The Te Hoe
Shore Whaling Station
Artefact Assemblage

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Abstract

This report presents an analysis of the Te Hoe Shore Whaling Station artefact assemblage, exclusive of faunal remains, wood and charcoal. The Te Hoe site, located on the East Coast of the North Island of New Zealand, was excavated in January/February 2005 as part of a larger project investigating early European communities in New Zealand. Shore whaling was a prominent extractive industry in New Zealand in the 1830s and 1840s and in many areas whalers were the first European settlers to arrive in this country. The primary aim in documenting their material culture is to get a more detailed picture of how whalers adapted to life in New Zealand, and to understand what influences if any they had on the subsequent development of European settlement. To this end the present paper attempts to give detailed descriptive analysis of the artefacts and place them within both a spatial and temporal context.
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Abbreviations

NISP  Number of Individual Specimens
MNV  Minimum Number of Vessels
MNI  Minimum Number of Individuals

mm  millimetres
cm  centimetres
g  grams
kg  kilograms
km  kilometres
1. Introduction

1.1 Shore Whaling in New Zealand

Whaling was a prosperous industry for a short period in New Zealand's history and in investigating any shore whaling site it is instructive to briefly survey the history of shore whaling. The New Zealand industry was based on the Australian shore whaling model, particularly from Tasmania and was successful for a number of years due in large part to a ready supply of whales. The first station is credited as having been set up by John Guard, a former sealer, at Te Awaiti in Tory Channel, just off Cook Strait, in about 1827. Guard was only initially fitted out to take whalebone, unlike Captain Peter Williams who began whaling proper, taking both oil and bone, from 1829 at Preservation Inlet in the south of the South Island (Morton 1982:230). By the mid 1830s there were numerous shore whaling parties operating along all the major migration routes and known calving areas of the right whale.

Whaling ships first plied New Zealand waters in 1792 and visited with increasing frequency after this date (Campbell 1994:33). Whaling ships had onboard tryworks and could conduct their operations entirely from sea. In locations such as Otago Harbour and Cloudy Bay, bay whalers, as they were known, were equal or greater in number than shore parties. Bay whaling was carried out both by ships who had travelled specifically to New Zealand, and by deep-sea whaling vessels; who then returned to the open ocean to hunt sperm whales in the off-season. At Cloudy Bay whaling ships came from all over the world, including Australia, Britain, the United States, Canada, France, Holland, Denmark, Portugal, and Germany; with thirteen American ships alone anchored at once in 1836 (Morton 1982:231). Whaling ships were in direct competition with shore parties and there is one account from an Australian whaleship's journal of up to seventy boats in pursuit of a single whale (ibid).

Shore whaling "was based upon the right (or 'black') whale (Eubalaena australis) which yielded so-called 'black oil' (Prickett 1983:42). Each year the right whale migrated to the warmer waters of New Zealand to calve (Figure 1.1), from their summer feeding grounds in the southern ocean. They were the 'right' whale to catch, as the cows, either heavily pregnant or with a small calve in tow, swam slowly and kept close to shore; with the bulls generally staying further out to sea. Once killed the carcasses also floated and produced a large amount of high quality oil relative to other species. The season usually began around the first of May and ran until the beginning of October (Wakefield 1845 I:48).

As with all extractive industries however the whalers soon eliminated their means of livelihood - the whales - and the fishery collapsed. An observer in Cloudy Bay around 1830 wrote:

It is a pity that it should often be necessary to fasten to the calf in order to secure the cow, but I do not apprehend it will cause such a diminution of numbers as to injure the fishing, at least not until it is carried on to a much greater extent than it is at present (McNab 1913:10).

Even if the slaughter seemed sustainable in 1830 it was such by 1832 for the Under Secretary at the Colonial Office, Mr R.W.Hay, to predict that the end of the New Zealand shore whaling industry was in sight (Prickett 1998:49). The increased output of oil during the peak years in the middle 1830s only served to fuel investment in yet more
Figure 1.1  New Zealand showing the migration path of the southern right whale and all major whaling areas

whaling stations, which placed further pressure on the finite supply of whales. By the early 1840s operations which had been profitable just a few years earlier were in serious financial difficulty and in many areas were abandoned completely. For example, the Otakou whaling station in Otago Harbour which produced 430 tuns of oil and 20 tons of bone in 1835; was by the time of Shortlands visit in 1843 marked only by "the huge skeletons of whales which lay half-covered by the tide" and "several deserted and ruinous buildings" (Morton 1982:231,234).

While historical records for many former shore whaling stations are lacking, contemporary accounts of several stations show that their layout and operation had much in common. Each station needed a tryworks, to try-out the oil; huts for the men to live in; and a store and boatshed to store the supplies and boats in. Edward Jerningham Wakefield in his travels around New Zealand in the early 1840s had the occasion to visit several stations, including Te Awaiti, run at the time by Dicky Barrett. He describes about 20 houses as having "walls constructed of supple-jack, filled in with clay; the roof thatched with reeds; and a large unsightly chimney at one of the ends, constructed of either the same material as the walls, or of stones heaped together by rude masonry" (Wakefield 1845:45). Elsewhere he describes whalers' huts, built by
natives, "composed of reeds and rushes woven over a wooden frame" (Wakefield 1845:330). He also describes the operation of the tryworks at Te Awaiti:

A large gang were busy at the *try-works*, boiling out the oil from the blubber of a whale lately caught. It appears that this is a process in which any delay is injurious. The *try-works* are large iron boilers, with furnaces beneath. Into these the blubber is put, being cut into lumps of about two feet square, and the oil is boiled out. The residue is called the *scrag*, and serves to feed the fire. The oil is then run into coolers, and finally into casks ready for shipping. The men were unshaven and uncombed, and their clothes covered with dirt and oil. (Wakefield 1845:45; original italics)

Another early traveller, Edward Shortland, visited Johnny Jones' whaling station at Waikouaiti in 1844. He lists several items essential for running a station:

A pair of sheers, such as are used for taking out or putting in the masts of ships, must be erected, in order to raise the immense carcass above water, to cut it up more expeditiously. Also a tryworks; a storehouse, with sufficient supply of slops, spirits, cord and canvas; and from three to five boats. (Shortland 1851:108-9)

Stations were provisioned with supplies at the start of the season and as required after that, with trade for foodstuffs with local Maori also being practised in many areas. The oil was stored in wooden casks at the station and shipped out, either at the end of the season or whenever a supply ship came in. In the 1830s all the supplies and oil went through the port of Sydney but after 1840 the newly established port of Wellington quickly took over this role. Likewise the capital required for setting up most stations initially came from absentee Sydney merchants but after 1840 it was increasingly common for the owner to be resident in New Zealand and actively employed in the running of the station. Internationally the market for whale oil was in London and most if not all colonial oil found its way to this destination.

The whalers themselves were a mix of European seamen and escaped convicts, with a few free men, born to the above classes in the colonies. In many parts of Australia and New Zealand indigenous labour also formed a large proportion of the gang. Men generally signed on for the duration of the season and were paid a share of the profits, after expenses, according to their position, with common shares being: chief headsman 1-18th; headsman 1-28th; boatsteerer 1-60th; cooper or carpenter 1-70th; and boatman 1-100th (Shortland 1851:109). Generally wages for whaling crews were quite low and a whaler could even end up in debt if the season was poor. Despite this, the chance of skill being rewarded with promotion, and higher pay meant that whaling "remained an attractive proposition for many young men" (Lawrence 2004).

Generally whalers have gained a fairly rough reputation, no doubt applicable to a small number of their kind, however it seems that while their evil doings "which were neither few nor small, were loudly proclaimed, ... their good deeds were unrecorded" (Wilson 1939:137). Some contemporary accounts however, do place them in a more favourable light: "though prone to drunkenness and its attendant evils, the whaler is hospitable in the extreme, and his rough built house is a model of cleanliness and order" (Wakefield 1845:312). Some of their rough edges and more extreme examples of antisocial behaviour were probably nullified somewhat by the presence of women and children at most stations. Indeed one of the most important tasks at the beginning of the season was the providing of native wives for all the men (Wakefield 1845:323). Many of the common station hands were also Maori, especially in the Hawke's Bay, and this helped to promote a more cordial working relationship between the two groups. There are
numerous accounts of whalers settling permanently with their Maori wives and as the whales became scarcer they turned their attention to other economic activities.

1.2 Previous Archaeological Investigations of Whaling Stations in Australasia

Prior to the current project shore whaling station sites remained a virtually untapped archaeological resource. Most archaeological work has been confined to site surveys. Regional studies include Campbell's survey of whaling stations on the southern coast of the South Island (Campbell 1992, 1993); Jacomb's on Banks Peninsula (Jacomb 1998); and Prickett's work on Kapiti Island and the Hawke's Bay coast (Prickett 1983, 1990). More recently Prickett has collated this data and filled in some of the gaps to provide a general survey of all the known shore whaling station sites in New Zealand (Prickett 2002).

The first excavation of any note was conducted by Peter Coutts in 1972 at the Taieri Island station site on the south coast of Otago (see Figure 1.2). Coutts investigated one whalers' hut measuring about 6.5 by 3m and recovered a range of material, including brass and iron nails, buttons, clay pipes, gunflints, hoop-iron, pottery and glass (Coutts 1976:296). His primary research interest was in examining the interaction between early European communities and Maori in the Southern part of New Zealand. In 1991 Matthew Campbell conducted an excavation at the site of the Weller Brothers' Otakau station tryworks at Wellers Rock inside the Otago Harbour (see Figure 1.2). The Wellers' first set up the station in 1831 and whaling continued at the site until the early 1840s. Campbell found the base of the furnace in a thick layer of ash containing numerous bricks and other industrial artefacts associated with the structure of the tryworks. Layers of ash with a hard, clinker-like texture, assumed to be the result of scraps of whale blubber and bone being burnt in the furnace, were tested by chemical analysis, which confirmed a marine origin. The tryworks were the central industrial component of any whaling station and Campbell argues that they are the primary diagnostic feature which "leads to the definite identification of a site as a whaling station" (Campbell 1994:50).

In 2004 the Oashore shore whaling site, on Banks Peninsula, was excavated as the first part of the current project, discussed below (see Figures 1.3 & 1.4). Historic sources indicate that the station was set up in around 1839-40 on behalf of the Weller Brothers', although it is not known when whaling ceased. The domestic part of the site was well preserved and a total of 127 square metres were excavated, sampling four huts, including one more solidly built stone walled structure (see Figure 1.4 - Area 1), along with a garden area and part of the boatshed. The main industrial part of the site nearest to the beach, including the tryworks, had been extensively damaged and so was not investigated. The artefact assemblage included a large number of ceramics, clay pipes, glass, and iron and copper fastenings and was analysed as part of the author's masters thesis (Harris 2005).

Several excavations on shore whaling station sites, similar in scale to Oashore, have been conducted in Australia. The Cheyne Beach whaling station, on the south coast of Western Australia (see Figure 1.5) was excavated in 1989-1991 by Martin Gibbs as part of his doctoral thesis research, on the shore whaling industry in Western Australia (Gibbs 1996). The station was the base of Captain John Thomas between 1846 and
Figure 1.2  Location of whaling station sites along the southern coast of the South Island

Figure 1.3  Banks Peninsula, showing the location of shore whaling station sites
1869, with whaling being continued by other parties until 1877 (Gibbs 1998:43). Excavation was carried out over several seasons between 1989 and 1991, uncovering a multi-roomed cottage and a smaller detached building. A large artefact assemblage, mainly of a domestic nature, was recovered.

Susan Lawrence has excavated two whaling station sites in Tasmania (see Figure 1.6). Adventure Bay, on South Bruny Island, operated between 1829 and approximately 1841; while Lagoon Bay, on the Forestier Peninsula, operated periodically from 1838 to about 1848 (Figure 1.6). The sites were chosen because they were both well preserved.
(Adapted from Gibbs 1995, Fig.5.2)

Figure 1.5  Site plan of the Cheyne Beach Shore Whaling Station Site

(Adapted from Lawrence 2004, Fig.2)

Figure 1.6  Location of the Adventure Bay and Lagoon Bay whaling stations, Tasmania
sites and together they spanned the entire range of shore whaling in Tasmania. By chance they were both part owned by the same man, James Kelly, a prominent figure in the Hobart whaling industry. Many of Kelly's papers and other historical documents pertaining to his whaling activities have survived, providing a unique resource with which to help flesh out the archaeological record.

At Adventure Bay, an area of 287.75 square metres was excavated in 1997, sampling the manager's quarters, crew barracks, a storage hut and the tryworks (Lawrence 2003:215). A large artefact assemblage was recovered, especially from in and around a large multi-roomed stone building roughly 11m long and 5m wide. At Lagoon Bay in 1999, 285 square metres were excavated from the manager's quarters and crew barracks (ibid). A slightly smaller assemblage was collected, with artefacts more evenly spread across the excavated areas. The assemblages from these sites are further discussed in comparison with Te Hoe in section 3.4.

1.3 The Te Hoe shore whaling station

Environment and Locality

The Te Hoe shore whaling station is located on the west coast of the Mahia Peninsula, in a small bay 2 km south of Taylor's Bay (Figures 1.7 & 1.8). The Mahia Peninsula projects out abruptly from the top of the Hawke's Bay in the North Island of New Zealand and is connected to the mainland by a narrow sandspit. The Peninsula has a limited number of sheltered bays, with much of the land rising sharply from the sea into steep hills. Navigating large ships around the area is made treacherous by the rugged coastline and a number of offshore reefs and rock platforms.

Generally Te Hoe is sheltered from the prevailing weather patterns but is fully exposed to infrequent storms from the west. Such a storm occurred in the winter prior to the excavation and resulted in a large quantity of driftwood, pumice and rock being thrown up over a large part of the site. Large banks of driftwood can be seen along the back of the beach and in the mouth of the stream in Figures 1.9 and 1.10. Geologically the area is especially prone to erosion, with most of the land having a mudstone base, which becomes unstable when exposed to hydrological processes. This coupled with the steep sided hills, most of which are now deforested, means landslips, on varying scales, are not uncommon. At the other end of the spectrum the East Coast of the North Island is also subject to prolonged dry spells, which can result in droughts and increased fire danger.

The Te Hoe site itself occupies the beachfront of a small valley, and has a limited area of flat land bisected by a small stream, and flanked by steep hills. Before the excavation most of the more substantial surface remains, consisting of various pit features and collapsed stone structures, were to be seen on a small raised flat on the south side of the stream, with less convincing remains on the more extensive flat to the north behind a low beach ridge. This may partly be the result of this area, which is only 1.5 to 2 metres above sea level, being periodically inundated by the sea during large storms. Chimney mounds and other remains were also located on the flat land between these two areas, immediately along the north bank of the stream. Two modified terraces on the slope just above the raised flat at the southern end of the bay were thought to have derived from earlier Maori occupation.
Figure 1.7 Location of whaling stations in the Hawke's Bay and Mahia Peninsula

Figure 1.8 Te Hoe Bay as seen from the mainland
History of the Te Hoe whaling station site

Historically very little is known about the Te Hoe shore whaling station and it is assumed that it was first set up in about 1840 or shortly thereafter. It is not known how long the station operated for, although it is unlikely to have been commercially viable after the 1850s. One of the few better known personalities associated with Te Hoe is Irishman Joseph Carroll, a blacksmith by trade, who whaled at Te Hoe and later owned the station and kept a store there (Lambert 1998:369). Another Irishman, Daniel O'Keefe, is buried just up the valley from the station. Lambert also records several other men as having worked at Te Hoe at one time or another (Lambert 1998:370). Samuel Harrington, a Tasmanian half-caste; John Smith, a headsman of his own boat and boatmaker; the Smiths - Tom, Peter and Charlie; Jemmy Moody, a white man from Tasmania; and George Robinson, a former deep-sea whaler. Many of the Hawke's Bay stations also relied heavily on Maori labour to fill their crews and it is highly likely that this was the case at Te Hoe. In 1837 Lambert estimates that there would have been a Maori population of no fewer than 12,000 people in the northern part of Hawke's Bay (Lambert 1998:366). Nigel Prickett is currently researching the history of Te Hoe and it is expected that more names and details of the station will be uncovered during this process.

The history of shore whaling in the Hawke's Bay area in general is better recorded and it is likely that Te Hoe did not differ in any great regard from these other stations. Shore whaling came late to the Hawke's Bay, with the first stations being set up at Mahia and Waikokopu in around 1837 (see Figure 1.7; Prickett 2002:103). By this time the whale fishery in many parts of New Zealand, such as around Otago and Southland, was already exhausted and whalers were looking for new prospects. In 1844 Wakefield reported that at least 11 whale boats dependent on Wellington for supplies were stationed in the Hawke's Bay (Wakefield 1845:339 Vol.1). In 1848 Wakefield reported 8 stations operating in the bay, including Longpoint on the Mahia Peninsula, but not Te Hoe (Wilson 1939:136). Various 19th-century sources, including maps and reminiscences of old whalers in local histories, record Te Hoe as the site of a whaling station but offer few clues as to who ran the station at any one time or how long it operated for. An archaeological survey of all known Mahia Peninsula and Hawke's Bay shore whaling stations was conducted by Prickett in 1989/90 and this was the first time the Te Hoe site was archaeologically recorded (Prickett 2002:103-117).

Shore whaling was already in serious decline in most parts of the country by the 1840s, but the industry in Hawke's Bay bucked this trend. In 1847 '17 five-oared boats operating out of Hawke's Bay stations' produced _3000 of oil and _700 of whalebone (Prickett 2002:103). In 1852 Lambert states that "there were 50 boats engaged in the pursuit in Hawke's Bay, one person having as many as 18 under his direction " (Lambert 1998:367). Although most of these crews are likely to have operated on a part-time or opportunistic basis, with their primary economic interests lying elsewhere. By 1860 whaling had ceased to be a viable economic activity, although it continued in a much reduced fashion for some time after this. Whaling continued for longer at Mahia, where there were still two stations in 1863, and in July of that year "the Hawke's Bay Herald reported that Bartlett's four-boat station and Campbell's two-boat operation had so far that season taken one humpback each" (ibid). As right whales became scarcer whalers turned their attention to other species such as humpbacks. There is even evidence that "Hawke's Bay stations often caught sperm whales from shore-based boats" (Morton 1982:236). In 1845 a record number of sperm whales were killed, with 26 being taken by the Long Point station alone (Lambert 1998:367). Many Maori at Mahia also had their own boats and continued to hunt whales on a part time basis into the twentieth-century, long after Europeans had abandoned the industry (Wilson 1939:137; Prickett 2002:103).
Figure 1.9  The Te Hoe Whaling station site from the south

Figure 1.10  The Te Hoe whaling station site from the north, showing the location of all the major excavation areas
As with any archaeological site, activities which occurred after the abandonment of the whaling station have to be taken into account when conducting an archaeological investigation. Throughout most of the 20th-century the Te Hoe whaling station site has been managed as part of a farm and is currently grazed by cattle, sheep and other livestock. The lower reaches of the valley, including the whaling station site have recently been given a measure of protection under a Queen Elizabeth II Trust covenant. A modern bulldozed track down the southern side of the valley, which replaced an earlier track on the other side, provides offroad vehicle access from the peninsula road down to the site. The site is also readily accessible by sea in most weather and is just a short boat trip from Mahia Beach. The site has been periodically used by campers throughout the 20th-century and the flat on the northern side of the stream has likely suffered some incidental damage, through camp sites being cleared and levelled. The stream was also dammed at one stage and an overflow ditch created on its northern side. This has undoubtedly exacerbated the erosion of the stream banks, including a large section between Areas 5 and 7. The only other obvious sign of damage is a bulldozer cut leading up the hill on an angle from Area 1, past Area 2 (Figure 1.10).

