## 10.4 PAPAMOA

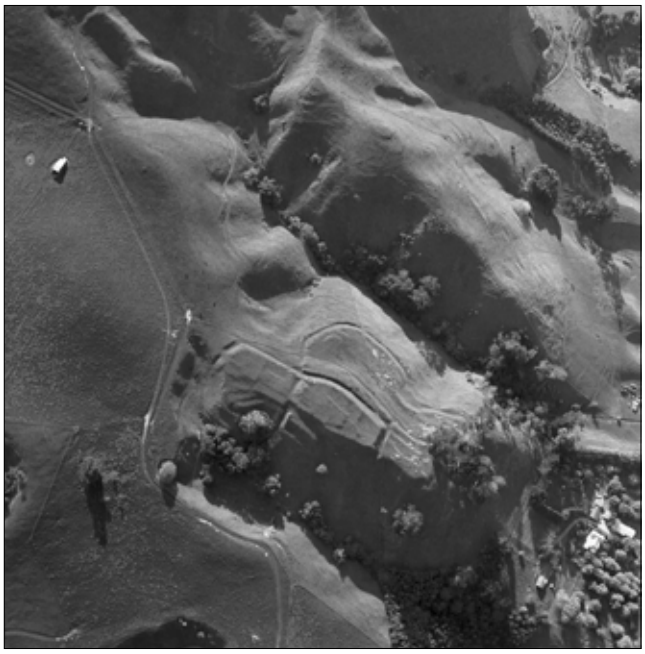


Figure 15. Pa on Papamoa Hills, oblique aerial photo. *Photo: K. Jones, DOC.*

Papamoa is a spectacular archaeological landscape (Fig. 15). The most striking features are the pa sites on the hills behind the coastal plain (Tapsell 2002). These have attracted archaeological interest over a long period (e.g. Blake-Palmer 1947: 237). The hills are steep and of mixed sedimentary and volcanic origin, with one pa (Wharo) built around a volcanic rim. The pa are associated with many terrace sites and a few sites that comprise pits only (Fig. 16). On the coastal plain is another landscape, which, if visually less spectacular, still holds considerable interest. Over recent years, the coastal plain area has received a lot more archaeological attention than the hills, as it has been developed for housing. The area undergoing modern development consists of a 20-km coastal strip with unconsolidated dunes post-dating the Taupo eruption, which extend up to 400 m inland. The dunes represent recent (post-Taupo) sand accumulation. It is presently unknown what initiated the formation of these dunes. Inland from the 400-m-wide strip of unconsolidated dunes is a zone of regular, smooth-shaped dunes that have wetter zones in their swales. To the east, these adjoin an area of meandering channels of the Kaituna River (Gumbley & Phillips 2000). Relatively few middens have been recorded in the most recent dune zone. The inland dune zone is much richer in sites. Three swamp pa are known from this zone. Although none of these have been investigated so far, they are potentially very important. To the east, on the coast, is the historically important site of Te Tumu (V14/40). Pa with known historic associations are present along the Kaituna river channels, but have not been subject to archaeological investigation. They have the potential for wet deposits and, thus, good wood preservation. The majority of sites are recorded as middens, but the range of evidence recorded on the now frequent mitigation excavations in this zone is somewhat wider than just middens. Hangi and scoop hearths are frequently associated with the middens, and storage pits of moderate size are apparent at others. There is also some evidence for living floors and surface structures.

The volcanic ash-based soils on the inland dunes have frequently been disturbed. The dune ridges were forested prior to the Kaharoa ash fall. Evidence from pollen indicates that the forest was cleared immediately after the ash fall. The soil disturbance has been interpreted as resulting from cultivation (Gumbley 1997); but, as noted above for Matakana Island, once a fernland was established, soil disturbance could also have resulted from fern root digging.

The individual sites recorded so far at Papamoa will not be reviewed here. They are covered in other reports (Hooker n.d., 2001; Gumbley 1997, 2004; Bowers & Phillips 1998; Wallace 1999; Gumbley & Phillips 2000, 2004; see also the excavated sites listed in Appendix 2). They are commonly midden scatters with closely associated scoop hearths and ovenstone clusters, and occasional post holes.

The coastal plain sites are striking for the relative paucity of artefacts and the rarity of fish bone. Shellfish from ocean and harbour shores are present,

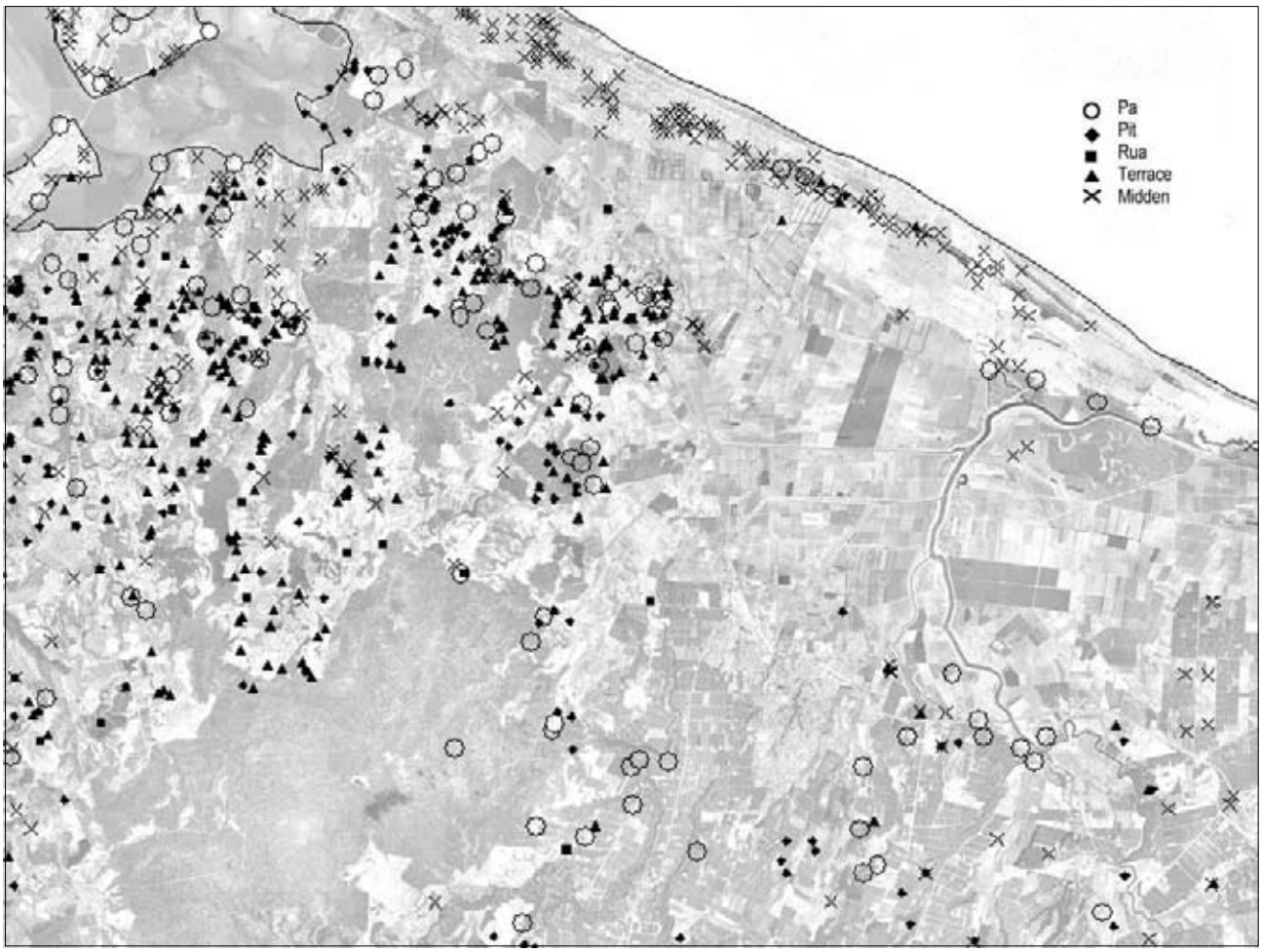



Figure 16. Site distribution at Papamoa, Bay of Plenty. The site type hierarchy is pa > pit/pits > rua > terrace/terraces/platform > midden. Sites with more than one form of evidence in their type classification are classified in the highest category, i.e. a terrace/pit site is classified here as a pit site. Pa are concentrated on the Papamoa hills but also along the harbour edge, and there are a few on the older coastal dunes. Pits, rua and terraces have upland sitings. Middens are concentrated behind the youngest dunes on the coast, but some have upland sitings.

some of which would have had to be brought some distance to be consumed at these sites. Clearly, there was some economic purpose to the location of the coastal plain sites. Plant identifications from charcoal are available for many of the sites. While many samples are derived from scrub and fern, charcoal from forest trees has also been identified, probably resulting from the use of stumps and relict wood (Wallace 1999), as at Matakana. Hence, the charcoal identifications are not as useful in indicating the progressive clearance of the former forest as might have been hoped.

