rim storage pits in the interior (N.Z. Aerial Mapping).

ponds with the territory traditionally assigned to the Ngai-te-Upokoiri, a belligerent hapu of the Kahungunu in the 18th century.⁴² The pa have a characteristic rectilinear outline and are enclosed on three sides by a ditch with an internal bank or scarp, the fourth side usually being a steep natural slope (Fig.4.11). The defences are small-scale but often increase in size or are doubled where they front the easiest line of approach and the expected direction of an attack. Good examples are N134/7 and N134/25, Valley Road, N134/105, Raukawa Road, and N141/45, Opapa. The defences of N134/105 are probably late constructions since they appear to be superimposed on more extensive pit groups⁴³ (Fig.4.11). Similarly at Kouturoa pa (N124/40) on the Ahuriri lagoon, the lateral ditch on the landward side appears to have been cut into one of the three transverse lines defending the cliff-top, and therefore should be of a later date.

After the introduction of the musket in the early 19th century, the ring-ditch pa was adapted for the new type of warfare, in which protection against bullets and the provision of flanking fire were the main concern. Waikoukou (N134/98), strategically well-sited on a valley floor near Pakipaki,⁴⁴ is a good example. The outer rampart has been constructed with a substantial earth parapet which would give some protection to those firing down the valley, the most likely line of attack. There is also a sharp angle in the bank on both north and south sides from which flanking fire could be directed. In the interior there are open-ended hollows in which the defenders could shelter, as well as the usual raised-rim storage pits. The

ring-ditch enclosure on the summit of Kohukete (N124/17) also falls into this category;⁴⁵ it is clearly later than the remainder of the heavily occupied, naturally defended pa, which extends over 500 m of the steep-sided 150 m high ridge. The sharp unweathered profile of the earthwork, which includes a length of external bank as used in musket warfare, is indicative of a late date. The site is traditionally connected with an episode in late Maori history, when there was an armed incursion into Hawke's Bay from the Taupo district led by Te Koha. He fortified Kohukete as a refuge for his war-band but failed to survive a siege, owing to lack of water on the hill-top.⁴⁶

The final development of Maori fortification was the redoubt built in imitation of the British military strong-points that were introduced into New Zealand in the mid-19th century. The Maori version usually had four angled bastions which provided opportunities for flanking fire along each side. One such redoubt was built into the centre of a small ring-ditch pa at Old Ohiti (N134/28) on the right bank of the Ngaruroro River (Fig.4.12). Part of the defences of the original pa were levelled to give a field of fire towards the river and two cross-banks were built into the interior to assist in the defence if the redoubt were stormed.

This brief survey has demonstrated that the classification of pa according to the defences (Table 1) is not just an academic exercise; coupled with the limited excavation in the area, it provides a basis for chronology. It has shown that earthwork defences can be additions to a naturally well-defended site, that lateral palisades can precede or be contemporary with earthwork defences and that lateral earthworks and ring-ditch enclosures are likely to be late developments. When there are pa of different types close together in one place as at Kahotea (N141/16, 48 and 49) or at Lake Roto-o-Kiwa (N141/21 and 47) it can be assumed that those with lateral defences (N141/48 and 21) are the latest. Bastions and other provisions for flanking fire are the distinguishing signs of the latest Maori fortifications built for gun fighters in the mid-19th century. It is also apparent from the variety of fortified sites that survive today and from the evidence of their modification that there has been a long and complicated prehistory in this region.



4.12 Old Ohiti pa (N134/28), showing a Maori style redoubt, superimposed on a ring-ditch pa. The Ngaruroro River is in the foreground (N.Z. Aerial Mapping).

The function and economy of settlements

All types of pa appear to have been heavily occupied on the evidence of numerous storage pits, house sites and terraces in the interiors, together with exposures of shell midden and the occasional stone-edged fireplace or stone-filled hangi. Their prime function was to provide a secure base for a community and its activities. The largest are Otatara, covering 35 ha, Kohukete, 500 m long with 82 storage pits, and Tuhirangi with 62 pits strung out along 400 m of the ridge. All these, together with the larger open settlements, indicate sizeable agrarian communities, primarily engaged in kumara cultivation, and storing their crops in an orderly fashion within the fortifications. The storage pits are usually grouped in rows on the perimeter of the pa as at Tuhirangi (Fig.4.7), whilst at the nearby Glen Moteo pa (N124/80) most of the 30 pits are packed together on a natural river terrace a little below the defended hilltop, which was left clear; such arrangements indicate communal planning.