1.4 The Te Hoe shore whaling station excavation

The Project

The Te Hoe shore whaling station excavation was carried out as part of a larger project: The Emergence of Pakeha Culture: Historical Archaeology of the Shore Whalers. The project is jointly organised by the Anthropology Department, University of Otago and Auckland Museum and funded by a grant from the Marsden Fund of the Royal Society of New Zealand. In many localities shore whalers were the first - or only - European community before the influx of settlers after 1840 thus they were among the first to undergo the process of adapting the social patterns and material inventory brought from their homelands to the physical and cultural settings of New Zealand. Whalers were also one of the first European groups to interact with Maori on a regular basis and this is reflected in the subsequent development of both cultures. The principle research aim of the project is to construct a detailed picture of at least two of these early whaling communities, through archaeological excavation and examination of the documentary and oral historical records to gain a better understanding of how they operated and adapted to life in New Zealand.

To this end two sites judged to have outstanding archaeological remains were chosen. The first was the Oashore shore whaling station site, on Banks Peninsula in the South Island, excavated in the course of the project between the 19th of January and the 14th of February 2004. The second was the Te Hoe whaling station site, on the Mahia Peninsula in the North Island, excavated from the 17th of January to the 12th of February 2005. Both excavations were directed by Ian Smith, Anthropology Department, University of Otago and Nigel Prickett, Auckland Museum.

The Excavation

Te Hoe had outstanding surface archaeological remains, including one clearly defined tryworks foundation, a boat slipway to the beach, and several collapsed chimney
Figure 1.11 Plan of the Te Hoe Whaling Station site, showing surface features and excavation areas

mounds, marking the locations of former huts and buildings. As with Oashore all of these surface features were mapped, along with those exposed by excavation, to accurately map out the layout and extent of the whaling station buildings (Figure 1.11). Areas chosen for excavation focused around the remains of huts and other structures, and the tryworks area, to try and get detailed archaeological evidence of both the domestic and industrial activities, which occupied the daily life of a whaler.

In total ten areas were sampled, with each area being numbered consecutively as it was opened. All areas yielded either historic or prehistoric deposits, except for Area 9 which contained the remnants of a modern camp fire and is not discussed further. In all cases the turf was removed by spade and then digging commenced with either a trowel or
spade depending on the circumstances. Most material thus removed was sieved through 6.4mm screens; although the author found no difficulty in recovering small artefacts such as, buttons, clay pipe stems and a thimble, solely through the use of a spade and trowel. All artefacts were bagged and labelled to ensure that the Area, unit and other spatial provenance information was preserved. In total 256 one-metre-square units were excavated either wholly or partially.

**Site Areas**

**Area 1** (19m²* )

Before excavation Area 1 was marked by an undefined stone structure, with a large rectangular hollow beside it. The stones proved to be the top of what remained of a tryworks, with a small firebox at the front suitable for a single trypot and a stone lined flue running along the ground, back towards the hill (Figure 1.12). The firebox and the area in front of it contained a large amount of dark ashy material, burnt whalebone, and hard black clinker-like concretions. A layer of whalebone found along the seaward side of the tryworks was probably intended to be used as fuel. The hollow contained a large iron ships tank approximately 1.2 metres square set into the ground, which had partially collapsed and filled in over the years (Figure 1.13. The tank was most likely employed to allow the whale oil to cool and settle after it had come out of the trypot, before it was finally placed in casks. A small test trench along the east side of the area revealed a significant amount of disturbed earth with scattered artefacts and an underlying layer of prehistoric Maori shell and fishbone midden.

**Area 2** (46m²*)

Area 2 is located at the back of the small flat on the southern side of the stream. A large chimney marks the back of the building which measures at least 7 metres along its north-south axis and 6 metres on its east-west axis (Figure 1.14). The building had a raised wooden floor as attested by the remains of numerous rotted and burnt wooden piles and postholes found in rows roughly parallel to the bank in front of the fireplace (Figure 1.15). The amount of burnt timber and melted glass, along with a large quantity of fastenings, suggests that the building probably burnt down. The building appears to have been more solidly constructed than most contemporary descriptions of whalers' huts and so may possibly have been the store or cookhouse. Extensive trenches and test pits revealed a continuation of the prehistoric midden first encountered in Area 1 under the historic layer.

**Area 3** (13m²*)

Area 3 was the site of one of many small chimney mounds visible across the site before excavation, interpreted as being the remains of whalers' huts. The edges of the building could not be defined but a well formed stone fireplace emerged from the chimney tumble (Figure 1.16 & 1.17). The base of the chimney and fireplace was made of undressed flat mudstone boulders and cobbles, available on site, stacked neatly together, with the gaps chinked with earth. All of the fireplaces excavated were of similar construction. Large iron bars, of varying size and description, were found in and around several fireplaces, including Area 3, and it is quite probable that they were being used to support the stone chimneys in some fashion. As with Areas 1 and 2, a test trench revealed an underlying layer of prehistoric midden.

(* including all units only partially excavated)
Figure 1.12 Area 1 plan showing the tryworks structure and associated tank

Figure 1.13 Area 1: detail ships tank
Figure 1.14 Area 2 plan, showing postholes and other features

Figure 1.15 Area 2: Note the chimney and fireplace at the end and plastic buckets and bags marking the location of wooden posts
Area 4 (43m²*)

The outline of a tryworks was quite evident in this area before excavation. From Figure 1.18 and 1.20 it is clear that the tryworks could accommodate two trypots, sitting side by side over the fireboxes at the front. Long, stone-capped flues, run back from the fireboxes, with large iron bars being laid across the walls of the flues to hold up the capping. The black area seen at the front of the fireboxes is the result of spilt oil and residues from the scrag, which was used as fuel, burning and baking the earth into a hard clinker. Another patch of black clinker to the left of the tryworks, marks an earlier version of the tryworks, which has been built over. The tryworks is built of poor quality stone and earth, much like the chimneys around the site, and so would have had to be repaired or rebuilt each season as required. A large quantity of whalebone was stacked on the seaward side of the tryworks and, as in Area 1, would have been used to fuel the fire (Figure 1.19). A number of barnacles were found amongst the bone, suggesting that some portions of bone were still covered with flesh and skin at the time of deposition.

A shallow depression on the inland side of the tryworks was found to contain the remains of a small rowboat set into the ground. A large iron cask band, found at a slightly lower depth than both the tryworks, may have once belonged to a large wooden tub, used to cool the oil before placing it in barrels.

Also associated with the industrial part of the site is a slipway leading down to the beach, just north of the tryworks (see 1.11). The slipway would have been used both to launch whale boats into the ocean and probably to drag pieces of whale blubber up to the tryworks. At the time the whaling station was operating it is more than likely that the area of beach in front of the slipway and even into the surf, would have been cleared of rocks to greatly facilitate this purpose.

Area 5 (30m²*)

Area 5, like Area 3, was marked by a tumble of chimney stones. The length of the hut was not established but in general it appeared to be quite small, with the chimney and fireplace taking up most of the back wall. The hut had a packed earthen floor and the side walls seemed to be marked by a couple of small post holes on the south side and by an area of cobbled paving on the north (Figures 1.21 & 1.23). The cobbled area was interpreted as being outside the house and may indicate the location of the doorway.

One curious feature in Area 5 was a circular pit on the south side of the building filled with stones, encountered below the floor level of the hut (Figure 1.22). The pit was half sectioned and found to be perfectly circular, with smooth sides and had been used for burning, as clay around the edge was partly baked. The pit is probably some sort of prehistoric hangi, and the stones, which are unburnt mudstone, were probably used to fill it in at a later date.

Area 6 (8m²*)

Area 6 is located on the first terrace above the tryworks and was excavated to determine whether the midden visibly eroding down the bank had any relevance to the whaling station. After a small strip was turfed, several testpits were dug, revealing a dark midden layer containing mainly shellfish and fish bones (Figure 1.24). This was interpreted as representing a prehistoric Maori occupation layer only.

Area 7 (39m²*)

All that was visible above ground in this area before excavation was a few large stones, with no well defined chimney mound. Underneath the turf, amongst the largest concentration of stones, a single surviving course of a stone chimney was found. Unlike
Figure I.16 Area 3, showing the chimney and fireplace

Figure I.17 Area 3 plan
Figure 1.18  Area 4, showing the final phase of the tryworks, as well as an earlier version to the left

Figure 1.19  Whale bone pile beside the Area 4 tryworks
all the other fireplaces investigated, it did not contain any ash and had either been cleaned out or was not used. A small scoop hearth, however, was found in the middle of the dirt floor of the building and had obviously been used. What started out as the discovery of a wooden post, in fact turned out to be the base of wooden slab walls which were able to be followed around the extent of the building (Figures 1.25 & 1.26). The house has an inside dimension of approximately 3 by 4 metres. The building also appears to have had a small porch along the northern wall, where the entrance was most likely located.

**Area 8 (19m²*)**

Area 8 was one of only two investigated on the large flat at the northern end of the site, along with the abortive Area 9 discussed earlier. On the surface there were a number of stones which soon proved to be unrelated to a chimney mound or any other kind of structure. Beneath the top layer of sandy soil there was a significant layer of stormwash, consisting of mudstone boulders and pumice (Figure 1.27). Test pits dug through this layer revealed an underlying surface of darkened sand, containing historic period artefacts such as, clay pipe stems and bottle glass. The depth of material built up over the whaling period surface was surprising and means that any surface features on this part of the site are unlikely to be associated with the whaling station.

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**Figure 1.20 Area 4 plan**
Area 10 (9m²)

Area 10 was the last area opened up and was only briefly investigated. Excavation of a suspected chimney mound revealed a lined fireplace and base of a chimney made of flat mudstone rocks (Figures 1.28 & 1.29).
Figure 1.23 Area 5 plan

Figure 1.24 Area 6, on the terrace above the tryworks
Figure 1.25  Area 7 plan

Figure 1.26  Area 7, showing the outline of the slab wood walls and the fireplace
Figure 1.27 Area 8, showing the whaling period occupation layer beneath sand and storm rubble

Figure 1.28 Area 10, showing the base of a chimney and stone lined fireplace
1.5 Methodology

The Mahia Peninsula was not the easiest place to transport equipment from the Anthropology Department, University of Otago, for an archaeological excavation, and this was only achieved by means of a two day drive from the bottom of the South Island, to halfway up the North Island. For logistical reasons it was not practical to return the excavated assemblage in this manner. Instead bags were roughly sorted into material classes and packed into boxes by students at Mahia and then driven to Auckland by Nigel Prickett. In Auckland the materials were then repacked for transportation to Otago.

Once the material arrived at the Anthropology Department at Otago; before anything was sorted or cleaned, all bags of material and other artefacts were catalogued. This involved giving each bag or items a unique number, for example TH-01, and entering this and the provenance data for each item into a computer database. Materials such as glass and ceramics were then washed in water and dried. Ferrous metal items were cleaned simply by brushing and chipping away any loose dirt. All of this work was undertaken by students in the Anthropology Department.

The present report covers all of the artefactual material from Te Hoe, apart from the faunal remains, wood and charcoal, and some of the metal from Areas 1 and 4. The faunal material is currently (2005) being analysed as part of a Masters thesis by Tiffany
James-Lee. Undergraduate research is also being carried out by Rhonda Steel investigating the industrial component of the site and Christen McAlpine looking at the whalers' houses. Firstly all the artefacts covered in this paper were sorted according to area of excavation and material. Bags which contained mixed materials were sorted and some of the contents rebagged where necessary. Once the assemblage was sorted all of the artefacts from each material class were counted and weighed and any attributes useful for later analysis recorded on data sheets. While preliminary identifications were made at this stage, any item for which further analysis or research was required was placed aside. The data was then entered into a computer spreadsheet and forms the basis of all the tables in chapter 2. Methods for calculating the MNI or MNV for various classes of artefacts are discussed under the appropriate section in chapter 2.
2. The Artefacts

2.1 Introduction

The Te Hoe artefact assemblage, exclusive of faunal remains, is comprised of over 12000 artefacts, weighing about 244 kilograms. This is much larger than the 92 kilograms recovered from the Oashore whaling station site, during the first part of the project (Harris 2005). From tables 2.1 and 2.2 it is clear that most of this is made up of ferrous metal. While items such as fastenings can be useful for interpreting structural remains, other classes such as glass and ceramics are more useful for analytical and dating purposes. Over a third of the assemblage comes from Area 2 by weight and this increases to nearly fifty percent by NISP. This reflects the fact that Area 2 was both the most extensively excavated and contained abundant artefactual deposits. The relative proportions of different materials from different areas also reflect the functional aspects of each area, within the context of the whaling station. It was expected that different materials would be found in the tryworks area as opposed to a whaler's hut, and excavation has confirmed this.

Table 2.1 The Te Hoe assemblage by weight (g)

<table>
<thead>
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<th>Category</th>
<th>Area</th>
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</tr>
</thead>
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<td>Glass</td>
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<td>Ceramics</td>
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* This total includes 1102g of unprovenanced and surface collected glass.

Table 2.2 The Te Hoe assemblage by NISP

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* This total includes 100 unprovenanced and surface collected artefacts.
2.2 Glass

2.2.1 Bottle Glass

Bottle glass was recovered from all except Area 6. Glass was even found along the beach, which had eroded out of the seaward edge of the site and from the stream cutting. Of the 27 odd kilos of bottle glass, only two complete vessels are represented, with a further three being able to be largely reassembled. Analysis of all the diagnostic portions recovered, such as tops and bases, revealed the presence of at least 117 vessels in the assemblage. The minimum number was calculated separately for each area, with

Table 2.3 Glass assemblage by colour

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<th>Glass Colour</th>
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<td>Light Olive</td>
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<td>Aqua Green</td>
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<td>Clear</td>
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<td>Cobalt Blue</td>
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<td>.13</td>
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Table 2.4 Distribution of bottle types by MNV

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<th>A4</th>
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<td>5</td>
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diagnostic portions firstly being sorted according to colour and then top and base fragments being examined for possible matches to determine the MNV. Glass colour categories from any area, that did not contain any diagnostic portions, were assigned a MNV value of 1. Stoppers, embossed fragments and distinctive body fragments, such as from salad oil bottles, were also used for analysis.

For most vessels it was then also possible to identify the type of bottle and its probable original usage. From Tables 2.3 and 2.4 it is clear that alcohol bottles dominate the assemblage, although at least some were probably used for other non-alcoholic purposes.

All glass bottles in mid nineteenth-century New Zealand were imported which meant that bottles were valuable commodities which were repeatedly reused until broken (Tasker 1989). The contents of other vessels, such as salad oil and embossed panel bottles, can be identified more surely. Various technical features of the manufacturing process can also be identified on diagnostic portions, allowing for fairly accurate dating of most glass bottles.

Alcohol

'Black Beer' Bottles

'Black beer' bottles are so-called due to the fact that in reflective light the glass appears to be black, especially with regard to the thick base portion. Typically such bottles are actually made from glass which is dark olive in colour, which is more easily discernible in thinner parts of the bottle, such as the shoulder. Generally they are assumed to have originally contained beer and the dark, almost opaque nature of the glass would have helped to protect such contents from perishing in the light. They are known to have contained other substances as well and Jones (1986) lists wine, fortified wines, porter, ale, cider, as well as vinegar, and castor oil in such bottles (Prickett 1994:38). This utilitarian role was no doubt encouraged by the construction of the bottles, which are very heavily constructed (2.1 weighing approximately 800 grams for example) and designed to be reused. Evidence from frontier mining towns in America is that bottles were discarded when empty, suggesting that commercial reuse at least was dependent on the ability or feasibility to return the bottles to the market (Busch 2000).

Figure 2.1 Squat 'black beer'
Due to their manufacture usually no two 'black beers' are exactly the same, however they usually have a very thick base with a conical kickup (Figure 2.2) and a bulge neck with a rounded shoulder and hand applied top (Figure 2.3). One whole bottle, illustrated in Figure 2.1, has been produced in a three-piece dip mould and is of a type known as a squat 'black beer' (typology after Smith 2004). The top and neck are slightly asymmetrical and show signs of having been twisted while the top was being applied and finished. The base has a very shallow kickup, with a small pimple in the centre, characteristic of moulded bases. Another bottle (Figure 2.4 A), which has been reassembled, has a deeper kickup and has a more normal 'black beer' shape. The top is still hand applied and the body tapers slightly inwards down to the base, from the mould line running around the bottle. Figure 2.3 D shows the top of a black-glass, porter type bottle. Porter bottles were generally more squat in form than ordinary 'black beers', such as 2.4 A, with a concave or tapered neck.

Of the 29 'black beer' bottles from Te Hoe, 18 bases showing evidence of manufacture survive. Twelve of the bases show marks consistent with the use of a bare-iron pontil (best illustrated by Figure 2.2 B). Bare-iron pontils consisted of a metal rod with a cone shaped fitting at the end, which was heated until red hot and pressed into the base of the bottle to hold it, so that the top could be finished (Tasker 1989). The use of three-piece dip moulds with the bare-iron or improved pontil, as it is also called, started around 1830 and continued until 1875 (Stelle 2001). The pontil often disfigured the base and it was gradually replaced from the 1850s by the sabot and snap case, which held the bottle around the body without leaving marks (Jones 2000).
Figure 2.3  Olive bottle tops

Figure 2.4  'Black beer' bottle & embossed bases
Six of the bases have a moulded finish, easily distinguishable by their symmetrical form and usually with a small dome or 'pimple' in the centre. This new technology, by eliminating the pontil scar, opened the way for the embossing of bottle bases with either the manufacturers mark or the name of the bottler or other information. Embossing on bases was first introduced as early as 1821 with the patented Ricketts mould (Jones 2000) but became more common from the late 1850s. Figure 2.4 C is embossed on the base "6 TO THE GALL[ON *]", presumably referring to the volume of the bottle. In this case the volume would fall somewhere between a quart and a pint, roughly about 0.76 of a litre. The base is fragmentary and has been reassembled but is approximately 75mm in diameter. The exact volume could only be measured for 2.1 which holds about 825 millilitres or just under a fifth of a gallon. Sizes of other bases that were able to be measured range from 62 to 92mm, suggesting that a range of sizes and slight variation in form are represented.

This range of variation is also evident with the surviving top fragments. The usual closure for beer bottles was a cork, cinched to the top of the bottle with wire and then sealed with lead foil. A number of different lip and collar type tops were employed, each designed to provide an anchorage point for the wire. The top of 2.1 is flat with a band; the top of 2.4 A is flat with a bead; and 2.3 C and F are tapered with a skirt. No tops complete with their cork and wires were recovered, although traces of lead foil can still be seen on 2.3 C. Two other bottle necks, missing their tops, were also partly covered with lead foil.

Figure 2.5 'Ring seal' beer

'Ring Seal' Bottles

At least fourteen 'ring seal' bottles in varying shades of green are represented. One complete example is of a type commonly known as a 'ring seal' beer (Figure 2.5). These bottles are so-called due to the simple ring or band of glass applied below the rim, to which the cork was anchored by means of a piece of wire. This type of bottle was originally developed in France for bottling champagne but was also ideally suited for other carbonated beverages, and began to be used for beer in New Zealand from the
1870s (Tasker 1989). While they came to be increasingly associated with beer, it must be remembered that they were also used for champagne, wine and cognac.

Figure 2.5 has no obvious mould marks, except for very fine ones running horizontally around the body, and has therefore been produced in a turn mould. Older moulding processes left obvious lines on the finished vessel where the various parts of the mould joined and turn moulding sought to eliminate this. The metal mould was coated with a paste, and while the glass was still hot it was turned in the mould, producing a vessel with a more even finish (Baugher-Perlin 1982:265). This process was used between about 1880 and 1905 (Stelle 2001). The top of the bottle also has a finely tooled top, indicative of a later date, and the base has a high kickup with a mamelon. The bottle has a capacity of approximately 875 millilitres. Most other 'ring seal' bottles appear to be of the same type, through a comparison of top and base fragments (for example 2.6 A, B, D and E).