There is now a large number of radiocarbon dates on shell from these sites (Appendix 3). They indicate that occupation of the area had certainly started by the early 15th century and that it continued into the 17th century. Dates from the 18th century are noticeably absent. As Gumbley & Phillips (2000) noted, the relationship of the coastal plain sites to the other sites on the hills behind is not clear.

Two pa on the hills above Papamoa have had archaeological excavation. Tamapahore Pa (U14/209) was investigated on a mitigation basis by Caroline Phillips (1999a, b). Because she was working in areas that had been damaged, the data recovered were necessarily limited. The site is a hill pa with scarp defences. There are large storage pits on the upper levels. The damage exposed a section through a lower terrace, which had been used for cooking

and storage pits. The shells in the midden were from both harbour and coastal environments. One terrace showed two stages of occupation, with the earlier firmly dated to the 18th century. This may not, however, date the use of the higher part of the site, which may have been occupied earlier. The second pa is unnamed (U14/243) (Anon. 1985: 139; O'Keeffe 1991: 18). At this site, part of a terrace was excavated. Midden material was found, along with evidence of cooking, post holes, storage pits and rua, as well as an infilled defensive ditch underlying the terrace. The lower part of the site (at least) had undergone a major re-shaping, extending the area available for use. This site has a date from fill in a defensive ditch (see Appendix 3), but the published information does not make it clear if this was from under the terrace. In any event, it is not very helpful, as the age range obtained was late 16th century to early 19th century. A second date from fill within a rua at the same site was also between the late 16th century and the early 19th century.

An undefended site on the hills behind Papamoa (U14/1675) has also been investigated in a mitigation excavation. The site consists of a *platform* and a lower terrace (Bowers & Phillips 1998). While much of the surface of the site had been removed prior to its investigation, some useful information remained. Rectangular pits were present on both the terrace and the platform. These were clustered in each location. Separate from the pit areas on both, were areas with postholes. The terrace had an area with burnt soil and a separate area with midden material, and the platform had a similar area of burnt soil. Hearths were found scattered on the platform, but away from the area with post holes. While houses were not clearly indicated, it is likely that the site shows spatial patterning consistent with the separation of storage, houses and cooking. A late use of the terrace was for some unusual shallow circular pits. The site is not dated, but is close to the pa U14/166, which has been dated (see below). Since undefended sites seem to be satellites of defended sites in this locality, the date for the pa may be relevant. The investigation showed that undefended sites have the potential to be of more limited time depth than is often found with pa and able to reveal social space use far more readily than sites that have been more intensively reoccupied.

In the C14 date list (Appendix 3), there is a series of dates from Papamoa pa collected by McFadgen (not including Tamapahore). These were from shell samples taken from existing exposures. No publication of the details of the locations or any interpretation of them has followed. However, at the very least they indicate occupation of the sites at the dates determined. Occupation of these localities on an unfortified basis is possible, but given their elevated and defensible locations, it is likely that most occupation dates relate to fortified use of the sites. The earliest dates place occupation of U14/207 between the mid-15th century and the early 17th century. The latest dates place occupation of U14/432 in the 18th century or later. Four other sites (U14/125, 298, 238 and 242) have dates intermediate between these. The dates cannot be considered as a single group statistically, so real-time depth is indicated, demonstrating that the sites were occupied from at least the 16th century.

One other pa site at Papamoa (U14/166) has been dated. This site has a date on a single sample from fill below a terrace, which gives a date between the mid-17th century and the end of the 18th century.

On this limited evidence, occupation of the hillside pa seems to have started a century later than the sites on the plain, but then persisted into the

18th century, at which time the plain seems to have been unused other than for the deposition of shellfish midden. This interpretation could well be negated by more detailed work on both the upland and plains sites. This landscape of hills and plains, with the latter possibly having rich wetland sites, is a tempting prospect for future archaeology in the Bay of Plenty.

## 10.5 KOHIKA

Kohika (V15/80) is a swamp pa near the Tarawera River and on its flood plain. It is set back from the coast, centred on a remnant of the sand ridge left by an earlier coastline. The central sand mound has been added to by imported material along its periphery. The site was palisaded and clear evidence exists that water lapped against at least part of its periphery. The present-day site is near to a small lake, and the site may well have been completely surrounded by water when it was occupied.

Excavation revealed that the site had been occupied for some period of time, with three succeeding house floor levels in the built-up part. The site was used for a period around the late 17th century. The site may have been used for as long as 180 years, but more likely for 40–80 years, based on a sophisticated analysis of the carbon dates (Irwin & Jones 2004). Use of the site seems to have ceased following a massive flood that infilled the lake at the periphery of the site, possibly rendering it too accessible and reducing security and/or lessening access to resources by canoe. Some burials were made in the site after discontinuation of residential use.

The interior of the site area is differentiated with respect to function. The higher and drier part has been used primarily for storage pits for crops that must have been grown elsewhere. Other parts of the site were used for pole and thatch houses and cooking. From the evidence of timber parts found at the site, there were also *pataka* and carved superior occupation houses (Wallace & Irwin 1999). Enough parts of the latter were found to convincingly reconstruct technological details and the form of the house or houses represented. From these, Wallace & Irwin (1999) hypothesised that house construction in New Zealand had close affinity with canoe construction, using similar types of lashing and joint detailing.

In the wetter parts of the site, a wealth of wood and other organic material was recovered (Wallace & Irwin 2004), as well as the pataka and superior house parts. Wood survives in swamps because the ground water has no dissolved oxygen below a certain depth and thus cannot support the bacteria that would normally attack the wood. The wooden material found at this site included bird spears (a bone point was also found), ko (digging stick), a ko footrest, a spade, weeding sticks, detachable spade blades, fernroot beaters, bowls, paddles, a steering paddle, canoe hull parts and fittings, net gages, tops, adze and chisel handles, fibre-working tools, a ladder, wedges, lashing vines, and javelins. No short or long clubs were found. The javelins are the only potential weapons in the assemblage. Interestingly, six combs of the round-topped form were also found. These were the later form identified from the Kauri Point Swamp site. None were broken through the frame, so the reason for their deposition here would seem to differ from that at Kauri Point. The site dating for Kohika (i.e. extending into the 17th century) is consistent with Green's (1978) dating of the Kauri Point depository.

Several wooden pieces from the site (including house posts) were carved. On the basis of the style of the carving, Wallace et al. (2004) considered that four different carvers were involved in the decoration of these pieces. Gourd rind fragments also occur in the deposits, some formed into open containers with notched rims and one with an incised decoration (Irwin et al. 2007).

A wide variety of fish and bird bone was obtained from the site (Irwin et al. 2004; Appendix 4). While the amount of bone material was not large, it was very diverse. Whale bones present were fresh and had been dog-gnawed. Seal and dog bones had been used industrially to make tools, and dogs also appear to have been eaten. There were also human bones present that had received some industrial use. The bird species recorded were from ocean, coastal, wetland and forest environments. Bone hooks and nets were present among the artefacts, and it appears that fish were caught using a variety of techniques. The fish were mostly estuarine, but some must have been caught in the ocean. Shellfish also had a diversity of sources. Some of the gourd fragments were from immature fruits, which appear to be food remains (Irwin et al. 2007: 44).

Obsidian was common at the site. Moore (2004) identified the majority of pieces as coming from Mayor Island (Tuhua), but some were from Taupo and the Maketu pebble source. Holdaway (2004) looked at the form of the obsidian flakes, and found that the presence of utilised flakes and waste material varied over the site. There was little evidence of production of any formal obsidian tool types at Kohika. The occupants frequently discarded large flakes, which suggests that the material was not highly valued and could be easily replaced. It seems likely that the occupants had good access to the Mayor Island (Tuhua) source of obsidian, either by exchange or direct collection.

Other artefacts recovered from the site include a bone tiki, cordage, woven matting, two nephrite adzes, a nephrite chisel and two nephrite pendants, a drilled human tooth, a bone toggle, fishing gear, needles, a bone awl, a bone chisel, pumice containers, and a pumice kumara god.

The distribution of sites in the Kohika area makes it likely that the occupants were contemporaries of people who used pa and pit and terrace sites on the higher ground around the plains. The ash-covered sand ridges closer to the coast were gardened and used for cooking and storage (Jones 1991). Interestingly, there were hardly any gourd seeds at Kohika, suggesting that these plants were grown and processed elsewhere. Remote gardens would be a satisfying complement to the Kohika site. Jones (1991) dated an intermediate stage of the nearby Thornton site on the dunes (W15/121) as mid-17th century or later. On this basis, it is not possible to say that the two sites were definitely contemporary, but it is a possibility. The tight dating of Kohika adds to its value, as it can be used to compare and contrast with other sites.