The numbers of detectable house-sites are far fewer than those of the pits, as for example at Arapaoanui with 27 pits and four house sites; excavation would doubtless add to the number since a small lightly-built sleeping house, a raupo whare, is unlikely to leave any surface traces. The probable house sites are revealed by rectangular levelled flats, 4-8 m long, 3-5 m wide with a 1-2 m scarp at the rear and a similar build-up on the lower side. Occasionally there are low banks at the sides of the house, such as at Oneroa, Rotokare, where a stone fireplace has been exposed in the centre of the floor. Excavation of a similar embanked structure at Tiromoana uncovered the remains of a long wooden house 11.6 x 3.9 m with the walls built of close-set timbers and the ridge pole supported on a row of 5-6 uprights in the centre of the floor. Radiocarbon analysis indicated that the house was of late 18th or early 19th century date.⁴⁷ At the other end of the scale there are small sized pa which have very few pits; these tend to be on low ground, on the coast or in the river valleys, as for example, Poto, Poraiti (N124/23), and Kouturoa (N124/40) both on the coastline of the former Ahuriri lagoon (Fig.4.5). Their situation suggests that they functioned as a base for a small community with an economy based on fishing rather than cultivation, perhaps on a seasonal basis.

Exposures of shell midden on inland hilltop settlements as at Tuhirangi indicate that expeditions to the coast were undertaken; the shells brought back were mainly pipi and cockle from the sandy beaches of the Ahuriri lagoon or the ocean beaches; paua shells and fragile mussel shells from the rocky shores have not been recorded in default of excavation.

Travel would have been by canoe down the rivers but there is a traditional overland route two miles long to the coast from Kohukete, still used by the Maoris at the present time for shellfish gathering (Fig.4.5). Superficial examination by Ritchie and Cave of 68 middens and six hangi within the dunes near Waimarama showed that pipi (*Paphies australis*) were the principal shellfish consumed at the beach sites, and that very few fish or bird bones were present.⁴⁸ Freshwater mussels were also collected from the inland lakes at Rotokare and Oingo and are found in middens in the settlements nearby. It is interesting to recall an episode in Maori traditional history when Te Rangitaumaha of Oneroa at Rotokare sent baskets of freshwater mussels (kakahī) for the feast of his first grandchild at Te Hauke. These were considered by the mother, Huhuti, to be a shameful and inferior gift.⁴⁹

Another resource was the netting of mutton birds, the titi or sooty shearwater. This was carried on until recent times near the nesting places at Puketitiri and at Titiokura near Te Pohue, about 25 km inland. The birds were taken in nets suspended in the scrub and fires were lit to flush them out from the nesting burrows, or to attract the birds in flight.⁵⁰

It is obvious that the archaeological evidence from Hawke's Bay has been insufficiently studied to write a cultural history of the area, or to assess fully the region's contribution to the Maori prehistory of New Zealand. It is possible to supplement the archaeological findings with the traditional Maori history, based on oral records, but this is fraught with difficulties and dangers.⁵¹ In broad outline, the first Maori settlers are held to be the descendants of those arriving in the Kurahaupo and, later, in the Takitimu canoe; these comprised the Ngaitara tribes of Cape Kidnappers, the Rangitane of the Hastings area, and the Ngati Awa and Ngati Mamoe of the Napier region.

These peoples were subsequently attacked from the north by the Ngati Kahungunu, then based in the Mahia Peninsula, and led by Taraia. He successfully overcame the opposition and the Ngati Kahungunu have remained in control to the present day. Although providing a welcome interpretation in human terms, the story affords only a sketch for a chronology; according to the genealogies, Taraia lived in the mid-16th century.⁵² During the 17th and 18th centuries, according to Buchanan, there was only confused small-scale fighting amongst the different hapu of the Kahungunu. In the early 19th century the region was attacked from outside, first from the north by the Ngapuhi, followed by the warbands of the Ngati Raukawa from the Waikato who joined forces with the Ngati Tuwharetoa from Taupo, all armed with muskets. They were finally defeated and ejected from the island pa Rotoatara about 1824.⁵³ More precision and understanding of these events may ultimately be obtained from archaeological studies, from selective excavations which should provide more radiocarbon dates, from comparative studies of the site types and their environment, and from specialised work on distinctive forms of artefacts.