Two top fragments however are of different coloured glass and are more likely to be from brandy or cognac bottles. Figure 2.6 C has a very crudely tooled ring around the top and is in a very pale shade of green. One other top fragment, not illustrated, is of a light sea-green coloured glass.

Figure 2.6 'Ring seal' tops & bases
**Green Alcohol Bottles**

At least six different bottles in green glass were identified, that probably originally contained alcohol of some description. Figure 2.7 can be compared to 2.4 in form but is manufactured in green rather than dark olive glass. The bottle is incomplete but enough fragments survived to reassemble its exact form. The top is curved with a bead, while the neck is slightly convex on a rounded shoulder and the body straight. The moulded base has been pushed slightly out of shape and is embossed with the mark "C.W & Co" (2.4 B). Identical marks have been found on beer bottles from several other sites including Rewa's Pa (Best 2002) the Mechanics Institute (Macready and Goodwyn 1990) and the Victoria Hotel (Brassey & Macready 1994). This mark is as yet unidentified, but it may well relate to the Scottish firm of Cooper and Wood who are said to have operated between 1859 and 1868, before breaking up into two separate companies (Brassey & Macready 1994; Best 2002).

Figure 2.6 D shows the top of a green bottle which is flat with a band and was most likely an alcohol bottle of some kind. Figure 2.8 A is similar to the 'ring seal' bases in 2.6 E and F, but is in a slightly different shade of green and has a series of seven embossed dots on the mamelon. Figure 2.8 C has a shallow moulded base, 89mm in diameter, and is of an uncertain type.

![Figure 2.7 'C.W & Co' beer bottle](image)

**Light Olive Alcohol Bottles**

A small number of bottles in light olive glass, easily distinguished from square case gin and schnapps bottles and the much darker 'black beers' were identified. All are only present as fragments and are likely to have originally contained spirits. Figure 2.3 A and E both have plain flat or slightly tapered tops, without a band or collar below, required on bottles containing carbonated beverages. The stresses placed on the neck of the bottle while the top was being applied and finished can clearly be seen as twist marks on 2.3 A. Other light olive fragments include a top that is flat with a bead and has a convex neck (2.3 B) and moulded base, 62mm in diameter (2.8 B).
Case Gin

Case gin bottles are easily distinguished from schnapps bottles due to the fact that they have square bodies which taper in sharply towards the base. The tops are generally quite simple, with a rudimentary neck, sitting on a rounded shoulder. Case gins are so-called because they were specifically designed to be packed in cases for export, with the square shape having the obvious advantages of being both more stable and able to be packed more efficiently (Tasker 1989:48). The Dutch dominated the export of gin in the nineteenth century and virtually all the gin imported to New Zealand came from Holland. Only six case gin bottles were identified in the Te Hoe assemblage from top and base fragments. Only one complete base (2.9 D) and two tops (2.9 A & B) were found, with other vessels being represented by more fragmentary pieces. Figure 2.9 B is a type known as a 'pig-snout gin', due to its crude, hand applied, flared out top. 'Pig-snout' gins are recognized as an early type and while Tasker gives a terminal date for their usage of about 1875, the fact that they are only found in early contexts from sites such as Rewa's Pa, suggests that they may have fallen out of regular usage much earlier (Tasker 1989:48; Best 2002:60). The 'pig-snout' gin top was found at the back of the beach just up from the tryworks, still embedded in a lump of dirt which had clearly eroded out of a stratigraphical layer in the bank which contained whalebone and other whaling period artefacts. Figure 2.9 A is of a later type that replaced the 'pigsnout' and has the additional feature of a small pouring spout.

Spirits

Fragments of four bottles in aqua green glass have been identified as most likely having contained spirits. Figure 2.11 A has been largely reassembled and the shape suggests that it is probably a spirit bottle (Smith 2004). Figure 2.13 B shows the top of
Figure 2.9  Case Gin & Schnapps

Figure 2.10  Embossed case schnapps
another tall aqua bottle with a plain top and concave neck. It is not known exactly what the original contents may have been, but the top suggests something non-carbonated, possibly spirits. Figure 2.12 A and B show the bases of two vessels commonly described as whiskey bottles or coffin shaped flasks (for example Macready and Goodwyn 1990: Figure G40; Ritchie and Bedford 1983: Figure 12). These types of bottles are distinctive in that they have either an oval or rectangular base with sides which taper inwards from a rounded shoulder.

**Figure 2.11 Aqua green bottle & embossed bases**

*Brown Alcohol*

Fragments of brown coloured glass totalled just over 200 grams (see Table 2.3). No diagnostic fragments were recovered but most were consistent in thickness and shape as having come from large, quart sized beer bottles. Without any diagnostic features it is not possible to comment on their manufacture. All the fragments were recovered from either just below the turf or the top of the historic layer and are unlikely to be related to the occupation of the whaling station and have most probably been deposited by later visitors to the site.

**Condiments**

At least eight bottles, all in aqua green glass, known to have contained either sauces, pickles, oil, or other foodstuffs are present. Such bottles can be identified by their form and from embossed labels and marks.
Salad Oil

Salad oil bottles are usually identifiable even from very small fragments, due to their moulded decoration. One of the reasons for their decorated form is that in the nineteenth century they were designed to sit on the table (Prickett 1994:47). No salad oil vessel forms were able to be reconstructed from Te Hoe, with 2.13 C illustrating the most complete example in this category. The bottle, in aqua green glass, has been made in a two-piece mould, with a hand applied top, and is decorated on the neck primarily with a spiral pattern. Such bottles are known to collectors as 'whirlies' and come in a range of variant patterns and sizes. One other neck fragment from a 'whirlie' was found, along with body fragments from other areas decorated with a diamond pattern. An aqua green stopper, decorated with embossed dots around the outside of the top, may also have come from a salad oil bottle (2.14 E).

Pickle Bottles

Just two pickle type bottles were identified based on two top fragments. Figure 2.13 E shows a top 37mm wide, with a simple applied ring of glass. Only one other top fragment in this category was recovered and no identifiable body or base fragments. The wide mouth strongly suggests a pickle or preserve bottle of some kind, although exactly
what the form or contents of the bottle were is not known. The fact that they have applied tops and are in aqua green glass suggests a mid to late 19th-century date. From 1880 in America the development of the food preservation industry led to the use of decolourising agents, such as manganese, being added to glass, to produce clear containers in which packaged products could be more easily seen (Baugher-Perlin 1982:261).

**Lea & Perrins**

Lea and Perrins worcestershire sauce is one of the most widely known condiments in the western world and this has been the case since the middle of the nineteenth century. Figure 2.14 A and B show glass stoppers embossed "LEA & PERRINS", one being complete and the other chipped. Figure 2.13 D undoubtedly illustrates the top of a Lea and Perrins type bottle and comes from the same area as the stoppers. The fragment in 2.13 A is shaped like a worcestershire sauce bottle but carries no embossing. The typical long necked, straight sided bottle embossed with "Lea & Perrins" down the side and "Worcestershire Sauce" around the base of the rounded shoulder has been used since 1840 and the shape remains the same today (Tasker 1989:88). However Lea and Perrins is not recorded as being imported to New Zealand until 1852 and so these bottles must date from between this time and the end of the 19th-century (Tasker 1989).
Figure 2.14  Glass stoppers

Figure 2.15  Ceramic stopper

Pharmaceutical

Vessels in this category include both prescription medicines available only from chemists and patent medicines. The term patent medicine is widely used to describe all 19th-century medicines and quack cures, patented or otherwise, sold without a prescription (Baugher-Perlin 1982:273). Medicinal bottles are usually small to medium sized rectangular or oval shaped vessels and can be separated from other categories on this basis.

One of the most famous and from archaeological evidence, most widely used, of these miracle cure-alls has to be Perry Davis’ Vegetable Pain Killer. Fragments of at least six aqua blue Davis bottles were found, in at least two different sizes, a selection of which are illustrated in 2.16. Davis was an American and patented his ‘vegetable pain killer’ in 1845, meeting with great success throughout the nineteenth century by advertising it widely as a virtual panacea; including as a treatment for cholera. Its popularity was universal; a fact no doubt attributable to its rather potent formula: gum myrrh 2 1/4 pounds, capsium 10 ounces, gum opium 8 ounces, gum benzoine 6 ounces, gum fuiaic 3 ounces and 5 gallons of alcohol (Ritchie & Bedford 1983:251). During an age when doctors were thin on the ground and expensive, self medication with cure-alls in fancy bottles was the next best thing.
One aqua blue pharmaceutical bottle embossed "JOHN S. WELSMAN / CHEMIST / NAPIER" and "W" on the bottom is illustrated in 2.17 A. The bottle, although incomplete and having been reassembled from several fragments, is rectangular in shape with chamfered corners. The top of the bottle is missing and so it is impossible to tell what it originally contained and how it was to be taken. No information is available regarding John Welsman, although Tasker notes that chemists in New Zealand did not start embossing bottles with their name and place of business until the 1880s (Tasker 1989:78). At any rate the site for the town of Napier was not purchased by the Crown until 1855 (Wilson 1939:410) and so the bottle is unlikely to relate to the whaling station.

Six other aqua blue pharmaceutical bottles are represented by top and base fragments. The top fragments, as illustrated in 2.13 H and I, all have pressed lips which have been tooled to a smooth finish. Such tops had a simple cork closure and were designed to be placed directly into the patient's mouth. Figure 2.12 C shows an oval shaped base in aqua blue, while 2.12 D shows a clear rectangular panel bottle with the letters "BB" embossed on the base. The letters may well refer to the glass manufacturer but little information has been published regarding such marks. None of the vessels were complete enough for the exact form to be reconstructed.
**Schnapps**

While schnapps today would be classed purely as an alcoholic drink, this was not the case in 19th-century New Zealand. Schnapps is essentially Dutch gin made from the juniper berry and flavoured with herbs, but it seems to have been marketed more as a patent medicine than as alcohol. The New Zealand agent for Wolfe's Schnapps, L.D. Nathan of Auckland, promoted the drink with advertisements such as one in the *Observer* of 29 August, 1885: 'Wolfe's Schnapps, the purest in the world. Recommended by the medical faculty for all kidney and bladder complaints. Checks the disarrangement of the body...' (Tasker 1989:52).

Schnapps, like gin, was bottled in square sided case type bottles and produced primarily in Holland. Unlike gin, schnapps bottles have straight sides, typically with chamfered corners and are usually lighter in colour. At least six schnapps bottles were identified, mainly from embossed fragments of body glass, rather than from tops and bases (see 2.9 C and 2.10). Embossed fragments identify Udolpho Wolfe as the manufacturer of at least two bottles from different areas (2.9 C and 2.10 D). Udolpho Wolfe was a Dutch schnapps producer based in Schiedam. Tasker lists Udolpho Wolfe's Aromatic Schnapps as one of the commonest embossed alcohol bottles found in New Zealand, a testament either to its price or its advertisement (Tasker 1989:52). Udolpho Wolfe started producing schnapps from 1848 and the bottles were initially embossed "Schnapps Wolfe's Superior Gin" (Low 2005:142). The inscription "Udolpho Wolfe's Aromatic Schnapps" was not used until 1861 and the first shipment of this particular brand is not recorded as coming into New Zealand until October 1863 (*ibid*). All of the embossed fragments fit this inscription and so date to between 1863 and about 1900.

**Miscellaneous**

**Cobalt Blue**

Two fragments of cobalt blue glass from bottles with a long neck are most likely to have come from castor oil bottles. Figure 2.13 G shows the hand applied top of one such bottle and can be compared to the complete example illustrated by Macready and Goodwyn (1990: Figure G93). Fragments of at least three other vessels in cobalt blue are present, with 2.13 F being the most complete. The bottle has a crude rounded flange type lip with a neck which tapers down towards a body which originally appears to have been hexagonal or octagonal in shape. Cobalt blue vessels have become associated with poisonous substances but it must be kept in mind that they were also used for pharmaceutical purposes and for other things like castor oil.

**Embossed Glass**

Fragments from several vessels listed as unidentified in Table 2.4, carry embossed marks of some description. Embossings have been used on a commercial basis since about 1750 but became more common by 1860 with the development of the plate mould system, by which a metal plate with the lettering could simply be slipped into an existing mould (Baugher-Perlin 1982:265). 2.17 B, C, and D, all in aqua green, carry part of the embossing "HORA & Co / LONDON". All appear to be from bottles with an oval cross-section, as clearly illustrated by the most complete example 2.17 B. Figure 2.17 B and C appear to be from the same small sized bottle, while D is either from a different sized bottle or just as likely, may have been produced at a different time. Macready and Goodwyn list two castor oil bottles embossed "Hora & Co" "London", one in cobalt blue and the other in a lighter blue (Macready & Goodwyn 1990:83). No
other reference to "Hora & Co", especially with regard to bottles in aqua green, could be found and so it is not known what these particular examples may have held.

Several other fragments carry partial embossed marks which have not been identified in any fashion. Figure 2.17 E is from a small cylindrical cross-sectioned bottle in aqua blue with the partial embossing "..BS" "V[?]|CELE...". 2.17 F is another cylindrical bottle, in aqua green and marked "..LBROO...". 2.17 G shows the base of a small round aqua blue vessel marked ".[O]EL" "COMPANY" "S.A". 2.11 B is part of an aqua green base with an embossed "p" inside a diamond. Presumably this refers to a patent of some kind for the bottle in question, but without a more complete example it is impossible to say more. 2.11 C, again in aqua green, carries a makers mark "J K W" or "J W K" however one wants to read it, and a number "778" on the base, which may simply be a mould or batch number. Another number "7167" occurs on the base of 2.13 A described above.

**Stoppers**

Two Lea and Perrins stoppers and one salad oil stopper have already been described above. Two plain stoppers in aqua green were also found and are illustrated in 2.14 C and D. One plain ceramic marble (2.15) was found and most likely comes from an aerated water type bottle. The use of ceramic marbles as stoppers likely arose out of an 1885 patent by William L. Roorbach and was used between 1885 and 1895 (Stelle 2001). It was based on the same principle as that patented by Hiram Codd in 1872,
which used a glass marble. In both systems the bottles had an internally placed marble and were filled in an inverted fashion, with the bottle being sealed by gas pressure forcing the marble up against a rubber seal when the bottle was returned to an upright position.

**Clear Glass**

A small number of clear glass sherds, which were obviously from bottles but could not be identified were found. Vessels where clear glass was used include perfume bottles and decanters, and containers where the contents needed to be seen more clearly. Clear glass lets in more light and so was not suitable for products such as beer, which perish under such conditions. Until the middle of the nineteenth century most bottles were produced in natural colours, such as olive and aqua green which result from impurities in the sand. Fine tablewares and other more decorative forms were made from a silica-potash-lead combination to achieve clarity (Baugher-Perlin 1982:261). This formula has been used since 1770, while for more ordinary vessels manganese was the most common decolourising agent between 1880 and 1918 (Stelle 2001).

### 2.2.2 Flat Glass

**Window Glass**

A significant amount of thin flat glass interpreted as window glass was recovered, especially from Area 2 (see Table 2.5). All of this glass has an aqua tint and ranges from 1.5 to 2.2 mm in thickness. In 1800 flat glass was being manufactured by three processes: crown, cylinder, and casting (Stelle 2001). The crown method was superseded by 1820 and so the window glass from Te Hoe is the result of either the cylinder or casting method. The recovery of over one kilogram from Area 2 clearly suggests that this building had some glass windows at the time it burnt down.

<table>
<thead>
<tr>
<th>Area</th>
<th>A1</th>
<th>A2</th>
<th>A3</th>
<th>A4</th>
<th>A5</th>
<th>A7</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Window Glass</td>
<td>34.66</td>
<td>1118.13</td>
<td>7.56</td>
<td>239.37</td>
<td>5.93</td>
<td>15.59</td>
<td>1421.24</td>
</tr>
<tr>
<td>Other Flat Glass</td>
<td>—</td>
<td>46.22</td>
<td>—</td>
<td>52</td>
<td>—</td>
<td>—</td>
<td>98.22</td>
</tr>
</tbody>
</table>

A very small number of thicker sherds of flat glass were found in Areas 2 and 4. This glass is in two sizes, being 6.8 and 7.8 mm thick respectively. One fragment from Area 2 still has part of manufactured chamfered edge and square corner. The most likely explanation for these artefacts is that they are from square sided lanterns.

### 2.3 Ceramics

#### 2.3.1 Introduction

Ceramics form an important part in any historic period assemblage, as they have a number of attributes which are often temporally sensitive, and due to their manufacture they survive well in the ground. All ceramic artefacts were analysed with a tripartite
purpose in mind: to identify the portion represented and the form of the parent vessel where possible; to identify the style, colour, and pattern of the decoration; and to record any backmarks, where present. This data was then used to identify the periods of manufacture represented by individual vessels. A minimum number of 89 ceramic vessels are present in the Te Hoe assemblage, consisting largely of tablewares, with a smaller quantity of teawares and other wares. For the purposes of calculating the MNV, the ceramics from each excavation area were treated as a separate assemblage. Analysis did not reveal any obvious matches between sherds from the same vessel across different excavation areas and so this methodology probably has little or no effect in inflating the overall MNV total. As shown in Table 2.6 the majority of the assemblage is made up of earthenware, with only four stoneware vessels and a single item of porcelain.

Table 2.6 Ceramics

<table>
<thead>
<tr>
<th>Ware Type</th>
<th>NISP</th>
<th>Weight (g)</th>
<th>MNV</th>
</tr>
</thead>
<tbody>
<tr>
<td>Earthenware</td>
<td>360</td>
<td>2020</td>
<td>84</td>
</tr>
<tr>
<td>Stoneware</td>
<td>8</td>
<td>174</td>
<td>4</td>
</tr>
<tr>
<td>Porcelain</td>
<td>2</td>
<td>2.5</td>
<td>1</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td>370</td>
<td>2194</td>
<td>89</td>
</tr>
</tbody>
</table>

2.3.2 Vessel Forms

No whole or substantially complete ceramic vessels were found at Te Hoe, with most being represented by a few fragmentary pieces or even a single sherd. Despite this it is still quite simple to tell whether a sherd has come from a plate, rather than a bowl or cup for instance. What it is not possible to determine is the exact form of the original plate or cup and fragments can only be assigned to generic categories. The process is therefore somewhat subjective and the information listed in Table 2.7 should be taken as indicative only.

Table 2.7 Ceramics: MNV by vessel form and ware type

<table>
<thead>
<tr>
<th>Vessel Type</th>
<th>Earthenware</th>
<th>Stoneware</th>
<th>Porcelain</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plate</td>
<td>29</td>
<td></td>
<td></td>
<td>29</td>
</tr>
<tr>
<td>Bowl</td>
<td>9</td>
<td></td>
<td></td>
<td>9</td>
</tr>
<tr>
<td>Cup</td>
<td>24</td>
<td></td>
<td></td>
<td>24</td>
</tr>
<tr>
<td>Saucer</td>
<td>1</td>
<td>1</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Teapot</td>
<td>2</td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Jug/Mug</td>
<td>3</td>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Bottle</td>
<td>2</td>
<td>2</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Eggcup</td>
<td>2</td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Unidentified</td>
<td>14</td>
<td>2</td>
<td>1</td>
<td>16</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>84</strong></td>
<td><strong>4</strong></td>
<td><strong>1</strong></td>
<td><strong>89</strong></td>
</tr>
</tbody>
</table>

Plates and Saucers

Plate fragments are distinctive from cups and bowls in that they are usually flat, with the exception of fragments from the brink or side of the plate, and they are generally thicker and only decorated on one side if at all. Two "Rhine" pattern plates, discussed
further below, were the most complete plates recovered (Figures 2.18 & 2.19). They appear to fit the description used in 19th-century Staffordshire potters' price fixing lists of a 'Table Plate'; being a plate ten inches in diameter (Miller 2000). Two saucers have been tentatively identified based on three small rim sherds. No comments about their shape or form can be made.