Kohika is a key site in the archaeological definition of the culture of pre-European Maori living in the Bay of Plenty. Its residents had good access to a wide variety of environments, particularly using canoes. They exploited the freshwater, coastal and offshore marine environments, and grew their crops on what drier land they could reach, bringing at least some of them back to the site. The people had time to decorate their houses and indulge in other crafts and games. The differing house forms represented in recovered artefacts suggest there was status differentiation among the inhabitants. They may have lived in a period of low stress with their neighbours, as their site is not strongly defended. They had access to resources as distant as Taupo and Mayor Island obsidian, and South Island nephrite.

# 11. Historical archaeology

Historical archaeology has received little attention in the Bay of Plenty, much less than its potential deserves. This section will, of necessity, be a sketch of the potential for further work in some particular study areas, and will spend as much time on significant but little-recorded or studied aspects as on those that have already received some attention. There is a substantial resource in local histories from the area, but relatively little of the work of local historians has connected the matters covered to existing archaeological evidence. The lack of attention to historical archaeology can most convincingly be attributed to the relative recency of the modern development of the Bay of Plenty. A secondary but related factor is the AD 1900 cut-off date for the legal protection of sites in the Historic Places legislation, which must limit the attention historical archaeology gets in resource management related to development.

Mining and timber working dominates the listed site types in the Site Recording Scheme for the region (Table 4). The number of some types of sites, such as flax mills, must be much less than the number of sites that could be recorded. Figure 17 shows the distribution of non-Maori sites in the region. The recording is so patchy that it is hard to conclude much from the distribution. Indigenous forest extraction sites (such as mills or *snigging tracks*) will be much more extensive than the pattern revealed in the areas currently surveyed.

TABLE 4. NON-MAORI SITE TYPES IN THE BAY OF PLENTY FROM SITE RECORDING SCHEME.

| SITE TYPE | NUMBER |
|---|---|
| Mining | |
| Mine or gold mining | 6 |
| Prospect trench | 7 |
| Portal | 83 |
| Open stope | 5 |
| Chute | 3 |
| Water race | 7 |
| Battery | 6 |
| Tailings site | 1 |
| Timber | |
| Kauri dam | 6 |
| Tramway | 25 |
| Logging camp | 7 |
| Hauler/skid stand | 3 |
| Tram tunnel | 1 |
| Other industry | |
| Flour mill | 6 |
| Flax mill | 1 |
| Dam | 3 |
| Quarry | 6 |

| SITE TYPE | NUMBER |
|---|---|
| Transport | |
| Bridge | 2 |
| Tunnel | 4 |
| Road | 18 |
| Track | 12 |
| Occupation sites | |
| Hut | 10 |
| House / dwelling | 6 |
| Hotel | 1 |
| Town | 1 |
| Camp site | 5 |
| Mission | 2 |
| Redoubt | 8 |
| Armed Constabulary fort | 2 |

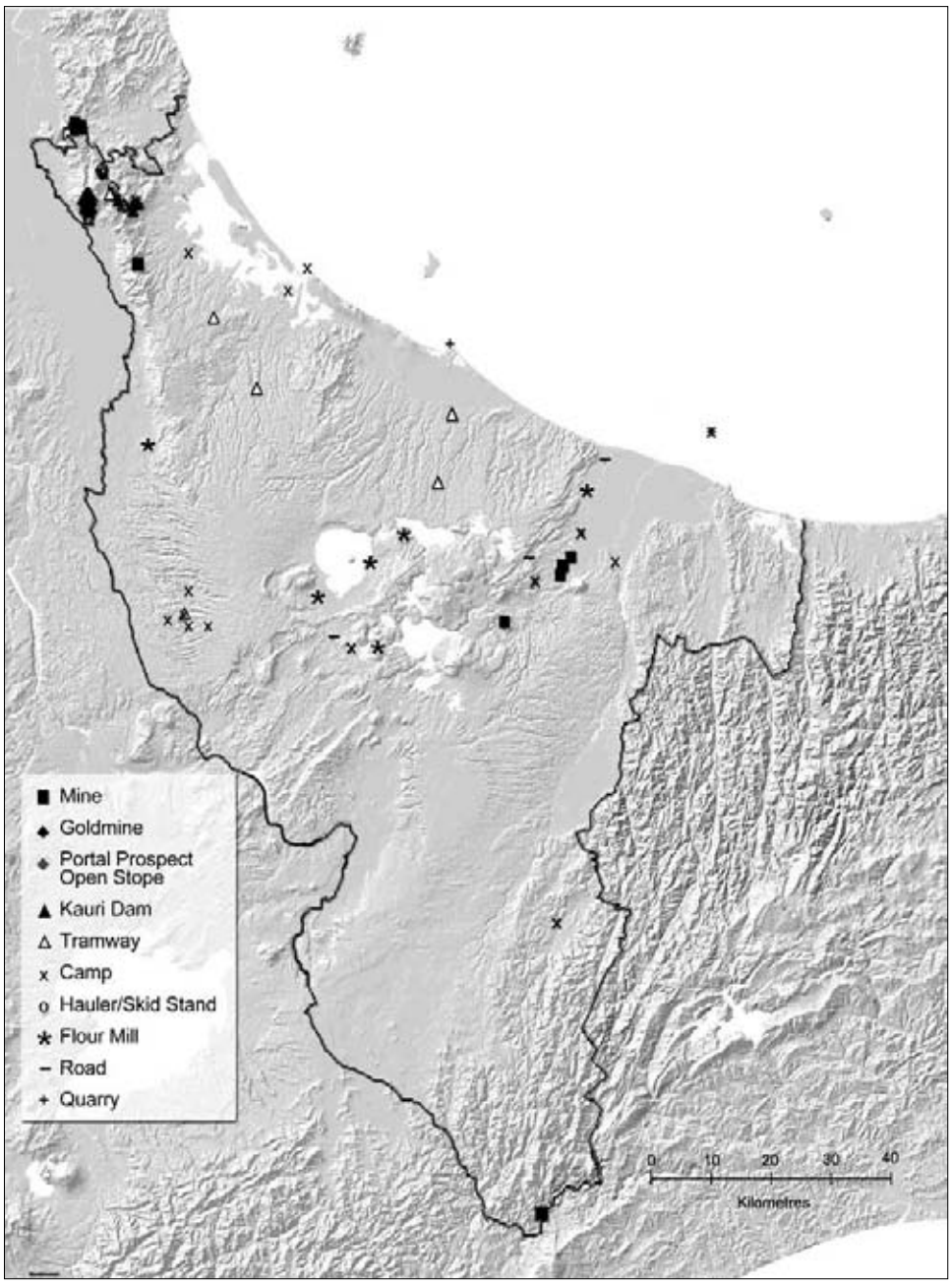



Figure 17. Distribution of some non-Maori site types in the Bay of Plenty region.

## 11.1 CONTACT PERIOD

By the early 19th century, exploration, trade and religion brought Maori and Pakeha into regular contact in some parts of New Zealand. These activities developed somewhat later in much of the Bay of Plenty area. Seals and whales were not as significant a resource in the area as they were elsewhere in New Zealand. Although there was some shore whaling in the eastern Bay (Prickett 2002), there is only a single reference to it further west—a whaling station run by Gilbert Mair on Moutohora (Cowan 1935: 133), which has not been located archaeologically. The absence of readily available timber around Tauranga meant it was excluded from that trade, and elsewhere in the region the absence of harbours or navigable rivers limited access where timber was present (Stokes 1980).

The pressure Maori felt to acquire muskets to redress the military imbalance created by other iwi who had greater trade opportunities, was an important factor in the opening up of the Bay of Plenty to trade. Of the classic products of Maori trade—labour, pigs, potatoes, flax and timber—timber and labour for timber extraction were both constrained in the Bay of Plenty area by the limited availability of trees close to the harbours. Pigs (*Sus scrofa*), flax and potatoes were the earliest commodities traded from the early 1830s; and wheat (*Triticum* spp.) was traded once the Auckland market became established in the 1840s. Inland iwi were particularly constrained, and their access problems sometimes led to specific interactions and alliances between iwi. For example, Ngati Haua in the inland Hauraki area were prevented from trading on the Hauraki Gulf coast due to tribal enmities. They overcame this disadvantage by building their alliance with the tribes of Tauranga Harbour. Te Arawa at Rotorua were mostly remote from the coast, and they gained access by defending the extension of their territory to the coast at Maketu (see below). However, it was not practical to transport potatoes or flax from these areas to the coast. Pigs were the most transportable commodity. They were driven over the Kaimai Range to Tauranga for trade. Rather than taking flax to the coast, the inland people went to the coastal flax resources. When Tapsell opened trading at Maketu in about 1830, some traditional enmities seem to have been put aside and a rush to produce flax and other products temporarily brought several different tribal groups to the area (Ballara 2003). Tapsell initially acted as an agent for other European traders. He came to the Bay of Plenty from the Bay of Islands with Ngapuhi associates and some women taken as slaves from Rotorua in the 1823 Ngapuhi attack there. While Maketu was initially recognised by Tapsell as Ngaiterangi (of Tauranga) territory, the Arawa connection led to a strong linkage with Arawa and resulted in them occupying and fiercely defending their Maketu territory against rivals from Tauranga. Warfare between Arawa and the allied Tainui/Tauranga tribes may have other historical causes, but rivalry over the access to trade kept it alive in the 1830s and '40s. Tapsell subsequently traded on his own behalf and had agents at Tauranga and Whakatane where he later settled. Other traders established at Tauranga and at Matata from the early 1830s. Small craft were used for some trade, without shore stations. Some early traders were based in the Bay of Islands.