Recognising the inadequacies and the limitations of present knowledge, the following outline is offered as a provisional and tentative summary. The primary settlement of central and southern Hawke's Bay was coastal, manifesting itself by the fine series of artefacts of archaic type recovered by chance exposure from beach and dune sites ranging from the Napier lagoon in the north to Porangahau and farther south (Fig.4.1). There is one attested settlement on the Maraetotara River about 1.5 km inland; this consists of two successive pits and perhaps another above ground structure at the end of the Tiromoana spur which was later fortified. Radiocarbon dates of A.D. 930 ± 120 and A.D. 1200 ± 80 were obtained in the excavations from remains of timber supporting the pit roofs.⁵⁴ There is also the evidence from the peat deposits near Lake Poukawa showing that land had been cleared by burning, presumably in readiness for cultivation; radiocarbon analysis similarly indicated a date in the 10th century, A.D. 920 ± 60.⁵⁵ This inland area was accessible by way of the old course of the Ngaruroro River and a tributary stream. Despite some reservations, these dates indicate that Maori settlement in central Hawke's Bay was as early as any in New Zealand.⁵⁶ There is good evidence for agricultural settlements in several parts of the North Island during the 12th century, including the Wairarapa. The intrusion into Hawke's Bay will have formed part of the rapid initial penetration southwards down the east coast of both islands, probably early in the 10th century.

Contact with the outside world in the Archaic phase, prior to the 14th century, is shown by the many adzes of metasomatised argillite from D'Urville Island and the Nelson area, which probably passed through the hands of middlemen before reaching the Hawke's Bay coast from the south. Obsidian from Mayor Island and from the Taupo region is likely to have come in similarly from the north as well as a few adzes of Coromandel basalt. Local sources of chert were discovered and utilised for small cutting implements whilst the silicified limestone on the nearby coasts of the northern Wairarapa were used for the local manufacture of adzes of early type, similar to those of the imported argillite.

The need for fortification arose later, as the communities grew and the land was increasingly exploited. At Tiromoana (Fig.4.10), the transverse ditch and bank with a fighting stage and a lateral palisade were dated by radiocarbon analysis to the late 15th or early 16th centuries.⁵⁷ There was an earlier palisade on the same line but it could not be more closely dated. The defences were extended in the early 17th century; thereafter they were partly demolished when two new entrances were made, some palisade posts removed and a large house was built outside the fortifications in the late 18th century. To what extent this well-documented sequence of open settlement, heavily fortified pa and dismantled defences applied to other pa in central Hawke's Bay remains to be seen from future excavations.

The radiocarbon dates obtained at Te Awanga are not at variance with the traditional Maori history concerning fortified settlement. Three large pa near the coast are named as being attacked by the Kahungunu in the early 16th century, Otatara, Heipipi and Arapaoanui, and are therefore potentially dated early types of fortification. All three are in positions of great natural strength; Otatara and Heipipi are defended by transverse earthworks of slight construction. It is not known how soon Maori settlement was extended inland from the nucleus on the coast and around Lake Poukawa by way of the principal rivers (Fig.4.4). The majority of pa in the foothills were constructed with transverse defences, coupled with lateral palisades or terracing in some cases. The ring-ditch pa was a late and localised development which was then adapted to the needs of musket warfare in the early 19th century until it was replaced by the formal angled structure of the Maori redoubt (Fig.4.12).

It is clear from the numbers and distribution of the fortified settlements, that from the 16th century onwards the Maori population greatly increased, and judging by the number of storage pits, that more land was brought into cultivation. The documentation of this process, with much else in Hawke's Bay, requires further study. More field surveys are needed to extend the distribution of sites into areas that are now blank on the maps, coupled with excavation of select examples of a variety of settlement types. Much more information is needed about the character of the Archaic coastal sites and the early industries derived from scientific excavation. Until such work is carried out, it is unwise to speculate further; it can, however, be safely concluded that the importance of Hawke's Bay in New Zealand prehistory has been underestimated.