**Cups, Mugs, and Jugs**

Although fragments of at least 27 cups, mugs and jugs, were recovered, none were complete enough to reconstruct the shape or form. The most complete cup, represented by 2.24 A and P, comes from a straight sided vessel. Figure 2.29 C, comes from a plain straight sided mug. Only two fragments of jug were identified. Figure 2.24 C shows part of the rim of a jug, while part of a pedestal type base, probably from the same vessel, was found in the same area.

### 2.3.3 Decoration Types

**Transfer-Printed**

Over half of the earthenware vessels were decorated with underglaze transfer printed designs and patterns (see Table 2.8). Table 2.9 shows that blue was by far the most popular colour, ranging from dark flow-blue to the light grey-blue colour usually referred to as grey, with purple, green, and brown also being present. The process for transfer printing developed rapidly from the late eighteenth-century and came to dominate the ceramics market by the middle of the 19th-century. In brief a design was engraved on a copper plate, which was then coated with a mixture of pigment and oil and the pattern transferred to the biscuit fired ceramic vessel by means of a glue bat or more commonly tissue paper. The colour was then set at a low temperature before being glazed and given its final kiln firing. Full descriptions of the process are given in numerous publications (notably Copeland 1980). Transfer printing allowed for complex patterns to be produced quickly and in quantities not before possible, bringing the cost of highly decorated wares within reach of most people within a few decades (Sussman 2000).

**Table 2.8 Earthenware decoration types by MNV**

<table>
<thead>
<tr>
<th>Earthenware</th>
<th>UGTP</th>
<th>Flow Blue</th>
<th>Shell-Edge</th>
<th>Edge-banding</th>
<th>Slip/Polychrome</th>
<th>Hand painted</th>
<th>Plain</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plate</td>
<td>17</td>
<td>3</td>
<td>3</td>
<td></td>
<td>1</td>
<td>5</td>
<td></td>
<td>29</td>
</tr>
<tr>
<td>Bowl</td>
<td>7</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>9</td>
</tr>
<tr>
<td>Cup</td>
<td>21</td>
<td></td>
<td>2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>24</td>
</tr>
<tr>
<td>Saucer</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Teapot</td>
<td></td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td>2</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Jug/Mug</td>
<td>1</td>
<td></td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td>Eggcup</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Unidentified</td>
<td>8</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>14</td>
</tr>
<tr>
<td>Totals</td>
<td>56</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>9</td>
<td>3</td>
<td>7</td>
<td>84</td>
</tr>
</tbody>
</table>

**Table 2.9 Colour of transfer prints by MNV**

<table>
<thead>
<tr>
<th>UGTP Colour</th>
<th>Blue</th>
<th>Flow Blue</th>
<th>Grey</th>
<th>Purple</th>
<th>Green</th>
<th>Brown</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>MNV</td>
<td>35</td>
<td>4</td>
<td>2</td>
<td>4</td>
<td>6</td>
<td>5</td>
<td>56</td>
</tr>
</tbody>
</table>
**Identified Patterns**

Despite the large number of transfer printed vessels in the Te Hoe assemblage only five patterns have been formally identified. A great deal of literature exists on transfer printed patterns, notably for blue-on-white colour schemes, but most of this is directed towards the collector rather than the archaeologist, hence the focus on whole vessels and rare or collectible pieces as opposed to more common patterns (for example Coysh and Stefano 1981; Coysh and Henrywood 1982, 1989). Very little information is available on the myriad range of sheet patterns and other simple designs which are found on ceramics, presumably from the lower end of the market. The easiest and quickest way to identify patterns is to compare fragments with those illustrated or described from other roughly contemporaneous sites and has been employed here with references being given where appropriate.

![Figure 2.18 'Rhine' pattern plate with mark](image)

### 'Rhine'

Fragments of two 'Rhine' plates were found, showing two different scenes. The pattern name is marked on the back of one of the plates in italic lettering, enclosed in an elaborate scroll cartouche (see 2.20 and detail 2.18). On the other plate only the edge of the cartouche is preserved. Coysh and Henrywood (1982) describe 'Rhine' as a series of romantic patterns widely used in Victorian times and usually printed in grey. Unfortunately while most 'Rhine' decorated vessels carry the pattern name, very few are marked with a manufacturers mark. At least 17 potters are known to have produced 'Rhine' pattern wares (Kowalsky and Kowalsky 1999).
Figure 2.19 'Rhine' pattern plate

While 'Rhine' is a multi-scene pattern, several elements are familiar to all 'Rhine' decorated plates. Figures 2.18 and 2.19 both illustrate the distinctive border found on all 'Rhine' plates, which contains vegetative and floral elements on a lined background. The central scenes follow a formula common to many romantic designs: in the background there are usually one or more stylised buildings; in the mid-ground a water source, such as a river or lake; and in the foreground humans or animals to provide a sense of scale (Samford 2000). In this case both scenes depict a castle in the background, the river Rhine in the mid-ground, with trees and other vegetation growing along its banks and people in a boat in the foreground. All 'Rhine' scenes follow this generic formula and it is unlikely that they depict actual places in the Rhine valley. The grey colour, sometimes referred to by collectors as 'river-grey', is also typical of the 'Rhine' pattern. Romantic scenes such as this were most popular during the middle of the 19th-century but continued in production up to about 1870 (Samford 2000).

Figure 2.20 'Rhine' pattern mark
Willow pattern is usually the most common transfer print found in 19th-century archaeological sites. This is due in part to the fact that Willow is one of the most easily identifiable patterns, even when dealing with small fragments. Willow pattern was first developed by Josiah Spode in the late eighteenth-century and incorporated various motifs based on Chinese designs (Copeland 1980). Willow was quickly copied by a number of other potteries and already by 1814 it had the distinction of being the cheapest available transfer printed pattern in the potter's price fixing lists (Miller 2000). Fragments of at least seven Willow pattern plates were recovered, all in underglaze blue, several of which are illustrated in 2.21. Several elements are needed to positively identify Willow: "the bridge with three persons crossing it, the willow tree, the boat, the main tea house, the two birds, and a fence across the foreground of the garden" (Copeland 1980). Figure 2.21 A-C show the distinctive rim decoration common to all 'Willow Ware', but other patterns based on similar themes can also have this type of border. 2.21 D shows the boat with a fisherman on board; E clearly shows the three people running over the bridge, with branches of the willow tree hanging above them; F shows part of a pair of doves which would have been centred at the top of the scene. 2.21 G shows part of the temple located in the upper left-hand of the scene; H and I show parts of the main tea house. One fragment, not illustrated, shows the fence across the foreground of the garden; while one shows part of another pair of doves. 2.21 C also has severely abraded edges, suggesting that it may have been exposed on the surface at some time before being finally buried. Willow pattern remained popular throughout the 19th-century but before 1850 it was largely confined to flat wares such as tableware (Miller 2000).
'Amoy'

Only one vessel was identified in this pattern, with identification being based on comparison with a fragment back marked 'Amoy' illustrated by Bickler (2005). The Bickler example is also marked 'W.R', identified as William Ridgway. Coysh and Henrywood (1982) list William Ridgway as a maker of 'Amoy' and describe it simply as a romantic scene printed on ironstone wares. Historically Amoy was a Chinese port on the island of Hsiamen across the straights from modern day Taiwan, which was captured by the British in 1841 and became a treaty port in 1842 (Coysh and Henrywood 1982).

Figure 2.22 shows the base of a bowl, decorated in a chinoiserie style pattern, in underglaze blue. The scene shows two figures, one seated and one standing with a pole and bundle over their shoulder, under a tree, with Chinese style buildings in the background. The base of the bowl has a heavy footring and is unmarked save for a printed '2'. The Bickler example only shows the middle of the tree and the tops of the buildings but these elements match 2.22 exactly. Coysh and Henrywood (1982) also list Davenport and Dillwyn of Swansea as makers of 'Amoy' but the description of the scenes differ substantially from 2.22. William Ridgway operated from c.1830 to 1854 at the Bell Works in Shelton and the Church Works in Hanley (Coysh and Henrywood 1982) and appears to be the most likely manufacturer of this particular piece.

Figure 2.22 'Amoy' pattern bowl

Fibre

Fragments of at least two vessels decorated in the 'Fibre' pattern were recovered, one of which is illustrated in Figure 2.24 D. The pattern only gains a cursory note in Coysh and Henrywood (1989), being described as "a simple pattern of fern or seaweed-like sprays noted on children's tea wares". Bickler (2005) more accurately describes it as an all-over pattern of fibrous tentacles. Fibre has been previously recorded from several New Zealand sites including Fort Ligar (Brassey 1989) Brown's Mill (Brassey 1990) and the Mechanics Institute and Neighbourhood (Macready and Goodwyn 1990).

Cable

Cable is another pattern that appears to have been popular in New Zealand during the mid-19th-century. One fragment in underglaze purple was recovered and shows two
ribbons entwined about a cable, forming a symmetrical pattern (2.25 A). This pattern has been recorded from the Mechanics Institute (Macready and Goodwyn 1990) and Brown's Mill (Brassey 1990) among others.

Figure 2.23 Flow blue decorated

Other Blue Transfer Printed Ceramics
As is nearly always the case with an archaeological assemblage, a number of distinctive styles and motifs can be identified from small fragments, which can not be attributed to a specific pattern. Figure 2.24 illustrates a selection of such fragments. 2.24 A is part of the rim and side of a cup or mug and while it only represents a small part of the original scene, it carries some distinctive elements. A large square building is set high on the bank of a river or lake, with trees along the water and beside the building. Mountains can be seen in the background, as can part of the sail of a boat on the water in the foreground. A search of the available literature failed to provide an exact match, with the closest being a view of 'Stackpole Court, Pembrokeshire' by Elkins and Company. This pattern is part of an 'Irish Scenery' series and depicts a similar, though not identical scene (Coysh and Stefano 1981:33; Coysh and Henrywood 1982:347). Scenes such as this were based on paintings and drawings of real places and were most popular during the period 1813 to 1839 (Samford 2000). They continued to be produced until 1868 but the 1842 Copyright Act, which forbade the copying of book illustrations, effectively cut off the source of views for this genre (Samford 2000). 2.24 P is part of the handle from the same cup or mug.

2.24 B shows a tantalising glimpse of a sailboat on a river or lake with a bridge in the background. Such motifs would be equally at home in either a 'Scenic' or 'Romantic' style pattern. Romantic patterns, such as 'Rhine' described above, followed a generic formula without actually depicting an actual place or scene. While they continued to be produced until about 1870, patterns in underglaze blue were at the height of popularity in the period 1820 to 1840 (Majewski and O'Brien 1987).

2.24 E to G are side sherds from cups and are decorated in patterns similar to 'Fibre'. E and F have a tendril like motif on a background of dots, while G has a slightly more realistic style which invokes seaweed waving around in water. H to L illustrates a range
Figure 2.24  Blue transfer printed

of highly stylised geometric and floral border designs found on rim sherds. M is part of the base of an eggcup with a border design. N is part of the side of a cup showing part of a tree rendered in a rather heavy fashion, but not quite as dark or blurry as a flow blue effect. O shows part of a European style building on the side of a cup.

Flow Blue
The process for producing flow blue decoration was developed around the mid-1830s and was especially popular during the 1840s and 1850s, with a later resurgence at the end of the century (Samford 2000). The colour preferred was usually a deep blue and the process caused the colour of the print to run into the glaze, producing a blurred look (Majewski and O'Brien 1987). Due to this effect small fragments are easy to identify, with at least four flow blue plates present in the Te Hoe assemblage. 2.23 A and B show rim sherds from two different vessels and C and D body sherds, all clearly showing the 'flow' effect.

Transfer Prints In Other Colours
Initially blue was the only colour stable enough to use in underglaze transfer printing but new colours had begun to be introduced as early as the second decade of the 19th-century. Various workers agree that green, brown, and purple did not come into
mainstream use until about 1828 and seemed to have fallen out of favour by 1850 (Majewski and O'Brien 1987; Samford 2000). Later nineteenth century use of these colours tends to be in the form of monochrome floral motifs (Majewski and O'Brien 1987).

**Purple Transfer Prints**

Figure 2.25 A, 'Cable' cup described above. 2.25 B and C, cup fragments decorated with geometric designs. Fragments of a plate, not illustrated, were also found.

**Green Transfer Prints**

Six vessels in underglaze green were found with a selection shown in 2.25 D to H. H has a blurry appearance and may possibly be underglaze painted.

**Brown Transfer Prints**

Five vessels in underglaze brown were found, four of which are illustrated in 2.26. A has a geometric style border on both sides of the rim, with a stylised rope and leaf design below this on the exterior. B and D both have vegetative motifs on the exterior, while C has a purely geometric border.

![Figure 2.25 Purple & Green transfer printed](image_url)
Shell Edge Ware

Figure 2.27 shows rim sherds from two shell edge decorated plates; one further vessel is not illustrated. The one on the left has a scalloped rim with impressed curved lines and is painted in underglaze blue. This type of shell edge decoration with impressed curved lines on a scalloped rim was most popular from 1802 to 1832 and was not produced after 1845 (Stelle 2001). The other sherd has impressed curved lines on a plain rim, which was popular from 1841 to 1857, and produced until 1891 (Stelle 2001) although not common after the 1860s (Miller 2000:91). Edge treatments such as this were generally confined to flat wares and constituted the cheapest range of tableware available for much of the 19th-century (Miller 2000). In New Zealand sites shell edge ware is generally accepted as an early marker, found only in early to mid-19th-century contexts. At Rewa's Pa seven of nine shell edged sherds came from the lower layers of the site (Best 2002). Shell edge ware has also been recovered from other whaling station sites, including Oashore in New Zealand (Harris 2005) and at Adventure Bay and Lagoon Bay in Australia (Lawrence 2004).
Polychrome and Slip Decorated

Parts of nine vessels decorated either with a monochrome slip or with the addition of one or more colours, were identified. Figure 2.28 A to E show fragments of two mugs or cups decorated primarily with a dull yellow slip. The blue and white banding has been applied over the top of the slip to produce the final product. 2.28 F is part of an unidentified vessel decorated with a pale blue slip on the exterior. Figure 2.28 C illustrates a partially reassembled mug, decorated with a plain ochre yellow slip. This method of decoration is typical of what was known as 'Mugs and Jugs Ware', which were cheap wares produced for utilitarian usage (Miller 2000). Plain examples like 2.29 C are not common after the 1840s but banded types continued to be produced throughout the century (Miller 2000). Fragments of two plain teapots were also recovered. Figure 2.29 A shows part of the base and spout of a teapot decorated with a dark brown slip and glaze. 2.29 B is part of the lid from another teapot decorated in the same fashion in a lighter shade of brown.

Figure 2.28 Slipware, polychrome and handpainted

Edgebanding

Only one vessel, represented by a single sherd, was found (2.28 G). It is part of the rim of a cup decorated with two handpainted blue bands. Banded decoration was most popular during the late-18th and early-19th centuries (Sussman 2000). However such simple decorated wares continued to be produced throughout the 19th-century.

Handpainted

Figure 2.28 H to L illustrates all of the handpainted sherds recovered at Te Hoe. H and I belong to a bowl or plate decorated with leaves, branches and stems of grass. Green and brown appear to be the only colours used, with different shades being produced by the thickness of the paint. J and K illustrate a flat sherd, presumably from a plate, which has distinctive handpainted decoration on both sides. Colours used include blue,
brown, green, red and yellow. L is from an unidentified vessel and was decorated in at least two colours, red and brown.

Figure 2.29 Teapots, mug & eggcup

Plain
Only seven undecorated plain white vessels were identified. Minimum numbers were calculated using only rim sherds and those which clearly came from undecorated wares, to preclude the possibility of counting vessels twice. Figure 2.29 D shows the base of an eggcup, while 2.30 shows part of a dinner plate with some simple moulded decoration. Two small rim fragments of a plain white porcelain vessel, not illustrated, have been tentatively identified as coming from a saucer.
2.3.4 Stoneware

Stoneware is classified as pottery fired at a high enough temperature so as to completely vitrify the clay, producing a hard, durable and water-proof body (Stelle 2001). Stoneware is usually associated with plain utilitarian objects, designed to withstand heavy use, such as inkwells, jars, jugs, and bottles. Because of its more functional purpose, the decoration and form of stoneware vessels changed very little over time, making them virtually useless to the archaeologist as temporal markers. Decoration was normally confined to a simple glaze or slip, as anything else simply added cost to the finished product. Fragments from just four stoneware vessels were found at Te Hoe. 2.31 A is a vessel of unidentified form and has a grey body with an olive green glaze on both sides. The vessel has a thick rim and wide mouth, with a very short neck and narrow shoulder. 2.31 B shows the base of an unknown vessel with a grey body and clear glaze on both sides. From the surviving fragment the vessel appears to have had a hexagonal shaped base, with the sides flaring slightly outwards from the bottom. There is also a '6' or '9' in relief visible on the base. 2.31 C is the base of a bottle and is 66mm in diameter. The vessel has been subject to burning and the surface is also heavily abraded, but the original colour appears to have been white or light cream. 2.31 D shows part of the side of a glazed bottle which carries part of a mark or design printed in black.

Figure 2.31 Stoneware
2.4 Clay Tobacco Pipes

2.4.1 Introduction
A total of 168 clay tobacco pipe fragments were found at Te Hoe, mainly consisting of small sections of stem, with no whole pipes being recovered. The majority came from Areas 5 and 7 (see Tables 2.1 and 2.2). All tobacco pipes are made of white ball clay, with the exception of a bone bite for a composite pipe, discussed elsewhere. All clay pipes were treated as a single assemblage and the MNI was firstly calculated by counting the number of bowl/stem junctures and manufactured bites, as per the methodology described by Bradley (2000), resulting in numbers of nineteen and eleven respectively. A count of the number of marked stem fragments however produces the higher minimum number of twenty-three.

Clay tobacco pipes can be potentially useful to the archaeologist for dating and comparative purposes. Pipe smoking was an almost universal pastime in the 19th-century and combined with the fact that clay pipes were cheap and broke easily, they are often found in large numbers in archaeological sites. Marked pipes and stylistic features of form and decoration can then be used to date some pipe fragments.

2.4.2 Pipe Forms and Decoration
Most of the pipe fragments in the Te Hoe assemblage are plain in form, with few decorated pipes or more diverse styles represented. All of the stem fragments recovered are straight and none are decorated with relief moulding or impressed designs other than makers' marks. Of the seventeen fragments where the bowl/stem juncture is represented only four have a spur, similar to that illustrated (2.33 E). Very few bowl fragments were recovered but the two most complete examples (2.33 A and F) are typical examples from the middle of the 19th-century. Recent work has shown that pipe bowl typologies can be used to give an accurate mean date for seventeenth and eighteenth century archaeological contexts (Mallios 2005) but the large variety produced during the 19th-century means that recourse to a general typology is not instructive (Oswald 1975).