Anglican missionary efforts began with an overland visit by Samuel Marsden to Katikati in 1820. This brought the population of the area to the attention of the Bay of Islands-based missionaries. Henry Williams first visited Tauranga in 1826 in the new mission schooner *Herald*. He revisited Tauranga and also Maketu and Whakatane on many occasions. The Matamata mission, established in 1833, was the first in the area; Te Papa at Tauranga was established by William Wade in 1835. Both missions were abandoned during the course of the intertribal war scares of 1836. Te Papa was then re-established by James Stack in 1837. Alfred Nesbit Brown joined it in the following year and became the long-term missioner there; he travelled extensively throughout the Bay of Plenty and the Ureweras.

Anglican Thomas Chapman visited the Rotorua area in 1831 and returned in 1835 to found a Mission, initially at Te Kuotu and later at Mokoia. After a period of abandonment through war, his missions restarted in 1838 and he

moved to Te Ngae in 1840. Seymour Spencer relieved Chapman there for a period and established a mission at Tarawera in 1845.

Catholic missionaries also operated in the area: Philippe Viard at Tauranga from 1840, Father Bojorn at Maketu from 1841, and Father Reigner at Rotorua from early 1843. Despite a later start, the Catholics had greater success in baptisms and confirmations than the Anglican Church Missionary Society.

Land alienation commenced with churches purchasing properties for their missions, but this never developed in the Bay of Plenty to the extent it did elsewhere, where missionaries sought to establish their descendants on farms.

## 11.2 THE 'MUSKET WARS'

During the early contact period, there was much fighting between Maori in the Bay of Plenty area (Wilson 1906; Stafford 1986, 2007). This was not covered above (section 11.1) because it was not directly related to contact with Europeans. Ngapuhi were a principal belligerent from outside the region. They had an initial cause for war because a niece of a Bay of Islands chief—Te Morenga—had been carried off on the vessel *Venus* in 1806 and left at Motiti in the Bay of Plenty, where she was subsequently killed. Missionaries resided in the Bay of Islands (where the Ngapuhi expeditions originated) from 1814, so there is an accurate record of the dates of their expeditions from that source. Ngapuhi, led by Te Morenga, attacked Tauranga in 1818 then moved on to Whakatane. At that time, they had a monopoly on guns, which made them invincible in both places. Simultaneously, another Ngapuhi *taua* (war party) under Hongi Hika attacked Maketu, taking a pa there. Te Morenga again attacked Tauranga in 1820, defeating Ngaiterangi at Mt Maunganui, with large loss of life for the local side. Thereafter, peace was made, which lasted a decade.

Ngapuhi under Hongi attacked Rotorua in 1823 in the well-known event where canoes travelled up the Pongakawa River and were then dragged over portages to successfully attack Mokoia Island (Stafford 2007). Part of the party under Pomare and Te Wera then attacked Whakatane, taking a Ngati Awa pa there. The Mokoia battle avenged an earlier slight on Ngapuhi and, remarkably, an enduring peace was made immediately (Urlich-Cloher 2003: 178). The defenders of Mokoia had only one musket against the many arming the attackers (Stafford 1962: 18). This typifies the power imbalance that had resulted from the early trading advantages enjoyed by other iwi.

Ngati Maru made attacks on Tauranga, taking the pa at Te Papa in 1828. A Ngapuhi taua attacked Maungatapu pa at Tauranga in 1830, but was rebuffed. Later that year, a taua under Te Haramiti of Ngati Kuri surprised the residents of Mayor Island (Tuhua), killing many; but they were, in turn, surprised at Motiti, and only two of their group escaped capture or death.

In 1832, Bay of Islands chief Titore led a taua that attacked Otumoetai (U14/202) to avenge the last two losses. By now, no side had an advantage in musket fire power and Ngaiterangi defenders even had cannons. A stalemate resulted. The trader Tapsell supplied Ngapuhi in the fight, earning the enmity

of Ngaiterangi. This stalemated fight indicated that the musket arms race had come to an end, also marking the end of the mass slaughters that had been typical of earlier battles in the Musket Wars.

Titore raided Tauranga again in 1833, with unsuccessful attacks on Otumoetai and Maungatapu (U14/175). Arawa hapu fought on both sides in this conflict. Shortly after these attacks, the Te Arawa and Ngapuhi alliance strengthened and defeated Ngaiterangi at Te Tumu pa (V14/40).

Ngati Haua under Te Waharoa allied with Ngaiterangi to successfully attack Maketu in 1836. Te Arawa avenged this attack the same year with an assault on Te Tumu, which had by then been reoccupied by Ngaiterangi, taking it again. Te Waharoa then turned to Ohinemutu. A bloody battle took place outside the defences, but Te Waharoa fell short of taking the pa. Te Arawa continued their enmity with Ngaiterangi, with Te Pehu reoccupying Maketu in 1837 and attacking Maungatapu pa at Tauranga. A half-hearted response by Ngati Haua with Waikato and Ngaiterangi allies was directed at Maketu, but the assault was not pressed. Te Arawa raided Tauranga in return, but were satisfied by killing a fishing party rather than attacking defences.

The Ngati Haua/Ngaiterangi allies made two attacks on Maketu in 1839, both unsuccessful, with the attackers suffering greater losses. Te Arawa made a last raid on Tauranga in 1840, with an attack on Maungatapu, but made no serious assaults against the musket firepower within. The arrival of a Ngati Haua relief party changed the balance of power and the Te Arawa taua departed.

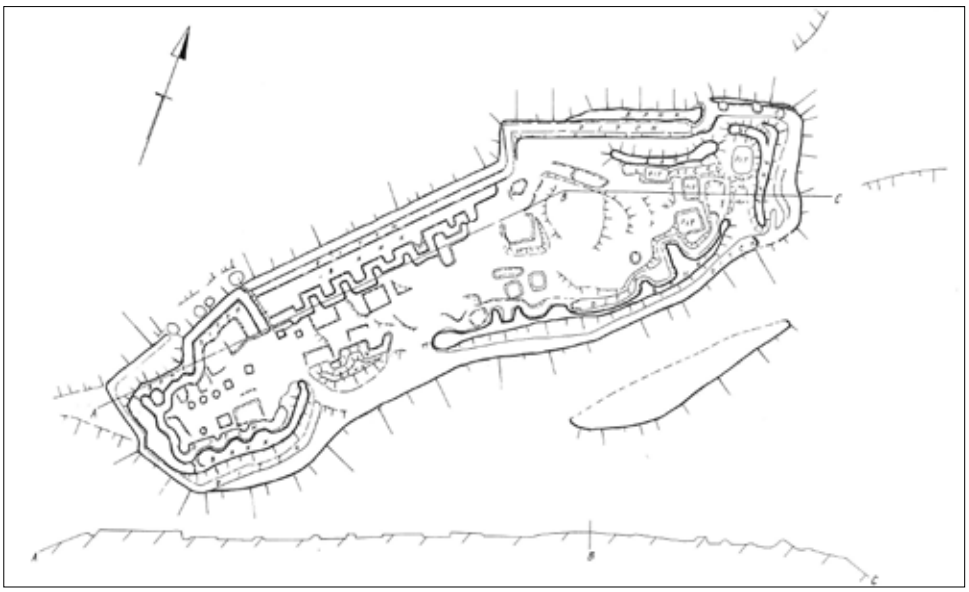
Many of the musket war engagements took place at a few key sites, such as Otumoetai (U14/202), Te Tumu, Maketu and Maungatapu. By the end of the wars, these sites had been adapted thoroughly to musket warfare (Walton 1998), with some Maori also adopting cannons to bolster their defences. Most of the pa of this period were sited in areas where there has been intense subsequent development. However, even when this is the case, such as at Otumoetai, archaeological information is still recoverable, as modern development has usually left some of the underground evidence intact.