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Notes

1. Colenso, 1884.
2. Fox and Jeal, 1977.
3. Ritchie and Cave, 1975, p. 7.

4. National Resources Survey Part VI, 1971, p. 25, maps 1-3.
5. McGlone, 1978, p. 275.
6. Fox, 1978, pp. 10 and 49.
7. Beaglehole, 1955, p. 179.
8. Buchanan, 1973, Figs. 15-16, 22-23.
9. Mumford, 1959; Davidson, 1974, p. 2.
10. In 1976, in consequence of the passing of the Historic Places Amendment Act, the Association handed over its site records to the Historic Places Trust to form the basis of a National Register of Archaeological Sites to be maintained by computer in Wellington. The regional collections of sites and maps are still retained in each locality and are accessible to interested people. In Hawke's Bay the filekeeper is Mrs Mary Jeal, based in the Hawke's Bay Museum at Napier.
11. A brief appreciation of Dr. Simcox by H. D. Skinner, appeared in the Hawke's Bay Museum annual report for 1967, pp. 12-13. A typed copy of his Notes and drawings of his collections which he was preparing for publication, is available at the Museum, and another is in the Auckland Institute and Museum library.
12. Fox, 1978, p. 2 and Fig. 1.
13. Ritchie and Cave, 1975.
14. Jeal and Menzies, 1976; Fox and Jeal, 1977, 1978 and 1979. Field notes were deposited with the Historic Places Trust in 1980 and 1981.
15. Myllin and Nevin, 1977.
16. Price, 1963, p. 169 and 1965, p. 8.
17. McFadgen, 1979, p. 375.
18. Fox, 1978.
19. Walls, 1974, p. 37.
20. Duff, 1956a, p. 151.
21. Simcox, Notes: see note 11 above.
22. Duff, 1956a, p. 117.
23. Simcox, Notes: see note 11 above. The map is exhibited in the Hawke's Bay Museum.
24. Pers. comm.: I am grateful to Dante Bonica for showing me the material which is stored in the Hawke's Bay Museum, Napier.
25. Skinner, 1974, pp. 23-25. Eleven are in the Auckland Museum, 3 in the Hawke's Bay Museum, 20 in the National Museum, 5 in Otago Museum and 1 at Poukawa, Price coll. I am grateful to David Simmons and Mrs B. McFadgen for assistance with this list, which is unlikely to be complete.
26. Moore, 1977, pp. 60 and 83.
27. Morwood in Fox, 1978, p. 41.
28. Hemming in Fox, 1978, p. 47. Re-examination by Bruce McFadgen in 1980 of 21 pieces showed that 15 were from the Taupo/Rotorua area, and 6 from Mayor Island.
29. Fox, 1978, Fig. 1.
30. Fox, 1978, sites II, V and X.
31. Fox, 1976a, p. 25 and Fig. 11.
32. Fox and Jeal, 1979, p. 2, Sites N134/132-135.
33. Ritchie and Cave, 1977, p. 12.
34. Fox and Jeal, 1977, p. 17, Sites N124/24 and 28.
35. Buchanan, 1973, Plates 6-20.
36. Fox, 1974b, Fig. 1.
37. Fox, 1978, p. 18.
38. Fox, 1978, p. 19.
39. Prentice, 1939, p. 43.
40. Fox, 1980c, p. 235.
41. Fox, 1978, p. 12.
42. Buchanan, 1973, pp. 18-20.
43. Buchanan, 1973, Plate 8.
44. Buchanan, 1973, p. 119 and Plates 14-16.
45. Fox and Jeal, 1977, p. 14.
46. Prentice, 1939, p. 95.
47. Fox, 1978, p. 25.
48. Ritchie and Cave, 1976, p. 7.

49. Prentice, 1939, p. 70.
50. Pers. comm. Malcolm MacNeil of Otamauri and R. Cottrell of Wharerangi. Mr MacNeil remembers seeing the birds in flight at Puketitiri some 40 years ago.
51. Simmons, 1977, p. 315.
52. Robertson, 1964, pp. 45-46 and 53.
53. Buchanan, 1973, pp. 22-24.
54. Fox, 1978, p. 50.
55. McGlone, 1978, p. 280.
56. Fox, 1975, p. 200.
57. Fox, 1978, Fig. 20 and p. 31.