Eleven manufactured pipe bites were recovered showing a range of variation. The most common type of bites are moulded and cut-made (Bradley 2000). Five bites have been produced in-mould, with three having a raised lip and two being rounded. Six bites have been cut-made, with the excess clay from the mould simply being trimmed off with a knife to produce the bite. Seven of the bites, including all the cut-made ones, have also been dipped in a tan coloured glaze. Glazing the end of the pipe was a simple, inexpensive, way to prevent the smoker's lips from sticking to the porous clay (Bradley 2000). Only six bowl fragments show any form of decoration, including three with moulded relief designs and three 'T.D' style pipes. One small bowl fragment shows part of what appears to be a vine and grape design. Decorating pipes in moulded relief was commonplace by the 19th-century and only more complete examples are useful for dating. Pipes with 'T.D' marked on the bowl came in a number of different styles and variations and are the most common form of decorated pipe in the 19th-century. The first 'T.D' pipe appears around the middle of the 18th-century and was a high quality pipe made by an unknown maker, which was soon copied and imitated by other makers (Walker 1983). McDougall and Davidson, two notable Glasgow manufacturers, both have their number 1 moulds listed as 'T.D' style pipes and even up to 1900 McDougall's were still producing 22 'T.D' variety pipes (Walker 1983). Such pipes were usually
marked with a 'T' and a 'D' on the back of the bowl, which was otherwise undecorated. 2.33 G is marked thus, with a 'T' on the left and a 'D' on the right, in impressed serif lettering. Two other fragments have a 'D' on the right, one in impressed sans serif lettering and the other in serif lettering.

2.4.3 Identified Manufacturers

Twenty-three marked clay pipe stem fragments were recovered from Te Hoe representing at least six different manufacturers. Most 19th-century clay pipe manufacturers are well documented, especially with regard to the major producers who exported their wares around the world, and so marked pipes can be potentially useful for dating purposes. The start date for a manufacturer provides a terminus post quem for the deposition of marked fragments from that particular maker and the actual date of deposition can often be further defined according to the context of the site. All of the marked pipe fragments from Te Hoe are undoubtedly of 19th-century manufacture, as none are marked with the country of origin. In 1891 the United States passed the McKinley Tariff Act which required all imported goods to be marked with the country of origin, and as North America was the major market for clay pipe manufacturers in Scotland and England it is assumed that all pipes made for export would have conformed to this rule within a few years (Walker 1983; Macready & Goodwyn 1990). Most pipe fragments at Te Hoe therefore, are likely to have been deposited after the establishment of the whaling station in c.1840 and before the end of the 19th-century.

![Figure 2.32 Marked clay pipe stems](image)

**Figure 2.32 Marked clay pipe stems**

*McDougall & Co., Glasgow 1847-1967 (2.32 A-D)*

McDougall and Company, along with Davidson and Company, Alex Coghill, William White, and Thomas White and Company discussed below, are one of a small number of Scottish firms who dominated the export market from the middle to the end of the 19th-century (Bradley 2000). Seven stem fragments from this maker were recovered. Two
more complete examples (2.32 A & D) are marked 'McDOUGALL' on the left side of the stem and 'GLASGOW' on the right, in impressed serif lettering. Five more are similarly impressed with incomplete markings. Many of the markings are very faint and difficult to make out. Much of this minor variation is due to wear on the inscription, which was usually imparted by means of an embossed strip of metal soldered to the mould. The inscription wore down faster than the rest of the mould and so the wording would often be replaced and reset (Walker 1983). All of the stems are otherwise plain and have no other markings or forms of decoration. Pipes from this maker most likely date to between 1847 and 1900.

**Thomas White & Co., Edinburgh 1823-76 (2.32 E-H)**

Thomas White and Company are the only Scottish firm based in Edinburgh recorded as being a major player in the export of clay tobacco pipes to North America and the colonies. The Edinburgh pipe industry was largely a 19th-century affair commencing early in the century and reaching its peak around 1880 (Walker 1983). Five stem fragments from this manufacturer with incomplete markings were recovered. 2.32 E-G are impressed in serif lettering with '[THO.]WHITE & Co' on the left and 'EDINBURGH' on the right, with slight variations in the style and size of the markings between the three. 2.32 H is marked in an abbreviated fashion in moulded relief, serif lettering, 'TW&Co' on the left and 'EDIN[8]b' on the right. One further example was marked with '...BURGH' (Edinburgh) on the right side of the stem, with no legible lettering on the left and has been identified as a T.W & Co pipe on this basis. All of these pipes probably date to between c.1840 and 1876.

**Alex. Coghill, Glasgow 1826-1904 (2.32 I-J)**

Only two pipe stems from this maker were recovered, both with incomplete marks. 2.32 J is impressed in serif lettering with 'A COG[HILL]' on the left and '[GLA]SGOW' on the right. The mark on 2.32 I is less complete, but is identical in every fashion and so has been attributed to Alexander Coghill. Oswald (1975) lists three further 19th-century pipe manufacturers operating under the name Coghill, but Alexander Coghill is the only noted exporter of pipes amongst this group. Both these pipes likely date to between c.1840 and 1900.

**William White, Glasgow 1805-1955 (2.33 A)**

Only one pipe attributable to William White was recovered and is also the most complete clay tobacco pipe in the Te Hoe assemblage. The pipe was found in two pieces and has been glued together. The stem fragment is marked 'W.WHITE' on the left and 'GLASGOW' on the right. The inscription is impressed in sans serif lettering and is enclosed in a frame of relief dots. The pipe is also marked with a mould number '258', immediately preceding the makers name. By 1900 White's mould numbering had reached 606 and if the numbers were employed in a chronological fashion, a mid-19th-century date is not unreasonable (Walker 1983). The pipe is also marked on the right-hand side of the bowl in relief, with 'GLASGO[W]' running in a circular fashion and enclosed in a plain border. Unfortunately the bowl is incomplete and it is not known whether the bowl carried any further markings or decoration. This particular pipe is interesting as it has clearly defined teeth marks on the broken end of the stem, showing that its owner continued to use it after the stem had been broken at least once. At least one other plain stem fragment in the assemblage exhibits this trend.

**Davidson, T & Co., Glasgow 1861-1910 (2.33 B-D)**

Davidson and Company took over the business of William Murray, who operated from 1830-1861. Four stem fragments bearing the Davidson mark were recovered. The three
illustrated are all marked identically with 'DAVIDSON' on the left and 'GLASGOW' on the right in impressed sans serif lettering. One further small fragment is marked '[DAVIDSON]N' and 'G[LASGOW]' and is most likely to be from a Davidson pipe. Pipes from this manufacturer are likely to date to between 1861 and 1900.

Figure 2.33  Marked pipes and miscellany

2.4.4 Unidentified Marks

Four pipe fragments marked either on the stem or spur carry markings of some kind but cannot be attributed to a particular manufacturer. 2.33 E is marked in relief on the spur with a 'M' on the left and a 'G' on the right. If the marks denote the initials of the maker it would be customary for the Christian initial to be placed on the left and that of the surname on the right (Oswald 1975). Two identical bowl/stem fragments were recovered from the Oashore shore whaling station site and were unable to be identified to a maker (Harris 2005). Identification of this manufacturer would only be possible with the recovery of a more complete example.

Figure 2.33 F is marked 'BRISTOL' in impressed sans serif lettering on the right-hand side of the stem. There are no markings denoting the maker, although they may have either preceded the word 'Bristol' or have been on the other side of the stem or placed on the bowl. The only identified 19th-century pipe fragments from Bristol excavated in North America are by the firm of Ring (Walker 1983). Bradley (2000) lists the Ring Company as operating between 1803 and 1883. Oswald (1975) lists John Ring and Son 1849-1861 and Richard Charles Ring and Company 1862-1883, although he records neither as known exporters of pipes. Ring and Son pipe fragments have also been recorded from other 19th-century New Zealand sites (cf. Macready & Goodwyn 1990).
While it is possibly the product of another Bristol manufacturer this fragment most likely dates to between c.1840 and 1883.

A further two stem fragments, not illustrated, were impressed with 'GLASGOW' on the right-hand side, with no legible makers name on the left. One has a mould number on the left '.78' although there is possibly another number preceding this which cannot be made out.

2.4.5 Discussion

Of the nineteen pipe stem fragments identifiable to manufacturer, all are from Scotland. Fourteen are made in Glasgow representing four manufacturers and five in Edinburgh from a single manufacturer. At least one of the pipes with unidentified marks comes from Bristol, but the Te Hoe assemblage reflects the extent to which Scottish, in particular Glasgow, firms dominated the export market from the middle to the late nineteenth-century. McDougall, with seven identified pipes, is the most common maker and this is represented in the assemblages from other New Zealand sites. From the Mechanics Institute and Chancery Street site in Auckland, 87 of the 131 marked pipes came from Glasgow and 56 of these were made by McDougall's (Macready & Goodwyn 1990). Similarly from the Omata Stockade site 29 of 58 attributable pipes were made by McDougall's (Prickett 1994). Davidson pipes are also reasonably common, with 14 and 6 from the Mechanics Institute and Omata respectively. Other Glasgow makers such as Alexander Coghill and William White appear to be less common imports to New Zealand. Thomas White and Company also appears to be the only Edinburgh firm commonly represented in New Zealand assemblages.

2.5 Clothing Hardware

2.5.1 Buttons

The Te Hoe site yielded a total of 45 buttons in a range of materials (see Table 2.10). In the nineteenth century buttons were used on all types of clothing, from underwear to outerwear, and so are commonly found in historic sites. Buttons are potentially useful for dating as certain types of materials and manufacturing techniques are temporally sensitive. The full range of types and varieties found at Te Hoe are illustrated in figures 2.34 and 2.35; excluding fragmentary examples. The diameter or size of the buttons is given in both millimetres and lines. The line was the standard unit of measurement for buttons in the 19th-century and equates to 0.635 of a millimetre (Sprague 2002:122-3). In Britain the size range for small buttons intended for underwear and shirts was 14-24 lines, medium buttons were 26-34 lines for trousers, and large buttons were more than 34 lines for coats (George 1999:16). Luscomb goes further assigning the size in lines for various types of clothing: shirts 18, trousers 23 on the fly and 27 on the brace, and men's jackets 30, with 22 on the sleeves and waistcoat (Sprague 2002:123). It must be remembered that the fashion for specific items of clothing changed over time and most probably the buttons with it, so such information is useful as a guide only. The line ranges also varied between countries and so a 20 line British button would differ in size and possibly function from a 20 'ligne' French button (George 1999:16). A single example of each button is represented unless stated otherwise.
Table 2.10 Distribution of clothing hardware by MNI

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* Unprovenanced

**Shell**

Shell buttons were mass produced from the middle of the 19th-century and remained popular in America right through to the 20th-century. The British industry was centred on Birmingham and had peaked by the 1870s (Ritchie 1986:514). Shell buttons were made of discs cut from non-diagnostic portions of several shell species from around the world, including pearl shell. Before 1850 they were made largely by hand and after this date by a mechanised process. Shell buttons are most commonly associated with lighter garments such as shirts and underwear (Ritchie 1986:514). The only example from Te Hoe has been subjected to burning, so it is not possible to comment on the finish or type of manufacture.

2.34 A: Round, plain 2-hole 'sew through' type button; diameter 17 mm, 27 lines.

**Bone**

Bone buttons are usually associated with utilitarian functions such as for use on shirts and underwear, so they are generally plain. Originally bone buttons were made by hand but by the mid-19th-century machinery had taken over (Cameron 1985:95). Handmade examples can have slight irregularities in shape and the spacing of the holes, while mass produced ones are more uniform. Bone buttons are the least useful as temporal indicators, as apart from the obvious differences between handmade and machine made, their form did not change between 1800 and 1930 when they fell out of fashion (Cameron 1985: 96). All of the bone buttons were 4-hole 'sew through' buttons and equate to either style B-V1 or B-V2 in Cameron's bone button typology (Cameron 1985).

2.34 B: Round; diameter 17.6 mm, 28 lines.
2.34 C: Round; diameter 17 mm, 27 lines.
2.34 D: Round; diameter 17 mm, 27 lines. Holes off-centre; possibly handmade or just badly machined.
2.34 E: Round; diameter 17.2 mm, 27 lines.
2.34 F: Round; diameter 16.5 mm, 26 lines.
2.34 G: Round; diameter 17.3 mm, 27 lines.
2.34 H: Round; diameter 16.9 mm, 27 lines.
2.34 I: Round; diameter 14.7 mm, 23 lines.
2.34 J: Round; diameter 13.5 mm, 21 lines.
Figure 2.34 Buttons

Ceramic

Small ceramic buttons, usually in white, are one of the most commonly misidentified artefacts by archaeologists. Such buttons, often described as 'chinas' or 'small chinas', using button collectors' terminology, are as the term implies, made of ceramic. Richard Prosser of Birmingham patented the process for making high quality pressed ceramic buttons in 1840. The process "involved the preparation of fine clay with the addition of finely ground quartz or ceramic wasters, a small amount of moisture, and then pressing the mixture into cast-iron moulds" (Sprague 2002:111). Plain buttons, such as the ones under discussion, were made from either white or cream coloured clay and fired at a high enough temperature to induce self-glazing. The vitrified body thus produced is chemically indistinguishable from glass, but is physically very different having a crystalline structure lacking in glass (Sprague 2002:119). Archaeologists have previously made hard work of identifying ceramic buttons, in many cases erroneously describing them as milk glass, and have ignored information on button material identification well known to collectors for decades. Ceramic buttons produced by the 'Prosser' process have a rough, orange-peel like, surface on the back of the button consistent with it having rested on this surface when it was being fired. Pressed glass buttons on the other hand would be expected to have a perfectly smooth surface. This diagnostic feature, obvious to the author upon close examination of the Te Hoe buttons, has somehow been overlooked in all previous reports dealing with historic assemblages consulted in the course of the present study. The validity of this method of identification has recently been confirmed by Sprague (2002) who suggests that high-fired ceramic buttons be referred to in archaeological literature as 'Prosser' buttons, to distinguish
them from other low-fired and handmade ceramic buttons and to avoid any confusion as to their manufacture or constituent material.

Small ceramic buttons were generally used on undergarments and shirts. Initially produced in Britain, France quickly became the major producer of ceramic buttons in Europe, with American factories also producing them in quantity. In 1844 Frenchman Jean-Felix Bapterosses patented a machine capable of pressing 500 buttons in one go, and coupled with cheaper labour, this and other technological advances effectively pushed British manufacturers out of the market (Sprague 2002:115). The development of the French industry saw ceramic buttons being produced by the million, bringing the cost of such items within reach of all social classes. All of the 'Prosser' buttons are 4-hole 'sew through' types; except 2.34 R which has 2-holes.

2.34 K: Round; diameter 12.7 mm, 20 lines. 'Pie-crust' type decoration around the edge (Peacock 1972:102).
2.34 L: Round; diameter 11.5 mm, 18 lines.
2.34 M: Round; diameter 10.9 mm, 17 lines.
2.34 N: Round; diameter 11 mm, 17 lines.
2.34 O: Round; diameter 10.8 mm, 17 lines.
2.34 P: Round; diameter 9.8 mm, 15 lines.
2.34 Q: Round; diameter 9.1 mm, 14 lines.
2.34 R: Round; diameter 10.5 mm, 16 lines.

Metal

Metal buttons were the most common type recovered at Te Hoe. This reflects the fact that metal buttons were most commonly used on men's work clothing (Cameron 1985:20). Brass is the most common material as it was inexpensive and easy to work (Cameron 1985:22). Ferrous metal parts are also used in some composite buttons. At least two fragmentary buttons, not illustrated, are made of a white metal (a tin based alloy). Both 1-piece and 2-piece constructed buttons are well represented. Machine made buttons such as these were introduced from the 1850s and due to their cheapness, quickly dominated the market (Cameron 1985:26).

2.35 A: Brass, round; diameter 17 mm, 27 lines. 4-hole, 1-piece construction.
2.35 B: Brass, round; diameter 16.9 mm, 27 lines. 4-hole, 1-piece construction.
2.35 C: Brass, round; diameter 14 mm, 22 lines. 4-hole, 1-piece construction.
2.35 D: Brass, round; diameter 16.2 mm, 26 lines. 4-hole, 1-piece construction. Row of embossed dots around the recess.
2.35 E: Brass, round; diameter 13.3 mm, 21 lines. 4-hole, 1-piece construction. Row of embossed dots around the recess.
2.35 F: Brass, round; diameter 16.4 mm, 26 lines. 4-hole, 1-piece construction. Row of embossed decoration around the recess.
2.35 G: Brass, round; diameter 16.6 mm, 26 lines. 4-hole, 1-piece construction. Row of embossed dots around the recess.
2.35 H: Brass, round; diameter 16.5 mm, 26 lines. 4-hole, 1-piece construction. Stamped "WM Co Ltd" "Kaiapoi" on the face. This firm was established as a clothing company in Kaiapoi, Christchurch, around 1885 (Cameron 1985:40).
2.35 I: Brass, round; diameter 13.2 mm, 21 lines. 2-hole, 3-piece construction (one outer disc and one inner disc crimped together with a shank in the middle). Stamped "Superior Patent"; one of many such generic marks used to imply quality.
2.35 J: Brass, round; diameter 16.2 mm, 26 lines. 2-hole, 2-piece construction. Embossed decoration around the recess. This button still has a fragment of cotton-
like material attached to the back.

2.35 K: Brass and ferrous metal, round; diameter 13.5 mm, 21 lines. 2-hole, 2 or 3-piece construction. Embossed decoration around the recess. The button has a brass front and a degraded ferrous metal backing; with the brass shank in the middle possibly being a separate piece.

2.35 L: Brass, round; diameter 13.4 mm, 21 lines. 2-hole, 2-piece construction. Two very thin pieces of brass stamped together. Three examples.

2.35 M: Brass, round; diameter 14.6 mm, 23 lines. 2-piece construction, with shank missing from back.

Several other metal buttons which have either been broken, subjected to burning, or are heavily corroded, are not illustrated. Three buttons, two of white metal alloys and the other of brass, have been stamped with lettering, which is now illegible. One other fragmentary example in white metal has what appears to be 'Our Own Make' stamped on it and can be compared to Cameron's 1-piece metal, style F - V19. One other artefact included in this category is a broken brass eyelet, 23 mm or 36 lines in diameter, which would probably have been used on clothing, rather than footwear.

2.5.2 Buckles

Twelve buckles of various shapes, usage, and materials were found. 2.36 A and B show two rectangular, double-framed brass buckles (terminology after Grillo et al 2003). 2.36 A has a maximum dimension of 41 by 31mm, while B is 31 by 21mm. Both buckles are solidly constructed and undecorated. These features identify them as plain
utilitarian objects. Such objects could have been used as belt buckles on work clothing.
2.36 C has been identified as a stock buckle, based on comparison with a similar example illustrated by Grillo et al (2003: Figure 4). The stock was a cloth that wrapped around the neck and was buckled in the back and while often decorated the present example is plain. The buckle, measuring approximately 55 by 18 mm, is made of very thin copper alloy or brass, being about 0.3 mm thick. 2.36 D shows a brass belt buckle, with a central roller bar and a double tang (with one tang broken off). The front of the central roller bar is stamped 'SOLIDE', with two decorative characters on either side. One side of the frame is stamped 'PRIMA' and decorated with embossed dots. Cameron illustrates an example stamped with identical wording (1985: Appendix 3, Type E, Style 2). Other buckles with the same form are illustrated by Prickett (1994: Figure 2.52 D & E) and by Macready and Goodwyn (1990: Figure M46). One from Omata is stamped 'G & Cie' and 'SOLIDE', with 'PARIS' and '1862' on the reverse. The Mechanics Institute buckle is stamped 'SOLIDE' and 'PARIS', '1872'. The Te Hoe buckle then is almost certainly of French manufacture, but the production range for such items is not known.