In the course of the conflict, pa were redesigned to better accommodate fighting with muskets. Figure 7 shows the distribution of gunfighter pa in the Site Recording Scheme. These date from the Musket Wars through into the New Zealand Wars. The historical accounts suggest there should be more. A pa at Te Puna (U14/1422) has typical traverses in the trenches that were used for firing from rather than for inhibiting access (Fig. 18). Te Paripari, a site on a Historic Reserve at Ohope (W15/23; Kingsley-Smith 1971), is an example that well illustrates the form of these sites.

In 1840, the Treaty of Waitangi was brought to the Bay of Plenty. Ngaiterangi signed it at Tauranga. Iwi from the eastern Bay signed it, including Te Whakatohea, Ngai Tai and Ngati Awa. Tuhoe and Arawa declined to sign it, but by the 1860 Kohimarama conference, Te Arawa had also accepted the Treaty.

Following the signing, the British Government was represented in the Bay of Plenty region by Edward Shortland, with the title Sub-protector of Aborigines, who set up base at Maketu. The place of residence was a misjudgement—

Figure 18. Gunfighter pa map, site U14/1422.



effectively indicating government favouritism (Lousberg 2005: 68). He did not stay there long, as he went on an extensive South Island journey while in the post and then moved to Wellington. The site of his house at Maketu is recorded (V14/38).

British prestige suffered a severe blow in 1842, when Taraia from Ngati Tamatera avenged an insult by attacking a Christian pa at Ongare near Katikati, killing and eating some of its occupants, and the Government took no effective action in response (Lousberg 2005: 58–68).

The surface features of the Te Papa Mission site have been recorded (Mackay 1992), but there has generally been little archaeological study of contact period sites in the Bay of Plenty. The dimension that archaeology could bring to the historical record of this period is therefore absent.

During the more peaceful years of the 1840s and 1850s, the engagement of Bay of Plenty Maori in commerce expanded. They participated in the new market in Auckland for produce (Hargreaves 1959, 1961). Wheat growing and flour mills primarily fed this trade, but maize (*Zea mays*), potatoes and pigs were also substantial components (Hargreaves 1959: 65, 68). Some of this trade used small sailing craft owned by Maori. While this period of trade is often depicted as an unqualified success for Maori, it was not always so, with over-investment in mills and ships. The trade moved into recession in the late 1850s, before the New Zealand Wars impacted on the Bay of Plenty.

## 11.3 NEW ZEALAND WARS

The first phase of the New Zealand Wars, which took place in the Bay of Islands in 1845, had little impact in the Bay of Plenty. The commencement of the Taranaki and Waikato phases (1859–1862) also had little impact. Like other aspects of the Bay of Plenty's history, the wars were late in arriving there. Tauranga and Rotorua Maori were engaged in the establishment of Kingitanga in the 1850s, but the primary confrontations over land in the Bay of Plenty were not spurred by local settler pressure (Belich 1988: 76; Cowan 1923 (I): 141). As already noted, the Tauranga campaign followed the invasion of the Waikato, when Ngaiterangi and other eastern iwi allied with the Kingitanga and attempted to consolidate forces at Matata and Tauranga, anticipating a move to the Waikato. The principal engagements of 1864 took place at Gate Pa (in April) and Te Ranga. An assault on a well-prepared Maori position at Gate Pa by British soldiers and sailors was rebuffed with considerable losses. The surrounded defenders soon abandoned the position, which was converted into a British redoubt. Eight weeks later, an unfinished Maori fortification further inland at Te Ranga was taken by the British, with small losses on their side and much greater losses on the Maori side. Weapons were then surrendered (but not the new rifled guns) and land confiscation followed. Some land was subsequently returned and some was sold by Maori in a complex series of deals. Land was allocated to militia members, beginning the colonial settlement of Tauranga (Cowan 1923; Belich 1988).

Figure 19. Monmouth Redoubt, U14/174.

There are some traces of earthworks at Gate Pa (U14/192) and at Te Ranga (U14/191), where McFadgen (1977) demonstrated that techniques other than excavation can be used to define now-buried structures. The British defences from the period are best represented by Monmouth Redoubt (U14/174; Fig. 19). Durham Redoubt (U14/433), since destroyed, was the other Tauranga defensive work of the period. Other redoubts and blockhouses were built to secure the district. Many of the victims of the fighting from both sides are buried at the Te Papa cemetery (U14/189). This is a cultural heritage site that has great importance in connecting the present with the past.

The other military engagements in the Bay of Plenty get little attention in the recent histories of the New Zealand Wars. However, even if they were less important than others nationally, they were still significant for the Bay of Plenty area, and traces of them remain in the landscape. Some Ngati Porou from the East Coast had joined the Waikato War in 1863, as had some Tuhoe. In early 1864, a much larger group of East Coast King supporters and more Tuhoe who wanted to join the war, by then in its final stages, assembled at Matata. This Tai Rawhiti force sought Arawa approval to cross their territory, but it was denied. William Mair arranged for military supplies to get to Rotorua to assist Arawa. The resulting battle with Te Arawa took place at Ngauhu at the eastern end of Lake Rotoiti in early March and, after

some bloodshed, ended in a truce and a withdrawal of the Tai Rawhiti force. The latter retreated to Matata and then, 800 strong, advanced on Maketu. Here, there was a small British garrison in a redoubt (Fort Colville) on an older pa site (Pukemaire; V14/6), which was besieged in late April 1864. By this time, the Waikato War was over and motivation to continue the attack must have been waning. The garrison was relieved by shelling from naval ships and the arrival of McDonnell's Forest Rangers and Te Arawa forces from inland. The Tai Rawhiti force retreated eastwards in a running fight, suffering 50 deaths. Had this force not been thwarted at Rotoiti, they would have been able to join the Tauranga fighting. In either the Waikato or Tauranga conflict, their numbers may well have made some difference to the course of events (Stafford 1967, 1986; Walker 2007).

Soon after Te Ranga was taken by the British forces in 1864, the Pai Marire religion started to influence the defeated Tauranga Maori. At first, it remained true to its original peaceful, if anti-colonist, intent. However, events at Opotiki in 1865, with the death of Missionary Volkner, and at Whakatane, where the cutter *Kate* was taken and looted and three members of the crew killed, were violent and attributed to the influence of the new religion. Kereopa, the Pai Marire proselyte, was of Te Arawa, but his followers in the eastern Bay seem to have been primarily Ngati Awa, with some Whakatohea.

Led by Kereopa, the Whakatohea, some of whom had involvement in the Opotiki events, moved inland later in 1865 to Te Tapiri on the edge of the Ureweras, south of Murupara. Ngati Manawa resisted their movement and built gunfighter redouts at Te Tapiri (V17/13 and V17/33). Whakatohea, with Tuhoe allies, built opposing fortifications (V18/12 and V18/33). Nevin & Nevin (1980c) and K. Jones (DOC, pers. comm.) have reviewed these fortifications. Fighting consisted of mutual raiding. Eventually, Ngati Manawa withdrew and were relieved of the pursuit by a body of Te Arawa, near Murupara.

The Opotiki and Whakatane killings resulted in a column of government forces leaving from Rotorua. William Mair organised a force of Arawa and Ngati Rangitihi from Tarawera. It proceeded to Matata and was augmented by a force from Maketu. The party placed a Ngati Awa pa at Te Teko (V15/158) under siege. Te Parawai pa and other swamp pa on the Rangitaiki Plains were taken, and Omehu Pa on an island east of the Tarawera River was abandoned. The siege of Te Teko ended with the surrender of the garrison (Andersen & Petersen 1956; Crosby 2004). The supposed Opotiki offenders (except Kereopa) were amongst those arrested.

The Patea and Wanganui Rangers, operating out of Opotiki, took part in some other skirmishes in 1865 in the Waimana Valley. This followed colonial forces having been moved by sea to Opotiki in search of Kereopa. Confiscations of Ngati Awa and Whakatohea land followed these campaigns.

A minor conflict arose in 1867, when Ngati Piri Rakau (who had allegiance to Pai Marire) began harassing survey parties near Tauranga (see Stokes 2002: 506 for the precursors to this). One settler was killed. Ngati Piri Rakau were joined by some Ngati Porou and Ngati Raukawa. A Waikato Militia expedition engaged in some skirmishing inland from a colonial forces redoubt at Pyes Pa (U14/64). An Arawa *kupapa* force was raised to assist. This resulted in

destruction of Maori villages in the area and a predominantly one-sided (Maori) loss of life. This is known as the Tauranga Bush Campaign. A kupapa redoubt from the period (Moerangi) has been recorded by Jones (1983a). One village attacked was the pa Te Irihanga (U14/328). This site has been the subject of a conservation study (Bowers 1995).