Eight buckles made of iron, in both good and average states of preservation, were also found. 2.37 B and C show two of three 'D' shaped single-framed buckles recovered. None of the tangs survive but Cameron describes similar objects as belt buckles (1985: Appendix 3, Type A, Style 1). The tang would have originally been attached to the straight side. 2.37 B has a maximum length of 38mm and a width of 33mm, while the smaller buckle measures 30 by 24mm. 2.37 D shows a rectangular single-framed buckle with a swivelling tang (now broken). 2.37 E shows the least corroded of three square, double-framed iron buckles. The state of preservation makes it difficult to see exactly how they were constructed but they are most likely to have been belt buckles. 2.37 F has also been identified as part of a square single-framed buckle based on comparison with one described by Lawrence (2004) which was square, with a single tang and made of heavy iron wire.

Figure 2.36  Brass buckles
2.5.3 Footwear

Boot Heel Plates
Two iron heel plates from work boots were recovered. 2.37 A shaped like a small horseshoe with a bar across the mouth, shows the more complete example. The plate has a small ridge running around the outside, which was presumably designed to neatly fit the leather heel of the boot. Metal plates were fitted to work boots both to improve the use life of the object and to aid traction. Fragments of one other similar heel plate were also found.

Eyelets
No leather from either shoes or boots was recovered but six copper alloy eyelets were found. The eyelets have a diameter ranging from 6.5 to 7.5mm and are most likely to have come from items of footwear. The lack of any leather from Te Hoe is interesting as it suggests that conditions at the site were not conducive to its preservation.

![Figure 2.37 Iron boot heel & buckles](image)

2.6 Household Items
Items which one would expect to recover from household contexts would be things such as cooking vessels and utensils or any other item used in day to day domestic activities. Only three artefacts have been identified in this category: fragments of two spoons and a thimble.

2.6.1 Spoons
2.38: Bowl and part of the handle of an iron spoon. A shallow bowl with a maximum length of 82mm and width of 52mm.
2.39: Fragment of handle of a copper alloy teaspoon. Made from very thin copper alloy, being just 0.4mm thick. Both spoons are from Area 2.
2.6.2 Thimble

2.40: A complete, but slightly squashed, brass thimble found in Area 5. Thimbles are small caps of metal, leather, or other materials, worn on the finger that pushes the needle through material when sewing, to protect the tip of the finger. The thimble in question is of medium size and is made of a single piece of thin brass. Its presence provides direct evidence of sewing as a domestic activity at Te Hoe. By 1840 thimbles were being mass produced by an entirely mechanised process (Rath 1979:35). The indentations on the thimble, running over the crown and half way down the side, are perfectly symmetrical and have been applied by mechanised rollers along with the decoration. The thimble is embossed with 'FORGET ME NOT' flanked by a spray of vegetation on each side, running around a band just above the rim. Floral designs and sentimental sayings were common decorative motifs on brass thimbles, which by the middle of the 19th-century were made in their millions in America and Great Britain (Zalkin 1988:77-78). The thimble does not appear to be marked with a size number, which was a standard feature by the middle of the 19th-century (Rath 1979:21). This item represents the cheapest type of metal thimble, designed for everyday use, available around the middle of the century.
2.7 Writing Equipment

2.7.1 Slate Pencils (2.41 A-F)
Six fragments of slate, representing at least three slate pencils from different areas, and of differing form were found. 2.41 A is 58mm long and was the most complete slate pencil recovered. It has a round section and has the writing point intact. 2.41 B is of the same type and along with A and fragments D and E is from Area 2. 2.41 C, from Area 1, has a square sectioned body with a rounded point. 2.41 F, from Area 5, has an asymmetrical rectangular section and clearly tapers down to a point. While it is not a manufactured slate pencil, it may well have been used as one. No fragments of writing slate were found.

2.7.2 Carpenters Pencil (2.41 G)
One fragment of graphite identifiable as having come from a carpenter’s type pencil was found in Area 5. The fragment is 5mm wide and 2.3mm thick and has clearly been reduced at one end to form a point.

![Writing equipment diagram](image)

Figure 2.41 Writing equipment

2.8 Fishing Gear

2.8.1 Copper Fishing Lure (2.42)
Only one European period artefact related to fishing was found. The lure is made of a cut piece of copper alloy and has been hand made. The item clearly shows Maori influence in its design and was quite probably manufactured by a Maori living and working at Te Hoe. The malleability of copper means that it can be worked without specialist tools and so it could easily have been produced by a worker in his spare time. The lure is made from a flat strip of copper about 2mm thick and 5.5mm at its widest point. The point has been produced by hammering and bending the strip. The end of the shank has been reduced and three spiral grooves cut into the metal to allow a line to be attached. The lure is remarkably symmetrical and a great deal of care and time seems to have gone into its construction. The presence of this lure along with fish bones in both
the historic and prehistoric midden layers of the site (Lee-James *in progress*) show that fishing likely played an important role in the diet of those who lived and worked at Te Hoe.

![Copper fishing lure](image)

**Figure 2.42 Copper fishing lure**

![Enfield bullet & modern shotgun cartridge](image)

**Figure 2.43 Enfield bullet & modern shotgun cartridge**

### 2.9 Munitions

#### 2.9.1 Enfield .577 Bullet (2.43 A)

The only munition securely attributable to the 19th-century is a single .577 calibre bullet designed for use in an Enfield '1853 pattern' rifled musket. It is 28mm long, has a diameter of approximately 15.2mm and weighs 33 grams. Twenty-eight identical examples were recovered from the Omata Stockade site, weighing an average of 32.5 grams. Enfield bullets have a conical nose, well illustrated by the present example which has not been fired and a recessed base to accommodate a plug which moved forward upon firing, expanding the skirt of the bullet to engage the rifling (Prickett
Initially the plug was of made of iron, with boxwood proving more suitable from the mid-1850s, which was in turn replaced by cheaper and more efficient clay plugs from 1864 (Roads 1964:143). While still a muzzle loading weapon, the combination of a rifled barrel and a modern projectile, meant that the '1853 pattern Enfield' represented a major leap in technology from smooth-bore muskets and became the stock weapon of the British army through the 1850s and 1860s. Later in the 1860s, "Enfield rifles were converted into breech-loaders by the 'Snider' method which consisted of cutting away two inches of the upper part of the breech end of the barrel to admit the cartridge, which was pushed forward into a chamber formed by enlarging the end of the bore" (Prickett 1994:79-80). By this date other specifically designed breech-loading weapons began coming into production and muzzle-loading weapons quickly became antiquated. The introduction of new designs however did not mean that people immediately replaced older guns and so Enfield rifles may have been used well into the late-19th-century.

### 2.9.2 Shotgun Cartridge Caps

Until about 1958 all shotgun cartridge tubes were made of specially treated paper, with only the head being made of brass (Barnes 2000:434). A minimum number of 40 shotgun cartridge caps are represented, with all but three coming from Area 2 (see Table 2.11). All are from 12-gauge centre-fire shotgun cartridges, with rim diameters of about 22.5mm. One cap has part of what appears to have been an inner iron lining reinforcing the brass head (2.44). This type of manufacture is typical of the gas-tight cartridge, which had an iron lining fitted to the inside of the brass head to reinforce the paper tube around the powder chamber. This helped to minimise the risk of the cartridge failing upon firing and increased the strength of the cartridge overall (Burrard 1931:86-7). The gas-tight design first came into manufacture around 1898 (Baker 2000:96). Of the 40 caps, 29 have readable headstamps, representing three manufacturers or brand names; with the remaining caps being either too fragmentary or corroded for any information to survive. One marked plastic shotgun cartridge was also found.

**Figure 2.44 Shotgun cartridge head**

<table>
<thead>
<tr>
<th>Table 2.11 Distribution of Munitions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Area</strong></td>
</tr>
<tr>
<td><strong>Shotgun Cartridge Caps</strong></td>
</tr>
<tr>
<td><strong>.577 Bullet</strong></td>
</tr>
<tr>
<td><strong>Total</strong></td>
</tr>
</tbody>
</table>
Figure 2.45 Shotgun cartridge headstamps

**Eley, London, No 12 (2.45 A)**
Twenty examples were stamped 'ELEY' 'No 12' 'LONDON' as seen in 2.45 A. The Eley Brothers Company started some time in the 1820s and is a well known name in the munitions trade, continuing in one form or another to the present day. Bedford dates this particular type of cartridge as having been produced somewhere between 1895 and 1911 (Bedford 1986:136, Figure 29G).

**Kynoch, Birmingham, No 12 (2.45 B)**
One example, which according to Steinhauer was a type manufactured by the Eley Brothers Company (Steinhauer 2005). Although information regarding the exact date of this particular type is lacking, the fact that only one was found suggests that it was deposited at the same time as the others.

**E.M.Reilly & Co, No 12 (2.45 C)**
Eight caps with this headstamp were recovered. A web search revealed that E.M. Reilly and Company, were an arms dealer and manufacturer, working out of London, England, from approximately 1850 to 1910 (www.thefiringline.com). Multiple references to shotguns attributed to E.M. Reilly & Co. of London were to be found but none to shotgun cartridges. While the lack of information on this particular company means that it is not known if E.M Reilly manufactured shotgun cartridges, one possibility is that they may have had them made or stamped on their behalf. From the available information it is probable that these cartridges were produced sometime around the turn of the twentieth century and before 1910.

**Club 7 (2.43 B)**
One modern shotgun cartridge, with a steel head and a white plastic tube, had 'CLUB 7' printed in blue running around the cartridge. Because of the plastic tube this item cannot date to any earlier than 1958.

**2.10 Other Artefacts**

**2.10.1 Coin (2.46)**
An 1891 British silver shilling from Area 10. The coin has an 'old head' style bust of Queen Victoria on the obverse and the royal coat of arms topped with a crown on the reverse. The coin is in good condition, suggesting that it had not had much use before being lost or deposited in Area 10.

**2.10.2 Composite Pipe Mouthpiece (2.47)**
A bone mouthpiece from a composite tobacco pipe found in Area 1. Composite tobacco pipes consist of two or more parts, principally the bowl and mouthpiece, and were made from a range of materials. Wooden briar pipes became popular from the
1850s and consisted of a carved wooden bowl, usually with an attached stem and mouthpiece (Bradley 2000:122). Bone was one of the more common materials used for mouthpieces on such pipes before the introduction of vulcanite in 1878 (Walker 1983:39-40). The mouthpiece is made from a single piece of bone and has a raised lip and a threaded tenon, which would have attached it to the shank section of the pipe.

**Figure 2.46 Coin**

### 2.10.3 Tin (2.54 C)
A small oval shaped, iron tin from Area 2. The tin was found in the ash of the fireplace, immediately below the patu (discussed below). It measures 80mm long by 55mm wide and 17.5mm deep. The condition is such that little can be said of its manufacture or what it may have originally contained.

### 2.10.4 Decorated Wood (2.48)
One small fragment of wood with an attached copper alloy star from Area 3. The star measures just 4mm across and has a pin attached to its back, which has been pushed into the wood. Obviously a fragment of a larger item, from which no other pieces were found, it is assumed that the star represents decoration of some kind. One possibility is that it is from a small decorated wooden box or similar type object.

**Figure 2.47 Bone pipe bite**

**Figure 2.48 Decorated wood**
2.11 Hardware

2.11.1 Padlocks
Figures 2.49 and 2.50 show two iron padlocks from Area 2, of typical 19th-century construction. They are of the double-lobed form with a squat circular housing (Priess 2000:81). The padlocks are identical in form, with A being 77mm wide and 92mm high and B 72mm by 78mm. Both have the same general shape and are primarily made of iron, with the round keyhole escutcheons seemingly made of a white metal alloy. While A is slightly better preserved, no markings of any kind can be seen on either of the locks. The most plausible explanation for their presence in Area 2 is that they were being used on at least part of the building, at the time that it burnt down.

![Figure 2.49 Padlocks (drawing)](image1)

![Figure 2.50 Padlocks (photo)](image2)

2.11.2 Tools
Included amongst the large assemblage of iron artefacts were several recognisable tools.
Chisel (2.51 A)
A standard firmer chisel used for general woodworking (Blackburn 1974: 49-50). The chisel has an iron blade, with a rat-tail tang and would have originally had a wooden handle. About half-way up the tang can be seen the copper alloy ferrule, which would have held the handle firm to the tang. The blade is 38mm wide and 116mm long to the shoulder, with the chisel being 243mm long overall. The cutting edge of the blade is poorly preserved and so the angle of the bevel cannot be measured.

File (2.51 B)
A flat rectangular sectioned file, with a blade 154mm long, 5.3mm wide and c.4.5mm thick. During the 19th-century files were sold based on the length of the blade, and commonly ranged from three to twenty inches, with the present example being about six inches long (Ross & Light 2000:26). The surviving portion of the tang is 67mm long and is the same thickness as the blade and has no taper. Files were generally sold without handles and could be used without them but the tang allowed for the owner to attach their own wooden handle if they so wished. Flat files are the most common type and can be used for almost any task and so they cannot usually be attributed to a specific function (Ross & Light 2000:20). Throughout most of the nineteenth century files were hand made from special mixes of iron, as opposed to modern hardened steel alloys. Files could be cut with different patterns on one or more sides of the blade, dependent on the type of cut desired in the finished product. The file in question is sufficiently corroded or worn, so as to obscure any sign of the original pattern. Both the file and chisel were found in Area 2.
**Spade (2.52 A)**
A well preserved iron spade head approximately 235mm long by 170mm wide from the tank in Area 1. The spade has an oval shaped haft for a wooden handle and a flat shoulder for placing the foot on when digging.

**Shovel (2.52 B)**
A less well preserved iron shovel head from Area 5. Although it is heavily corroded it appears to have been only a small sized shovel being approximately 155mm wide and 130mm long. The head has a very narrow haft with a flat rounded tang, to accommodate a round wooden handle.

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**Axe (2.53 B)**
A much corroded but still readily recognisable axe head from Area 4. This type is illustrated in the 1864 catalogue of William Marples and son, of Sheffield England, as an American wedge axe (Goodman 1964:36). Now known to us today as the common wedge or felling axe, the American axe is identified by having a symmetrical head, with a virtually flat butt or poll (Goodman 1964). The present example has a triangular shaped haft to take the wooden handle.

**Hooks (2.54 A and B)**
Two large iron hooks of slightly variant form from Area 2. Hook A is heavier in construction and has a large eye, suitable for threading a rope through. Hook B is
slighter and has a quite small eye, suitable for taking a piece of wire or smaller cordage. Both have fine points which would originally have been very sharp and they could easily have been used for hanging up meat, or a number of other tasks.

**Hinge (2.54 D)**

Half of an iron hinge from Area 2. This type of hinge is commonly known as a butt hinge and consists of two interconnecting leaves joined with a pin (Bealer 1976:209; Priess 2000:60). The hinge is 65mm long and about 30mm wide, a size suitable for a door or smaller object like a cupboard. By the second quarter of the 19th-century hinges were beginning to be produced by a mechanised process (Priess 2000:60). Although the Hager Hinge Company based in St. Louis since 1849, did not acquire its first hinge-making machine until 1873, despite the fact that it was by that time one of the largest hinge manufacturers in the world (Bealer 1976:205).

**Chain (not illustrated)**

A small section of iron chain fused into a lump was found in Area 2. Roughly half a dozen ovoid links are present and measure approximately 50mm long by 40mm wide.

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**Figure 2.53 Unidentified item & axehead**

**2.11.3 Miscellaneous**

As with any historic site where a large number of iron artefacts are recovered, there are always those objects which for one reason or another elude identification. Some just do not fit neatly into readily divisible categories, while others, often quite well preserved, would probably fit quite well into these categories if only it was known exactly what they were.
2.52 C: A slightly ovoid shaped iron pulley wheel. This object was found in Area 2 and apart from being quite corroded also appears to have been squashed slightly out of the round.

2.52 D: Clearly a hafted tool of some kind, this object has escaped identification. It has a triangular shaped, flat sectioned head, roughly 110mm on a side. The head is fitted to the haft by means of a bolt and square nut. The haft is round and tapers downwards and a pin can be seen near the top which would have secured the wooden handle. The only tool found that matches these elements is the ‘deck scraper’. Blackburn describes and illustrates the deck scraper as having a triangular blade five inches on a side, with a
wooden handle about two feet long (Blackburn 1974:205). From his drawing it is also clear that the blade is bolted to the haft. Deck scrapers are tools used in finishing wooden surfaces, immediately before final fine sanding. If the item in question is a deck scraper it is not known why one would be needed at Te Hoe or how one came to be discarded there. One further, less well preserved, example was also found, both coming from Area 4.

2.53 A: An unidentified iron object from Area 2. The object is composed of two halves joined in the middle with a pin and may originally have been designed to swivel. Each half has one large central hole and two smaller ones, with one half still having two pins in place. The presence of the outer pin suggests that the object may have been attached to something else. The exact use or possible function of this object is likely to remain a mystery.

2.55: Unidentified object consisting of two arms with circular heads joined together. Corrosion has fused them together but it is quite clear that they would have originally swivelled backwards and forwards. The size and style of the object suggests that it could be a pair of dividers or a compass.

2.56: Two solid iron bars with tangs at each end. Both are flat rectangular sectioned bars about 330mm long by 43mm wide, with the tangs protruding about 25mm. The object have clearly been manufactured to a high standard but to what purpose is unknown.

Figure 2.56  Iron bars

2.12 Industrial

The industrial components of the Te Hoe site are best represented by the physical remains of the Area 1 and Area 4 tryworks. These structures, along with the metal artefacts found in these areas, are currently being investigated by Rhonda Steel as a research essay. The tryworks, where the whale blubber was rendered down to recover the oil, has left the most visible remains and workers such as Campbell have argued that
the tryworks area is the only diagnostic feature which distinguishes whaling stations from other sites (Campbell 1994). But many other processes were also involved in shore whaling that can leave archaeological evidence. Firstly the whales had to be chased down in a wooden whale boat, killed, and towed back to shore. Then the whale would have been cut up and stripped of its blubber on the shore, which was then brought up to the tryworks. After the oil had been rendered it would have been ladled into containers to cool before being placed in barrels for eventual transportation to the market in London. Each stage in this process required a set of tools, materials and equipment, with direct evidence for some activities being recovered at Te Hoe.

2.12.1 Whalegear

Lance
An iron lance head likely once used at Te Hoe, was found amongst the ruins of the Area 2 building (2.57). The lance head is shaped like a laurel leaf and was the weapon used to kill the whale, once it had been secured to the boat by a harpoon and line. The lance is now somewhat corroded but from the cross-section one can appreciate how it would have easily slid into a whale's vitals when new and sharp. The iron trace on the head has broken off and would have originally been much longer and fitted into a socketed wooden handle.

Grindstone
None of the implements used to cut the blubber up into small pieces, so that they boiled down faster in the trypots, were found but a large grindstone likely used to sharpen them was. The grindstone measures roughly 50 cm in diameter and is about 10 cm thick (2.58). The stone has a square hole in the centre which would have originally been attached to an axle. The axle would have been mounted on a frame and driven by gears powered by a foot treadle. This part of the apparatus would have been taken away, while the grindstone was discarded as it is cracked in two down the centre.
Strainer

Fragments of an object made from copper alloy sheet, shown in 2.59, were found in Area 4. The item appears to have been roughly circular with a rim formed by folding over the edge and has been pierced with a number of circular holes. Where the pieces overlap they have been joined together with copper rivets, as can clearly be seen in the top photograph (2.58). The larger rivet, near the rim, also has an iron washer on the back. This item has been identified as a strainer and may have been used to scoop any rubbish out of the oil before it was placed in a barrel. Pieces of whale blubber or other materials in the oil could cause it to spoil, before it arrived at the market and so it was essential that the casked product was as pure as possible.
2.12.2 Cooperage

One of the most archaeologically visible signs of industrial activity at Te Hoe is the results of coopering. Numerous fragments of iron barrel bands were found along with complete hoops in various states of decay. Wooden barrels were primarily used to store the whale oil in and had to be watertight, so as to minimise wastage. Barrels also had to be strong enough to withstand the rigours of being loaded onto ships and surviving a long sea voyage. Coopering was an important craft in the 19th-century and a variety of station supplies ranging from nails to beer, spirits, water, tobacco, sugar and other foodstuffs (both pickled and dry) would have arrived in casks. Technically a barrel has a capacity of 36 gallons, while larger ones are 'hogsheads of 54 gallons, puncheons of 72 gallons and butts of 108 gallons' (Kilby 1977:23). The cooper was one of the most important men in any whaling party, as the making of casks was a specialist job and was essential to any successful whaling operation.

Figure 2.60 Whole barrel band

For example, at the Mataura or Toe-Toes site in 1835 "Tommy Chaseland and James Brown took 11 whales in 17 days, but produced no oil as there were no casks" (Prickett 1998:51). At the Piraki whaling station, on Banks Peninsula, the owner and manager Captain George Hempleman wrote in his diary that one of the first tasks given to the men was 'to assemble casks so the station could begin whaling' (Jacomb 1998:69). As casks were made in standard sizes this meant that the wooden staves and iron bands could also be purchased in standard lengths. In London, cooperages such as Wilsons of Bermondsey specialised in producing water and sperm-oil casks during the 19th-century, presumably to supply the deep sea whaling trade (Kilby 1977:6). Whether shore stations ever purchased any casks in this fashion is uncertain. Accounts from the Long Point station on Kapiti Island and the Taieri Island station in Otago for the early 1840s, list large quantities of iron hooping as being amongst the stores (Prickett 1998:49-50). Campbell suggests that casks "were imported in kitset form and made up on site" (Campbell 1994:51). These would likely have been in the form of cases, where the staves had already been shaped and fired and chimed at one end; such as was the practice of some small cooperages in Britain who did not fire their own casks (Kilby 1977:16). All that a case required was for the permanent iron hoops to be fitted, along with the heads, and the cask would be finished.
With the exception of a couple of items most barrel bands and fragments were highly degraded. Figure 2.60 shows a complete barrel hoop, recovered from Area 1. It measures about 50 cm across and is 53 mm wide. Large casks typically have six hoops, with three hammered on from each end. The one around the top or bottom is called the chime, the next one down the quarter and then the largest one the booge (Kilby 1977:10). From the angle of the hoop it is more likely to be a chime or quarter, but without more hoops it is not possible to determine the original size of the cask. Another more fragmentary example was found in the same general vicinity at a slightly lower depth (2.61). On the other side of Area 1 another fragmentary band can be seen, which has fragments of zinc sheeting underneath it (2.62). Oil casks often had to be stored onsite for some time before they were shipped out and it is possible that the bases were sheathed with zinc sheeting to protect them from prolonged contact with the ground. A much larger hoop was uncovered in Area 4 beside the tryworks (2.63). It is much too large to have come from an oil cask and is more likely to be from a large tub. Such a tub could have been used to cool the oil down after it had come out of the trypot before being placed in a cask. Fragments of flat iron band from other areas range in width from 14 mm up to 68 mm. Some of this is curved and has obviously been used on a cask,
while other pieces are flat. From the relatively small amounts recovered however it seems that the primary area where cooperage was carried out was not sampled by the excavations.

![Figure 2.63 Very large band, Area 4](image)

### 2.13 Copper Alloy Fastenings

A large number of copper alloy fastenings were found at Te Hoe (Table 2.12). Most are normally associated with boats and boat building, as represented by the large sample recovered from the buried boat in Area 4 discussed below. Copper nails, like their cheaper iron cousins, are also suitable for general use. The presence of at least some copper fastenings in all the major excavation areas suggests that they were being used in the construction or maintenance of the station buildings. All of the nails are square sectioned cut nails and have either flat or rosehead type heads. Unlike iron fastenings which can corrode beyond recognition after a period of time in the ground, copper is much more resistant to corrosion and it is relatively easy to quantify the number of original objects, even after an extended period of time. This quality also allows for copper fastenings to be described in more detail, as the dimension of an excavated nail is virtually the same as when it was first manufactured. Minimum numbers were calculated by adding the number of whole nails and the highest number of either diagnostic heads or points for each type. For example if there were 20 whole nails, 10 heads and 6 points, for a particular type, then the minimum number would be 30.

#### 2.13.1 Nails

Plain copper nails with either a flathead (2.64 B, C, H, & J) or a rosehead (2.64 A, D, E, F, & G) were the most common type encountered (Table 2.12). A further 78 square sectioned nails where the diagnostic head was missing, are likely to belong to one of these two types. 2.64 E shows the chisel point common to many types of cut nails. Most of these nails have quite narrow shanks and this coupled with the softer nature of copper, means that they are only suitable for light construction in wood.

#### 2.13.2 Tacks

Several smaller nails that have shanks which taper right from the head down to a sharp point, have been classified as tacks (2.64 I, K, & L). All have flat heads, a design feature which ensures that the tack head does not protrude from the surface when it is
nailed in. The large heads also help to hold the material that is being nailed on. Tacks could be used on anything from footwear to flooring, or for some other purpose.

Table 2.12 Distribution of copper alloy fastenings by MNI

<table>
<thead>
<tr>
<th>Type</th>
<th>A1</th>
<th>A2</th>
<th>A3</th>
<th>A4</th>
<th>A5</th>
<th>A7</th>
<th>A8</th>
<th>A10</th>
<th>Length Range (mm)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clenched Nails</td>
<td>37</td>
<td>1</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>19-53</td>
<td>38</td>
</tr>
<tr>
<td>Flathead / Rosehead Nails</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>167</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td>25-60</td>
<td>173</td>
</tr>
<tr>
<td>Tacks</td>
<td>4</td>
<td>3</td>
<td>1</td>
<td></td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td>17-26</td>
<td>10</td>
</tr>
<tr>
<td>Sheathing Tacks</td>
<td>12</td>
<td>20</td>
<td>50</td>
<td>3</td>
<td>7</td>
<td>1</td>
<td>5</td>
<td></td>
<td>25-40</td>
<td>98</td>
</tr>
<tr>
<td>Wood Screws</td>
<td>1</td>
<td>17</td>
<td>2</td>
<td></td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td>24-60</td>
<td>22</td>
</tr>
<tr>
<td>Bolts / Clenched Bolts</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>up to 100</td>
<td>5</td>
</tr>
<tr>
<td>Spikes</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>c.120*</td>
<td>6</td>
</tr>
<tr>
<td>Washers</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Non-Diagnostic Nails</td>
<td>1</td>
<td>11</td>
<td>9</td>
<td>51</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td></td>
<td></td>
<td>78</td>
</tr>
<tr>
<td>Total</td>
<td>19</td>
<td>56</td>
<td>64</td>
<td>260</td>
<td>9</td>
<td>13</td>
<td>1</td>
<td>10</td>
<td></td>
<td>432</td>
</tr>
</tbody>
</table>

* From one whole spike recovered from the Oashore site (Harris 2005).

Figure 2.64 Copper nails & tacks

2.13.3 Screws

Wood screws are commonly associated with hardware fittings in general construction and were also widely used in certain aspects of boatbuilding. Most of the screws from Te Hoe were found in Area 2; along with a number of copper alloy fittings discussed below. They range in size and form from large dome headed screws up to 60mm long (2.65 A) to ones less than half this size with counter-sunk heads. Most of the larger...
screws are broken or bent in some way. All of the screws are of the single-slot variety, for use with an ordinary flat screwdriver (2.65 A-E). The screws with counter-sunk heads are most likely to have been used to attach hardware fittings. For those used in boats it is customary for the screw to be at least one and a half times the length of the thickness of the plank being attached (Leather 1973:19).

**2.13.4 Sheathing Tacks**

Sheathing tacks are cut nails that have a flat head which is slightly countersunk underneath and square shanks tapering down to four-sided, or less commonly chisel points (2.65 F-H). As their name suggests they are primarily designed to attach copper sheathing to the outside of boats and ships. However none were found from around the boat, although a large piece of sheathing was (see 2.72 below). A large number were recovered from Area 3, along with several pieces of sheathing, suggesting that these materials were being employed to repair the buildings.

**2.13.5 Washers**

Only two copper alloy washers were found (2.65 I & J). 2.65 I is half of a large flat washer with a countersunk hole in the centre. J is a very thin washer, with a dome-shaped cross section, which has clearly had a nail driven through it. It is probably a roove from a clenched nail, as discussed below.
2.13.6 Boat Fastenings

Copper fastenings are generally associated with boatbuilding and while they can be used for other purposes, some methods of their usage are specific to boat construction. Nails are the most common fastening used on small boats, as they are cheap and easy to work with. The relative use of different fastenings is aptly stated by the old boatbuilders' saying "nail where you can, screw where you have to and bolt where you must" (Leather 1973:18). Generally in the construction of small clinker-built boats, all nail and screw holes were pre-drilled, to ensure that the wood did not split or the fastening break while being driven in. Square shanked nails were used because they did not turn in the hole once driven into place. Copper does not corrode readily in salt water and is easy to work, but it can bend and has less tensile strength than iron. Iron was also commonly used in boats, as it was cheap and for larger fastenings the fact that it corroded did not matter as much. At Te Hoe the unique opportunity of excavating a small row boat presented itself, resulting in a large sample of 260 boat fastenings from Area 4. Time constraints meant that only the part of the boat which was in units that had already been opened was uncovered; with loose fittings and fastenings, and samples of the wood being collected for analysis.

Figure 2.66 Boat fastenings

Clenched Nails and Bolts

All of the clenched nails (2.66 F-H) came from the boat except for one from Area 10 (2.66 E). Clenched nails were employed in the construction of clinker built boats to fasten two pieces of planking together. In this technique the copper nail would be
driven into a pre-bored hole through the two pieces to be joined and then a copper roove or washer would be slid over the point end of the nail. The roove or washer would then be driven firmly into the wood, through the use of a roove punch and dolly as illustrated in 2.67, whereafter the excess length of the nail would be cut off and the end riveted over the washer with a hammer (Leather 1973:22-29). The nails have been illustrated with the clenched ends at the top and the original head of the nail at the bottom. All of the clenched nails from the boat have square copper washers (2.66 F-H) while that from Area 10 has a roove (2.66 E and 2.65 J). This type of fastening is only suitable for joining smaller planks. 2.66 H at about 95mm long has been clenched in the same fashion but is classified as a clenched bolt, due to its size. More commonly clenched bolts were made from copper rods, cut to size, with one end being riveted over an iron or copper washer, then driven into the hole, and the other end riveted over a washer to close the fastening (Leather 1973: 20-22). 2.66 A and B, from Area 7 and Area 2 respectively, represent this type of fastening. Both have clearly had the ends riveted over with a hammer and B still shows traces of having had iron washers on each end.

Figure 2.67 Clenching a nail on a roove

Figure 2.68 Turning a nail
**Turned Nails**

Another technique commonly used with nails on boats is simply driving the nail through the hole and turning the point back into the wood. At least 98 copper nails from the boat have turned ends. For this type of fastening to be effective the nail had to be of the right length to suit the thickness of the wood being joined and for the point of the nail to be turned twice, as shown in 2.68, to provide a better hold (Leather 1973:24). As for clenched nails a dolly had to be held to the head of the nail while the end was turned in. The end of 2.66 I clearly shows the resulting staple shape, from the end being turned twice. On the smaller nail 2.66 J less care has been taken in turning the point, with the danger being that the fastening could come loose. It is possible that some of the other copper nails were used simply as dead fastenings. That is nails driven completely through one plank and part way into the other.

**Spikes**

Copper alloy spikes are usually associated with larger vessels such as ships and none were found from around the boat in Area 4. 2.66 C and D illustrate two of the more complete spikes found at Te Hoe. C is a round spike about 12mm in diameter and is similar to a complete spike from Oashore, which was approximately 120mm long (Harris 2005: Figure 3.68 B). D is a square sectioned spike which appears to be of a slightly smaller size. Such fastenings may have been present in the site for the repair of larger vessels and were subsequently used for other purposes.

![Figure 2.69 Iron boat fastenings](image)

**Iron Boat Fastenings**

Iron has always been much cheaper than copper and was commonly used for larger bolts and fastenings on boats and ships. Corrosion is a factor that has to be taken into consideration when using iron in a salt water environment, but it has a higher tensile strength than copper and a little bit of rust actually helps the fastening to grip tighter in
the hole. Large iron bolts can clearly be seen running along the centreline of the boat in figure 2.70, a common usage for iron fastenings on small boats (Leather 1973:). Several were also recovered loose from around the boat and are illustrated in 2.69. A to C are made from round iron rod, cut to size, with the ends riveted over iron washers. Several smaller iron fastenings have washers of zinc or some other non-ferrous metal, over one end. All of the excavated examples of this type have only one end and so they may have been used as dead fastenings. E is a ring-bolt, which would have been used to attach a small line to. The ring has an outside diameter of 29 mm and an inside diameter of 13 mm. The end has been riveted over an iron washer, which has come loose and slipped down the shank.

Figure 2.70  Boat, Area 4

Figure 2.71  Boat detail: 1 - turned nails in wood; 2 - loose turned nails; 3 - clenched nails
2.14 Copper and Brass Miscellany

2.14.1 Copper Sheathing

Over 2.7 kilograms of copper sheathing was recovered, with a large quantity coming from Area 3. Copper sheathing was defined as any flat fragment or cut piece of copper about 0.5mm in thickness, which had not been modified into an object, such as the strainer discussed earlier. Four large cut pieces from Area 3 are actually part of the same original piece, which measures about 655mm long and varies in width from 130 to 180mm. The edges of the piece are folded over and there is a row of nail holes down one side, along with several other random nail holes. It appears then that the piece was used as some sort of flashing or ridging on the Area 3 hut. This is backed up by the large quantity of sheathing tacks found in Area 3 (Table 2.12). Copper alloy would have been an expensive option for the original construction of the hut and so it is more likely that this material was used at a later stage to repair the building. One other large cut piece of sheathing was found in Area 4 (2.72). It measures roughly 270 mm by 410 mm and has clearly been used, with a row of obvious nail holes located along the edge nearest to the scale. No sheathing tacks were found near it and it was found slightly above the bottom of the boat, so it is not likely to have been attached to the boat. Copper sheathing is generally only associated with larger vessels and it is possible that sheathing was only kept on site for the quick repair of whale boats or huts.

Figure 2.72 Large piece of copper sheathing (scale is 185mm long)

2.14.2 Fittings and Miscellaneous

Several copper alloy or brass hardware fittings were found, including five from Area 2. 2.73 A consists of a 4 mm thick plate measuring 87 mm by 60 mm, which has a smaller rectangular housing riveted to the centre of it. The plate has a hole in each corner which has been countersunk, so that the head of the screw would lie flush with the plate. The
number '51' can be seen punched into the face of the plate. It is not immediately clear what the original purpose of this item was but it may have formed part of a lock or latch of some kind. 2.73 C is a small plate of the same thickness, measuring 56 mm by 19 mm. It has a countersunk hole at each end and a broken-off rivet in the centre. The rivet was clearly used to attach something to the plate, which is now missing. 2.73 D is an oval-shaped plate with a round hole in the centre with a protruding lip on the back. Like the previous two its function is uncertain. Two knobs (2.73 F and G) were also found in Area 2. Both have threaded tenons and could be from any small furnishing which had draws or doors. The presence of these fittings in Area 2 may explain the large number of wood screws found there (Table 2.12).

2.73 B is a small knob from Area 1 consisting of a ring riveted to a plate 2 mm thick. The plate has a series of numbers punched on the back, with '78' at the top and '3 1/2' and '45' at the bottom. Such numbers were undoubtedly imparted upon the object at the time of manufacture and may refer to things such as size, model, and batch numbers. 2.73 E has a single countersunk hole in the middle and is made of metal about 2 mm thick. One end is broken off but it is likely that both ends were the same and so the original length would have been about 60 mm. A small copper alloy reel with outside and inside diameters of 33 mm and 19 mm respectively is not illustrated. It was found in the ashfill of the Area 2 fireplace and so any other associated items have likely been burnt.

Figure 2.73  Brass fittings
2.15 Iron Fastenings

Iron nails and spikes are usually found in large quantities in any historic site where the remains of buildings are investigated. Te Hoe is no exception, with about 42 kilograms of nails and spikes being recovered (see Table 2.13). Nails can be potentially useful for dating as the technology surrounding their manufacture changed over time, especially during the nineteenth century. Recording technical features in detail however requires a large sample of nails in good condition; a prerequisite at odds with the conditions found in a shore whaling station site right on the seashore. Most, if not all, of the ferrous metal fastenings recovered at Te Hoe are of iron. Iron is easily recognisable by its wood-like grain, compared to the more uniform appearance of steel (Wells 1998:80). Despite the fact that iron generally corrodes more slowly than steel, the number of iron artefacts in a good state of preservation is in the minority. Various techniques can be used to analyse nails in this condition however they are generally labour intensive and require the use of specialised equipment. Consequently no attempt was made to quantify the exact number of each type of nail in the assemblage. Iron fastenings were weighed, counted, and representative examples of each type put aside for illustration and further analysis. Fastenings were classed as nails, spikes, bolts, screws or staples, based on either their size or other features of the artefact.

Table 2.13 Distribution of iron fastenings

<table>
<thead>
<tr>
<th>Area</th>
<th>NISP</th>
<th>Weight (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>387</td>
<td>3598</td>
</tr>
<tr>
<td>2</td>
<td>2707</td>
<td>21446</td>
</tr>
<tr>
<td>3</td>
<td>483</td>
<td>4369</td>
</tr>
<tr>
<td>4</td>
<td>328</td>
<td>6157</td>
</tr>
<tr>
<td>5</td>
<td>174</td>
<td>1206</td>
</tr>
<tr>
<td>6</td>
<td>1</td>
<td>185</td>
</tr>
<tr>
<td>7</td>
<td>259</td>
<td>3844</td>
</tr>
<tr>
<td>8</td>
<td>63</td>
<td>351</td>
</tr>
<tr>
<td>10</td>
<td>75</td>
<td>1560</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>4477</strong></td>
<td><strong>42716</strong></td>
</tr>
</tbody>
</table>

2.15.1 Nails

The most common class of fastening was nails. For example from Area 2, where the largest sample was collected (see Table 2.13) over seventy percent by weight were nails. From examples that could be accurately measured the size range appears to be in the order of from 25 mm to about 90 mm for cut nails and up to about 140 mm for wire nails.

Cut nails

Cut nails are more common in the Te Hoe assemblage than wire nails. There is no evidence for any wrought nails, which "by virtue of being made individually by hand ... show considerable morphological and metric variability" (Adams 2002:67). Cut nails are made from nail rods or plates, with nail blanks simply being cut off the edge of the plate. The nail blank can be cut on an angle to form a point or it can be produced with a hammer, while the other end becomes the head. Initially nails were cut by hand and then...
Figure 2.74  Iron nails

Figure 2.75  Wire nails, staples, & wood screw
placed in a special clamp and the head formed by one or more blows of a hammer, depending on the finish desired. By the early-19th-century commercially viable cutting and heading machines were developed and cut nails were being mass produced from the 1830s (Wells 1998:83; Bealer 1976:205). Iron cut nails were replaced by steel nails before the end of the 19th-century (Wells 1998:87).