Shortly after this conflict in 1867, a fortification was erected by Kingites at Puraku, west of Lake Rotorua. This was occupied by some of those who had been involved in the Tauranga fighting. It was a challenge to the *Queenite* (supporters of Queen Victoria's Government) Arawa. Arawa (led by Gilbert Mair) and militia from the Waikato Regiment soon outnumbered the occupants who, after skirmishing with the attackers, abandoned the fortification. Puraku Pa (U15/49) was mapped in the early 20th century (Cowan 1923: 162), but was largely destroyed in the 1960s (Mitcalfe 1968).

A single niu pole, which featured in Pai Marire religious practices, survives in the region at Kuranui (T15/193) (Stokes 1997: 5). The site has been the subject of an archaeological investigation (Peters 1980, 1990). A pa near Te Whaiti in the Whirinaki River valley (V17/11) is also recorded as the site of a niu pole and fenced enclosure.

After his escape from the Chatham Islands in 1868 and recruitment of followers to his Ringatu faith, Te Kooti Arikirangi first attacked colonists on the East Coast. His campaign then turned westwards, with a raid into Whakatane in early 1869. A small Armed Constabulary redoubt at Poronu alongside a Ngati Pukeko flour mill was attacked first. The civilian residents, both Pakeha and Maori, resisted from the redoubt for 2 days, but it was then taken and they were killed and the mill burnt. The Ngati Pukeko Rauporoa Pa on the west bank of the Whakatane River (aerial photograph in Jones 1991: 164) was then attacked with some loss of life amongst the attackers. The position was abandoned when a government relief force arrived. This was led by Henry Mair of the Opotiki Rangers, and included an armed constabulary and a kupapa force raised in Matata. Te Kooti's force then turned its attentions on Whakatane, looting and burning Pakeha traders' stores. Te Kooti withdrew up the Rangitaiki River in the face of growing opposition forces. A redoubt from this period survives near Puketapu hill above Whakatane. There is also a small redoubt on the highest point on Uretara Island in Ohiwa Harbour (W15/366), which is probably from this period (K. Jones, DOC, pers. comm.). The location of the Poronu redoubt and mill is known, but nothing has been visible above ground since before the time that James Cowan took an interest in it.

In mid-1869, Whitmore's Armed Constabulary established a series of fortifications up the Rangitaiki River as strategic positioning against Te Kooti. These were Forts Alfred, Clark (V15/560) and Galatea (V16/8). Forts Clark and Galatea have been excavated (Spring-Rice 1982, 1983a, b, 1987). Spring-Rice has established a far more complex history for Fort Galatea than is apparent in the written record. Galatea is now a reserve and has interpretive signs.

Following a pincer movement by two columns led by Whitmore and St John along the Whakatane River, fighting took place around Te Whaiti and

Ruatahuna. Te Kooti Arikirangi's Tuhoe allies were greatly weakened during the fighting, beginning a gradual decline in the forces he could muster.

The fortification line up the Rangitaiki River was not maintained for long, however, with forces being withdrawn later in 1869, though Galatea was reused at a later date by Te Arawa kupapa forces, as well as by the Armed Constabulary in 1871. Another Armed Constabulary camp of the period—Kaiteriria—was on a peninsula in Lake Rotokakahi (Green Lake).

Te Kooti Arikirangi moved west in mid-1869, surprising a small party of troops at Opepe (just outside the Bay of Plenty Conservancy, east of Taupo) and killing most of them. He was then engaged south and west of Taupo, returning into the conservancy area in early 1870, when he travelled to Ohinemuri. From there, he returned south and fought engagements with McDonnell's lead forces, including Arawa, at Tapapa—a Ngati Raukawa pa. Te Kooti retreated from Tapapa, losing his horses. There was a further engagement at Paengaroa, west of Oropi, in February, and he then moved south towards Ohinemutu. Most of the Arawa fighting men were absent, away with McDonnell. Gilbert Mair led an Arawa group from the McDonnell forces back just in time to reinforce the Mahao redoubt on Pukeroa Hill and thwart a truce parley session that was about to start. The Te Kooti forces then retired south in a running fight and then on to the Rangitaiki Valley (Binney 1995: 207).

That was the end of the New Zealand Wars in the Bay of Plenty. The opportunistic use of Te Arawa forces is a particular feature of the conflicts. While these forces were no doubt supporters of the Government, their involvement had, at times, elements of their seeking revenge against old rivals and, at others, of their being mercenaries. There is, of course, some irony in the fact that Arawa were not initially signatories of the Treaty of Waitangi, while the iwi who had signed promptly eventually had land confiscated.

At the southern boundary of the Bay of Plenty Conservancy, Armed Constabulary redoubts were erected along the Napier–Taupo Road in the wake of the attack at Opepe. The posts at Runanga, Tarawera and Te Haraoto are just outside the conservancy boundaries. They were garrisoned until 1885, but were not involved in any fighting. Mitchell (1984) has carried out excavations at several of these.

The archaeology of the New Zealand Wars in the region has advanced to the point of identifying many of the sites and mapping some of them. Excavation has been limited to two Armed Constabulary sites on the Rangitaiki River and at Runanga, but the results from these are not widely available. Unlike the other conflicts of the New Zealand Wars, there is little in the way of coherent accounts of the events of the wars in the region that focus on the Bay of Plenty and deal with it on a regional scale. The account above is drawn from several sources. The events are not a simple story, and the lack of comprehensive accounts may have inhibited fieldwork.

## 11.4 COLONIAL SETTLEMENT

### 11.4.1 Rural settlement

The first organised settlement in the Bay of Plenty area was by militia soldiers onto land confiscated at Tauranga. These were military settlements with relatively small block sizes. The larger blocks, which were allocated to officers, were near the sites of fortifications (as at Moerangi; Jones 1983a). Few of the first land-holders remained in residence for long. Undoubtedly, some were unsuited to farming, but the lack of markets for produce must have deterred others.

Some outstanding accounts of the experience of the pioneer European land developers in the region exist. Adele Stewart (1908) gave many details of her 19th-century life in Athenree. The house she and her husband lived in—Athenree Homestead (T13/751)—still stands and must have an archaeological dimension that could add to the historic account. Vaile's (1939) account of developing a large Broadlands estate in the early 20th century and a more recent account of the struggles of a post-First World War soldier-settler family, who tried dairy farming in the Whirinaki Valley southwest of Rotorua (Ellison 1956), provide economic and social insights from very different perspectives. They invite better understanding of the archaeological remains of the rural landscape of their time.

The first intensive settlements in the Bay of Plenty region were in the Katikati and Te Puke areas, and were the result of immigration schemes from Ulster (Gray 1950; Taylor 1969). Planned emigration from Ireland was, reputedly, a very rare event. George Vesey Stewart was the leader of these communities. His Katikati home—Mount Stewart—was recorded in the 1960s by Shawcross (1964: 83), by which time it was in a ruinous state.

The archaeological potential of the early rural homesteads of the Bay of Plenty is as yet unrealised.

### 11.4.2 Towns

Only a few examples exist of archaeology being practised within towns in the Bay of Plenty. The archaeological potential of the Te Aroha spa area has been surveyed (MacKay 1993), but there have not been any excavations. A mitigation excavation on an early town site in Tauranga demonstrates the research potential of such sites (U15/519; Bowers & Phillips 1997b). However, this had predominantly artefactual rather than structural finds, making the interpretation relatively limited in scope. Andrews (1990) reported on midden material from the Ohinemutu Hotel in Rotorua (U16/109), but this was, unfortunately, recovered without archaeological control, although it does demonstrate the potential of similar sites and the potential for urban archaeology in the earliest settled areas.

Timber towns have risen and fallen according to the fortunes of the industry. Minginui and Mamaku are smaller now than they were during the peak periods of native timber extraction. Both have ruinous buildings or former building sites that are now vacant.

The history of changes to buildings is often poorly recorded. Where buildings have been standing for a long time and have undergone additions, reductions, changes in use and decoration, they should be investigated. With the short history of standing buildings in New Zealand, 'buildings archaeology' has not often been practised or, where it has been, it is not deemed worthy of record. In the Bay of Plenty region, investigations of the structure of The Elms (Vennell 1984: endpapers) and the investigation of the former decoration and use of the Government Bathhouse in Rotorua, as shown in the on-site interpretation, are exceptions.

### 11.4.3 Energy

#### *Geothermal energy*

Geothermal energy development is relatively recent, mostly occurring in the second half of the 20th century. The availability of geothermal steam at the Kawerau pulp and paper mill was one reason for it being sited at Kawerau. Ohaaki uses steam from a geothermal field on the east side of the Waikato River. Domestic and small-scale industrial use of geothermal steam and hot water has long been important in Rotorua, aside from the use of hot water in the commercial spa developments.

#### *Hydroelectricity*

Direct use of water for motive power was a common feature of flour mills and gold processing in the early part of the European settlement of New Zealand. These uses are discussed later in this report (see section 11.4.5). New Zealand also has a long history of using water power for electricity generation. Early developments in the Bay of Plenty were the Okere Falls station on the Kaituna River and at Omanawa Falls near Tauranga. At Okere Falls, water was flumed from the top of a waterfall and fed through turbines. The site is ruinous today, but is on a DOC reserve and has some interpretation. One of the turbine cases has been removed from the site to sit beside an adjacent path with some interpretive signing; it has also received some conservation. The scheme was commissioned in 1901—one of the earliest in New Zealand—and supplied public buildings with lighting and sewage pumping. It was the first government-built hydro station in New Zealand. Its engineer—Lawrence Birks—went on to play a leading role in subsequent state power developments. The hydro station was last used in 1930.

A longer running development occurred at Omanawa Falls and elsewhere on the Mangapapa River southeast of Tauranga. This development started with the commissioning of the Omanawa Falls station in 1915 and culminated in the Ruahihi scheme in 1981. In 1920, Omanawa was extended with a turbine relocated from a Karangahake goldmine. It was a challenging scheme, with an underground power station and a tunnel intake. Omanawa Falls supplied electricity to the Muir's Reef mine, after that site had failed in its own attempt at power supply. The early collapse of a canal on the 1980s Ruahihi scheme left a remnant not reused when the scheme was rebuilt. This can be traced in the locality. The original Maclaren Falls power station of 1921 was bypassed by the Ruahihi scheme. The Omanawa Falls station has recently been decommissioned. Because it is underground, there is little to see, but

the McLaren Falls power station is more substantial and quite prominent beside the Falls' access road. The dam for this station is still in use.

A further small scheme was built by the Whakatane District Council on the Karaponga Stream near Awakaponga in 1922. This scheme was fed from a low concrete dam, which was driven by a pelton wheel. The scheme was abandoned in 1938 (Anon. 1988: 94). A small scheme for lighting Te Aroha was commissioned in 1905. The reservoirs for this scheme still exist in the Tui Domain.

Modern developments in the region include Matahina Dam (36 MW) on the Rangitaiki River (commissioned in 1967) and, more recently, smaller schemes at Aniwhenua and at Whaeo on tributaries of the Rangitaiki River. At Matahina, archaeological remnants of the construction village and works remain in the area below the dam. Two hydro dams on the Waikato River are at the boundary of the Bay of Plenty Conservancy: Atiamuri (84 MW), commissioned in 1958, and Ohakuri (112 MW), commissioned in 1961.

#### *Energy transport*

Early hydropower developments tended to be close to the point of use. An early development of long-distance transmission of electric power in New Zealand was the Horahora station on the Waikato River, from which electricity was transmitted to Waihi. The developer was the Waihi Gold Mining Company (Rowe & McKay 1997), and operation commenced in 1913. The three-phase, 50 000-volt transmission line was supported on lattice steel towers that crossed the Kaimai Range via the Waiorongomai and Waitawheta valleys. The McLaren Falls power scheme was linked to this line (Stokes 1980: 295), which allowed power to be sold to Auckland, thus justifying the size of the scheme. It was later nationalised and the power line continued in use beyond the life of the Horahora station, which was flooded by the larger Karapiro Dam in 1947. Subsequently, the line was largely dismantled, but there is some remaining evidence of the line's pylons (Rawle 1981: 23). Rotorua was linked to the Waikato generation stations in 1926.

### 11.4.4 Communications

#### *By sea*

Small ports were a feature of the Bay of Plenty until the extension of the national railway system rendered them obsolete. The remaining port at Tauranga was small until development associated with the expansion of forestry exports in the latter part of the 20th century.

Ohiwa, Whakatane, Matata, Maketu and an inland port at Te Puke on the Kaituna estuary were all important small ports. There were many landing points around the Tauranga Harbour, including Mt Maunganui, Tauranga, Omokoroa, Katikati and Athenree (Hansen 1997). The landings were often the terminals of tramways for transhipment of logs or sawn timber. Although the harbour has two entrances, the main part of the harbour linking them is shallow, so that only shallow-draft vessels can use it as an inland passage, and then only at high tide. Athenree was important in the landing of heavy machinery for the Waihi mines before the railway reached through the

Karangahake Gorge. Archaeological remnants of some of these port facilities remain. An important one is the stone pilot jetty on the inside of Mauao (U14/361). The rock sea defences at the port entrance at Whakatane have related quarries and wharves on Moutohora (van der Wouden 1994: 8). These operated between 1916 and 1920.

Transport on Motiti Island involved a punt for carrying cattle launched from a rail system built in 1876 and a later breakwater called Patterson's Inlet, which was finished in 1913. At the latter, a slide was used for loading maize sacks onto scows. Despite the construction of these facilities, beach landings continued when the weather was suitable (Matheson 1979: 37, 42, 94).

Matakana Island is also dependent on sea transport. Tanker collection of milk on the island commenced in 1974, with tankers barged to and from Omokoroa. Before this, there was a launch used for a 'cream run', and from 1945 pine logs were rafted from the island to be milled at the Ongare Point mill.

Tauranga's port was initially at Tauranga itself. The first wharf at Tauranga opened in 1871. Today, the main port is at Mt Maunganui. Development here commenced in 1910, with a railway construction wharf used to supply the eastwards extension of the East Coast railway. Use of Mt Maunganui for export cargoes commenced in 1954. Dredging to deepen a harbour entrance channel started in 1961; maintenance dredging is ongoing. Work on the major modern port at Sulphur Point on the Tauranga side of the harbour started in 1968.

**Shipwrecks and hulks**

Shipwrecks can act like time capsules—providing details of the possessions of passengers and crew, cargo, and ships' equipment, which are not always available from written records. Bowers (1992) listed shipwrecks of potential archaeological value in the Bay of Plenty and Matheson (1999) provided a more general account of shipwrecks.

Harbour construction work at Sulphur Point, Tauranga, has exposed a timber-built ship (Hansen 1997). This is speculated to be the ship that Stack (1935: 40) recorded as a childhood memory—a Spanish ship of unknown name from Valparaiso, which was wrecked on the inner bar. Ingram (1972: 15) suggested a date of 1840 for this.

There are some well-known wrecks in the Bay of Plenty. In 1878, the steamer *Taranaki* ran into Karewa Island and sank. The site is now a recreational diving attraction. In 1879, the steamer *Taupo* struck a rock at Tauranga Harbour entrance; then, while under tow to Auckland in 1881, it foundered near Mayor Island (Tuhua) (Heath & McLean 1994: 16). It is the only shipwreck in the site record files (U13/161). This wreck site is a popular dive location. Damage to this wreck in the past by divers has resulted in an unsuccessful prosecution under the Historic Places Act. In 1921, the *Tasman*, also a steamer, struck a reef off Matata and sank in deeper water. This is also a diving attraction.

Ingram (1972) listed many small vessels lost in the Bay of Plenty in the 19th century. Maketu features prominently as a site for shipwrecks, starting with the wreck of the *Falcon* in 1840 (Matheson 1999: 79). Maori-owned vessels that took part in the trading of the 1850s were reportedly left to rot at

Maketu when the New Zealand Wars put an end to that commerce. Hochstetter (1867: 445) recorded a Maori-owned schooner rotting at Otumoetai on his 1859 visit.

Some of the early tourist boats on Lake Rotorua were burnt out on the lake shore either accidentally or deliberately at the end of their working lives (Stafford 1988: 72, 225). Remains of the *Alice*, which sank after striking a stump in the Ohau Channel, are reputed to remain where they sank (Stafford 1996: 65). These wrecks are a potential archaeological resource.

Shipwreck archaeology is little developed in the Bay of Plenty, and must have some greater potential. Finding the remains of the *Haws*, for instance, might provide a rare opportunity to study a trading vessel of the 1820s.

### *By river*

Two rivers in the region have had a significant role in transport—the Kaituna and the Waihou. The Kaituna River was navigable by small vessels to a landing at Canaan near Te Puke. Once the railway reached Te Puke, river-based transport services ended, but they had always been limited by the state of the estuary mouth. The Waihou River was cleared of snags and bars over several years as part of Firth's Matamata Estate development. The landing at Stanley opened in 1880 (Vennell et al. 1951: 59). Firth's intention was to use boats to take wheat to his Auckland flourmill, but his port preceded the railway by only 5 years.

### *By road*

The development of roads was linked to the development of ports and railways (Stokes 1980; Stafford 1986, 1988). The best port in the area—Tauranga—acquired its first useful wharf in 1871 and was a customs port of entry from 1873. By 1872, a coach road to Ohinemutu had been opened on the direct route via Mangorewa Gorge. This carried many international tourists and displaced the earlier main track from Maketu as the main route to the Lakes District. The Maketu route only recovered its modern prominence as State Highway 33 after the Rotorua rail link rendered Tauranga less important as a staging point for Rotorua tourist traffic.

By 1873, a complete coach road existed from Taupo to Napier, constructed largely as a result of the efforts of the Armed Constabulary. This followed the earlier telegraph route. Taupo was linked to Rotorua by road from the early 1870s. In 1880, the Armed Constabulary started construction of a coach road to Rotorua, which crossed the Mamaku Ranges from Cambridge (Vennell et al. 1951: 103). This road opened in 1883 and preceded the railway. Coach transport between Rotorua and Whakatane was not possible until 1907.

The route over the Kaimai Ranges to Tauranga had a low priority for development. It was a bridle track and stock route from the 1880s, and achieved coach route standard by 1911 (Stokes 1980: 216). A key bridge connected the road route from Tauranga to Athenree in 1880, but the connection of this with Thames was poorly surfaced and not reliable enough for regular traffic until the 20th century. Early eastwards transport in the Bay of Plenty region was generally along the beach, but by 1887 a dray road had

been constructed as far as Opotiki, with ferry crossings at the Maketu and Waihi estuaries. In the early 20th century there was a vehicle ferry at Ohiwa, but this was soon bypassed by an inland road.

Around Tauranga, the sealing of many roads was not completed until the 1930s (Stokes 1980: 229), and this was no doubt the case for many other roads in the Bay of Plenty region. Before sealing, wet weather would have rendered many roads impassable.

### *By railway*

Abandoned parts of formerly more extensive railways are prominent archaeological features in the Bay of Plenty region. The expansion of the railways in the area started with the bridging of the Waihou River and the completion of a line to Te Aroha in 1886. Te Aroha's prominence as a spa town started to be eclipsed once the railway reached Rotorua from Putaruru over the Mamaku Plateau in 1894. Other schemes for a route to Rotorua from Tauranga via Te Puke were promoted but never started. The link north from Te Aroha to Thames opened in 1898, and the line through the Karangahake Gorge to Waihi in 1905. This line did not extend to Tauranga until 1928. Earlier, in 1910, a line had commenced at Mt Maunganui. This reached Te Puke in 1913 and Matata in 1916. It was linked to Tauranga across the harbour in 1924 and extended to Taneatua by 1928. The line to Taneatua was intended to extend to the East Coast, but this last link was only commenced from the Gisborne end and was never completed, being abandoned as a branch in 1959.

Until the Tauranga Harbour crossing was built, the construction of the railway was serviced by sea from a wharf at Mt Maunganui. This Mt Maunganui branch fell into disuse and was only revived once the timber industry port facilities were developed at Mt Maunganui in the 1950s.

There was sustained interest in extending the rail network from Rotorua to Taupo. This link to Taupo was a political issue for much of the early 20th century. The Taupo Totara Timber Company, which had a line of 3 foot 6 inch gauge extended from Tokoroa to Mokai, 20 km from Taupo, was ever hopeful of selling this to the Government and lobbied against any alternative route to Taupo. However, the light rail, steep grades and tight track radii were below the Government railways standards, so this transfer of ownership never occurred. This line ceased operation in 1944.

A start was made on a railway from Rotorua to Taupo in 1928, but this was abandoned in 1929, with no track ever laid. The formed rail bed, which remains as it was when abandoned, is a prominent feature on the west side of State Highway 30's exit from Rotorua. It has multiple work sites, nicely illustrating how construction work was organised.

The post-World War II expansion of the timber industry saw rail lines extended from Edgecumbe to Kawerau and Murupara opening in 1955. The line from Putaruru to Kinleith is just beyond the borders of the Bay of Plenty Conservancy, but has considerable economic significance within the area. This was converted from the Taupo Totara Timber Company light rail line in1950.

The Karangahake Gorge line was bypassed by the Kaimai Tunnel, which opened in 1978. The Paeroa to Te Aroha link was dismantled in 1996. Today, the formations of the former rail tracks are prominent archaeological features between Waihi and Apata and between Te Aroha and Paeroa. Rail passenger services to Tauranga and Rotorua ended in 2001.

The Whakatane branch line is now disused, and the Taneatua and Rotorua lines little used. All are potential archaeology in the making.

There has been little exploration of the archaeology of railways in the Bay of Plenty area. A happy exception is a survey by Moore (2001b) of the piers of two Athenree railway viaducts, which were later destroyed by road works.

### *By air*

The changing needs of aviation often result in earlier facilities becoming redundant. The former Rotorua Airport was closed in 1964 and is now covered by the suburb of Fenton Park. It would not be surprising if there was still some evidence of the airfield under this suburb, despite the redevelopment. Aviation in Tauranga received a boost during World War II, when the pilot instructor training school was based there. Motiti Island has been serviced by an air taxi from Tauranga since 1947 (Matheson 1979: 54). Matakana Island also has an airstrip.

The early use of small aircraft for aerial topdressing led to the construction of many farm air strips. Fertiliser storage facilities often adjoin these. The emergence of faster, higher capacity aircraft has rendered some airstrips obsolete. It can be expected that there will be some abandoned strips in the Bay of Plenty region.

An airstrip was developed on the summit of Mt Tarawera to allow tourists to fly in from Rotorua. This opened in 1979 (Stafford 1983: 236), but is no longer used. It is a prominent feature from the air.

#### Aircraft wrecks

The archaeology of plane wrecks has not been an active part of academic archaeology in New Zealand. In places where air warfare has taken place, archaeological investigations have been able to elucidate poorly recorded combat events or reconcile crash sites with recorded losses. However, there is not much plane wreck archaeology potential outside these combat areas, where there are fewer plane wrecks and much better records. Stafford (1983) recorded numerous crashes in the Rotorua area. The best-known crash in the Bay of Plenty area was that of a National Airways Corporation Douglas DC3, which crashed onto the west side of the Kaimai Ranges at Mt Ngatamahinerua in 1963, with 23 fatalities (King 1995: 78). The wreckage now lies beneath rock debris that was deliberately brought down from a bluff by explosives to bury it (Lockstone & Harrison 2000: 108). There are no aircraft or aviation sites in the NZAA Site Recording Scheme site records.

### *Telegraph*

The ongoing disturbance in the King Country, south of the confiscation line in the Waikato, after the New Zealand Wars made finding a telegraph route between Auckland and Wellington that avoided this area attractive. The route chosen was through Tauranga, Rotorua, Taupo and Napier. The telegraph reached Tauranga from Wellington in 1870 and was connected to Auckland by 1872. The route was not completely free of conflict though (see Monin 2001: 220 for problems in Hauraki), and in 1869 Bay of Plenty cavalry at a stores post at Opepe, which was on the telegraph construction route, were surprised by a raiding party led by Te Kooti, resulting in the loss of nine lives.

## 11.4.5 Industry

### *Gold and base metals*

Stokes (1980: 276) recorded the history of gold prospecting in the Tauranga/ Te Puke area. A small amount of rock was crushed at the Eliza claim, south of Katikati (Downey 1935: 254). Muir's Reef, south of Te Puke, was a much more substantial effort, with a number of claims being made there and one substantial mining effort resulting, which operated from the late 1890s until 1928 (Downey 1935: 252; Taylor 1969: 123–134; Stokes 1980: 278–280). Some prospecting also occurred around Rotorua in the late 19th century (Stafford 1986: 403–405), and one short-lived mine operated from 1899 to 1901 (Robinson 1961).

There was much greater mining activity along the Kaimai Range, particularly in the west and north of the area. This area contains most of the recorded sites of mining activity (Fig. 17). The Waiorongomai field, south of Te Aroha, started with a rush in 1880, but it was not until the following year that a substantial reef was found. Its remoteness resulted in the Piako County Council building a tramway (T13/108) to access the reef, including three self-acting inclines (Twohill 1988). Many of the features of the mining, mine settlements and the tramway have been recorded, but these have not been mapped in detail. Much machinery is still *in situ* on this field, which consumed much capital for a small return. Site T13/157 is a compressor powered by a pelton wheel. Site T13/208 is the former town of Quartzville, served by the tramway. Mining stopped in 1921 (Anon. 1981, 1992; Moore & Ritchie 1996: 177–188), and today the valley is a DOC reserve with good tracks and interpretation.

The Tui mine, just north of Te Aroha, opened around 1890 and produced metal sulphides that contained gold and silver. The treatment process that was first tried did not work, and the mine closed soon after. There was some surface working of the deposits in the 1930s and more substantial underground working from 1967 to 1974. Ore was concentrated on site and then shipped overseas for smelting. A substantial slimes (fine ground wastes) tailings dam remains on site.

The gold and silver mines at Karangahake were more successful and were sustained over a longer period. Reefs along both sides of the Waitawheta River were mined and a series of batteries crushed the mined ore. Mines

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