Figure 2.74 A-D illustrate typical cut nails of the mid-19th-century. They have either square (A) or more commonly rectangular sectioned shanks (B-D). The slightly wider sides are the cut faces of the nails which taper down to form a blunt chisel point (best illustrated by B and C). Most of the heads appear to have been of the rosehead type, where the head is hit on all four sides, but none are preserved well enough to show this very clearly. D has a narrow flat topped 'L' shaped head and is of a type known as a cut Brad.

**Wire nails**

Wire nails were initially made of iron, with steel not coming into popular usage until the 1880s, when it could be manufactured more cheaply (Wells 1998:87). Wire was made by drawing a length of metal through successively smaller holes until the desired diameter was reached and then nail blanks were cut off and headed as for cut nails. Automatically fed machines which cut and formed the head in one process first came into production in France in 1834 and America in 1851 (Prickett 1994:86) although wire nails were not made in any quantity in America until the 1880s (Adams 2002:66). Wire nails began to be produced in Britain in the 1850s and are common in Australian sites after this time (Lawrence 2004). Like Australia many of the supplies brought to New Zealand came from Britain and so it is likely that wire nails were available here as well from the 1850s; although Middleton argues that they were not common here until the 1870s (Middleton 2005).

Wire nails are easily distinguished from cut nails by their round cross section. While numbers were not quantified they appear to be slightly less common in the Te Hoe assemblage. No steel wire nails were identified, suggesting that all the nails from Te Hoe were made before the end of the 19th-century. 2.74 E to G illustrates typical iron wire nails in the medium sized category. E and F have well preserved rosehead type heads. 2.75 A shows one of a few larger sized wire nails found, while B and F show two small panel nails. Some of the wire nails have horizontal marks on the shank below the head, where the automatic feeding nail machine has gripped the wire during the nail making process.

### 2.14.2 Staples, Screws, and Bolts

A number of heavy iron wire fencing staples were found (2.75 C to E). They range in size from about 39 mm long up to 45 mm, with diameters from 4.5 mm to 6.5 mm. The staples have four-sided points and have probably been made by a machine. Staples were made by hand simply by heating the wire and cutting it off at about a 10-degree angle, then bending it over double and cutting off the other end (Bealer 1976: 208).

2.75 G shows the only iron screw found and it is incomplete. 2.76 E illustrates a heavy iron washer probably used with a bolt, of which several were found. 2.75 B shows a round sectioned iron bolt with a dome head and a hexagonal nut, D is of the same type but smaller. 2.76 C appears to be a clenched bolt and has one end riveted over a diamond shaped washer. 2.76 A is a large chisel pointed spike which has been driven through a hexagonal shaped nut.
Figure 2.76  Iron bolts & washer

Figure 2.77  Iron spikes
2.15.3 Spikes
All other wood fastenings with shanks thicker than about 10 mm were classed as spikes. The majority of the spikes are square or rectangular sectioned and have blunt chisel points (2.77). Whole examples range in length from about 160 mm down to 110 mm. Because of their size spikes are generally better preserved than nails.

2.15.4 Large Bars and Spikes
Figure 2.78 illustrates a few examples of very large iron spikes and bars found at Te Hoe. Many of them clearly have manufactured heads, which could have been used to drive them into the ground with a heavy hammer or for some other purpose. Large bars were commonly found around the chimneys of various areas and it seems likely that they were employed in these cases to support the structure of the chimney. A number of flat iron bars, similar to 2.78 A from Area 1, were found to be holding up the roof of the flue in the Area 4 tryworks.

![Figure 2.78 Large bars & spikes](image)

2.16 Lead
A total of 290 grams of lead was recovered from all areas, largely consisting of non-diagnostic lumps. One large lump of squashed lead foil (48 grams) was found in Area 2, while a very small fragment of either lead foil or seal was found in Area 5. Some bottle tops and necks, such as 2.3 C, also had small amounts of lead foil stuck to them.

2.17 Zinc
A total of 362 grams of zinc sheeting was recovered from several areas. All zinc was found as pieces of thin sheet, which proved extremely fragile when it was removed. Zinc sheeting may have been used on the roofs of some of the whalers' huts, or for repairs, similar to copper sheeting. As discussed above, zinc sheeting may also have been employed on the bases of casks to protect them from decay.
2.18 Maori and Prehistoric Artefacts

Excavation of Areas 1, 2, and 3 revealed a prehistoric Maori occupation layer underneath the whaling period deposits. Brief investigations in Area 6, on the terrace above Areas 1, 2, and 4, revealed what was interpreted as a prehistoric deposit only. The bulk of the prehistoric midden was made up of shellfish and fish remains, with only a few other artefacts. Some prehistoric type artefacts, such as worked stone flakes, were also found in the upper layer of the historic deposits under the terrace and may possibly have eroded down the slope. Another possibility is that Maori, living and working at the station, were still using prehistoric technology during the period of historic occupation.

![Figure 2.79 Whalebone patu](image)

### 2.18.1 Bone Artefacts

There is no clearer evidence that Maori were practising bone carving during the historic period than a whale bone patu, found in the ashfill of the Area 2 fireplace (2.79). Whalebone carving could have been practised in the prehistoric period from bone recovered from stranded whales but it is clear from the context of this find that it relates to the whaling station. The patu is complete, although cracked in several places, and is about 294 mm in length, with a maximum width of 101 mm. Two fragments of one-piece bone fishhooks were found. 2.80 A is from Area 3, while B is from Area 4. This form of fishhook is commonly found in prehistoric Maori sites.

![Figure 2.80 Bone fishhooks & ornament](image)

Several other pieces of bone showed obvious signs of modification. 2.80 C is a small tab of mammal bone which has had a hole drilled in it with a stone drill. The piece of bone appears to have been shaped and so the purpose is likely to have been ornamental.
2.81 shows fragments of a piece of mammal longbone which have clearly been worked but not formed into any recognisable object. A small piece of bird longbone, not illustrated, with one end broken and a hole drilled in the other may possibly be part of a bone needle.

![Worked bone](image)

**Figure 2.81 Worked bone**

Three rather curious ornaments, by today's standards, are drilled human teeth from Area 3 (2.82). The teeth have been drilled through the root end with a stone drill, so that they could be suspended on a cord, presumably around the neck. A supply of teeth is not likely to have been a problem in a society where drunken revelry was commonplace and dental hygiene unheard of. They were found together in a group suggesting that they were deposited at the same time, possibly still attached to a cord which has not survived.

![Three drilled teeth](image)

**Figure 2.82 Three drilled teeth**

### 2.18.2 Stone Artefacts

Approximately 55 small flakes of either chert, chalcedony, argillite or obsidian were found in Areas 1 to 4 and 6. Equally common were small flakes of either chert or chalcedony, or obsidian (Table 2.14). Small red coloured cobbles, such as 2.83 A, are available along the beach at Te Hoe, while other stones must have been brought to the site from elsewhere. The number of obsidian flakes may possibly be inflated as it was extremely difficult to tell the difference between a small fragment of 'black-glass' and a piece of green tinted obsidian. Obsidian was found with both a grey tint and a green tint. The obsidian flake in 2.84 has use-wear damage on both sides, and is the only stone artefact which is obviously not debitage. Three small pieces of argillite were also found.
Argillite was commonly used in adze manufacture and one small fragment from Area 6 appears to have a polished surface. Most of the stone flakes are assumed to have been deposited due to usage of the site by prehistoric Maori living at some time in the past. Several flakes were found in sealed prehistoric midden contexts, such as Area 2 - Layer 4 and Area 6 - Layer 2. Many of the stone flakes however were recovered from amongst historic period material (Layer 1 and sublayers in Table 2.14). With the ready availability of iron tools after the arrival of Europeans, it is unlikely that Maori were using prehistoric stone tool technology during the period the whaling station was in operation. What is more likely is that most of the prehistoric artefacts have eroded from the terraces above the main part of the site and have subsequently been incorporated into the historic midden both during the occupation of the whaling station and in the years since.

Table 2.14  Distribution of stone flakes

<table>
<thead>
<tr>
<th>Area &amp; Material</th>
<th>Layer</th>
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<th>Chert/Chalcedony</th>
<th>Argillite</th>
<th>Total</th>
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</thead>
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<td>2</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>L1g</td>
<td>2</td>
<td>2</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>L2</td>
<td>2</td>
<td>2</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(6)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A2</td>
<td>L1a</td>
<td>1</td>
<td>1</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>L1a</td>
<td>2</td>
<td>2</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>L1c</td>
<td>2</td>
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<td>7</td>
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<td>L1e</td>
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<td></td>
<td>L2</td>
<td>4</td>
<td>1</td>
<td></td>
<td>5</td>
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<tr>
<td></td>
<td>L4</td>
<td>1</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td></td>
<td>(30)</td>
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</tr>
<tr>
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<td>4</td>
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<td></td>
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<tr>
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<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>26</td>
<td>26</td>
<td>3</td>
<td>55</td>
</tr>
</tbody>
</table>
Figure 2.83 Stone flakes; A - H chert & chalcedony; I - argillite; J - K obsidian

Figure 2.84 Obsidian flake
3. Interpretation

3.1 Dating the Assemblage

Dating the Te Hoe assemblage is made more difficult by the lack of historical information regarding the operating period of the station. From the information that is available it appears that the Te Hoe whaling station may have been first set up around 1840 but it is not known how long whaling was carried out for. In the Hawke's Bay whaling had generally become uneconomic by 1860, although it continued in a much reduced fashion around Mahia. By 1870 though any form of commercial whaling was probably no longer viable. By 1877 so many whalers had abandoned the Mahia Peninsula that it took the entire adult population to form a jury after "Watty" Black's hotel was burned down (Lambert 1998:374). Even allowing for part-time or sporadic phases of whaling at Te Hoe after the mid 1850s, it is unlikely that any artefacts associated with whaling were deposited after 1870.

Artefacts which can be reliably dated have therefore been ranked according to their probability of relating to the whaling station in Table 3.1. From the table it is clear that some items were unquestionably deposited during the whaling period but there are also a large number which date to after this time, right up to the end of the 19th-century. It seems then that one or more of the station buildings continued to be occupied after whaling ceased to be a viable activity. It is also quite possible that anyone living at the station site after 1870 continued whaling on an opportunistic basis, gathering together a few men to crew a boat if and when an unfortunate cetacean was spotted.

Very few artefacts can be unequivocally assigned to the period 1840 to 1870. Some items such as the lance head, can not necessarily be dated to a specific time, but are clearly related to whaling activity. Bottles such as bare-iron pontil 'black-beers' and the 'pigsnout' gin are the only items of glass almost certainly deposited during this period. While both were manufactured up to the early 1870s they are far less common than other types after the 1860s. Several ceramic items are of types which typically date to the mid-19th-century or earlier. These include shell edged ware and plain slipped wares, which are generally accepted as early markers in New Zealand sites. The use of certain colours and patterns on transfer printed ware also points to dates no later than about 1850 to 1870. The 'Amoy' pattern bowl is potentially the most securely datable piece, and based on attribution to William Ridgway, would date to between c.1841 and 1854.

Another factor to consider when dating artefacts is the possible time lag between the manufacture of the item and its use and later disposal. Recent American research "on late-19th-century sites indicates that ceramics date roughly 10-16 years earlier than the associated glass artefacts, which, in turn, date about 3-6 years older than the time of deposit" and time lag can also be a significant factor on early-19th-century sites as well (Adams 2002:66).

As with all historic assemblages there are invariably those classes of artefacts which can only be accurately dated to quarter or even half century periods and could just as easily date to the start or the end of the occupation sequence. Objects which had long production ranges and were commonly used throughout the century, such as bone buttons and cut nails, fall into this category. Most, if not all, of these items were likely used and deposited during the whaling period but it is not possible to quantify the exact proportions. Many clay tobacco pipe manufacturing companies also operated for lengthy periods. All of the makers represented in the Te Hoe assemblage could possibly relate to whaling, with Davidson being the only obviously later brand. Other artefacts, such as the two padlocks, are of typical 19th-century manufacture, but lack any distinguishing features which can further define the date of production.
Table 3.1 Dated artefacts and their relationship to the whaling period

<table>
<thead>
<tr>
<th>Artefact Category</th>
<th>Area</th>
<th>Production Range</th>
<th>Mean Date</th>
<th>Probability of relating to the Whaling Period (c.1840-c.1870)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glass</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- pigsnout gin</td>
<td>99</td>
<td>up to 1875</td>
<td></td>
<td>High</td>
</tr>
<tr>
<td>- 3-piece, improved or</td>
<td>1, 2, 5, 7, 8</td>
<td>1830-1875</td>
<td>1853</td>
<td>High</td>
</tr>
<tr>
<td>bare-iron pontil</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- 3-piece, sabot or snap case</td>
<td>2, 4, 7</td>
<td>1857-1905</td>
<td>1868</td>
<td>Medium</td>
</tr>
<tr>
<td>- embossed panel bottles</td>
<td>1, 2</td>
<td>1867-1915</td>
<td>1891</td>
<td>Low</td>
</tr>
<tr>
<td>- turn/paste mould</td>
<td>2</td>
<td>1880-1905</td>
<td>1893</td>
<td>None</td>
</tr>
<tr>
<td>Welsman Chemist embossed bottle</td>
<td>2</td>
<td>1880s +</td>
<td></td>
<td>None</td>
</tr>
</tbody>
</table>

| Ceramics                |      |                  |           |                                                               |
| 'Rhine'                 | 1, 2 | 1831-1870        | 1851      | High                                                          |
| 'Willow'                | c.mid 19thC | c.1841-1854 | High | |
| 'Amoy'                  | 5    | c.1841-1854      | 1848      | High                                                          |
| Purple transfer prints  | 1, 2, 5, 7 | 1829-1860 | 1840 | High |
| Brown transfer prints   | 1, 2, 3, 5 | 1829-1850 | 1840 | High |
| Green transfer prints   | 2, 3, 5, 7 | 1829-1850 | 1840 | High |
| Plain slipped mug       | 7    | up to 1840s      | 1817      | High                                                          |
| Shell edge (impressed, scalloped rim) | 2 | 1802-1832 | 1817 | High |
| Shell edge (impressed, plain rim) | 7 | 1825-1891 | 1849 | Medium |

| Clay Tobacco pipes      |      |                  |           |                                                               |
| McDougall               | 3, 5, 7 | 1847-c.1895 | Medium | |
| T.White & Co           | 5, 7, 8 | c.1840-c.1876 | Medium | |
| A.Coghill               | 7     | c.1840-c.1895 | Medium | |
| W.White                 | 2, 5  | c.1840-c.1895 | Medium | |
| Davidson                | 2, 5, 7 | 1861-c.1895 | Medium | |

| Other Artefacts         |      |                  |           |                                                               |
| Lance                   | 2    | 19thC.           | High      |                                                               |
| Thimble                 | 5    | mid 19thC.       | High      |                                                               |
| Copper cut nails        | 1-5, 7, 8, 10 | 19th C. | High | |
| Padlocks                | 2    | 19thC.           | Medium    |                                                               |
| Iron cut nails          | 1-5, 7, 8, 10 | c.1830-1890s | Medium | |
| Bone buttons            | 1, 2, 4, 5, 7 | mid 19thC.-1900 | Medium | |
| Enfield bullet          | 5    | c.1853-1870s     | Medium    |                                                               |
| Iron wire nails         | 1-5, 7 | c.1850s-1890s | Low | |
| W.M Co Kaiapoi, button  | 1    | after 1885       | None      |                                                               |
| Shotgun Caps            | 2, 3 | c.1895-1911     | None      |                                                               |
| Shilling                | 10   | 1891             | None      |                                                               |

1. Based on attribution to William Ridgway
2. Dates for colours used on transfer printed ware from Stelle (2001)
3. Terminal date based on country of origin not being marked
4. Any clay pipes brought to the whaling station are unlikely to have been manufactured much before 1840, when it was first set up.
A significant number of artefacts datable to the 1880s or later strongly suggest a post-whaling occupation of the site. These include the Welsman embossed pharmaceutical bottle and bottles produced in turn and paste moulds. Other items such as the shotgun cartridge caps may well have been left by later visitors to the site, after it had been abandoned. The continuous occupation of some areas of the site, such as Area 2, has meant that early and later material has been mixed up, making it difficult to separate items into distinct periods.

Finally there are those items which, due to preservation and manufacturing techniques, are not able to be dated to periods at all meaningful for analysis. Small fragments of glass and ceramic that cannot be attributed to a more complete vessel and unmarked clay pipe stems are not useful as temporal indicators. Similarly all of the undated iron from Te Hoe is probably of 19th-century manufacture but whether it relates to the whaling station or shortly thereafter is not able to be determined.

3.2 Distribution of Artefacts

The distribution of artefacts between areas can provide clues as to the functions of different parts of the site and the ways in which items were discarded. For example, it would be expected that patterns of artefact discard would differ greatly between the tryworks area and a whaler's hut. Excavation was focused on uncovering structural remains and no rubbish pits or other major concentrations of cultural material were encountered, with most artefacts being found randomly scattered throughout each area.

Ceramics were found throughout the site, as illustrated by Figures 3.1 to 3.12. Area 2 has the most by weight, while Area 7 has the most by NISP. Sherds in Area 2 weigh an average of about 11g, in Area 7 - 2.7g, and in Area 5 - 3.6g. A similar pattern was evident in the Oashore assemblage, where fragments from Area 1, which contained the greatest amount of ceramics, weighed 8.8g, compared to just 1.6g in Area 4 (Harris 2005:116). This probably reflects the fact that the Area 5 and 7 huts had compacted earth floors and any artefacts dropped on the floor have been trampled and kicked around, thus increasing the NISP. When looking at the MNV of ceramics by area, Area 7 comes out on top with 26, just ahead of Area 2 and 5 on 24 and 17 respectively (Table 3.2). Most of the sherds assigned to individual vessels were concentrated around one or two squares. Fragments of a 'Rhine' pattern plate from Area 1 were all found in squares S138/E10 and 11; while the teapot from Area 2 was clustered around square S128/E23. The only vessel which had been widely scattered was the 'Rhine' plate from Area 2 which was largely confined to units S128/E23 and 24, with joining sherds found in S132/E24 and loose sherds of the same pattern in S131/E20 and S135/E19.

The distribution of sherds within each area shows a clear distinction between the industrial and domestic parts of the site. The whalers' huts and the Area 2 building contain far more ceramics than the two tryworks areas. All of the huts excavated contained ceramics of varying styles, suggesting that plates and cups may have been the personal possessions of individuals and that the men were dining in their huts. The fact that a small number of ceramics were found in the industrial area also shows that the men may have been eating and drinking in these areas during busy parts of the season.

Bottle glass was found in virtually every square containing historic period material. Similar quantities were recovered from the industrial areas and the Area 3, 5, and 7 huts; with Area 2 accounting for over two-thirds of the total glass assemblage (Figures 3.14 to 3.23). Alcohol bottles were the most common type found in each area (see Table 2.4).
Key:  A = 5 or less; B = 6-10; C = 11-15; D = 16-20; E = 21-25

Figure 3.1  Area 1: Distribution of Ceramics by NISP

Key:  A = ≤ 50g; B = 51-100g; C = 101-200g; D = 201-300g; E = 301-400g

Figure 3.2  Area 1: Distribution of Ceramics by weight
Key:  A = 5 or less; B = 6-10; C = 11-15; D = 16-20; E = 21-25

Figure 3.3 Area 2: Distribution of Ceramics by NISP

Key:  A = ≤50g; B = 51-100g; C = 101-200g; D = 201-300g; E = 301-400g

Figure 3.4 Area 2: Distribution of Ceramics by weight
Key:  A = 5 or less; B = 6-10; C = 11-15; D = 16-20; E = 21-25

Figure 3.5  Area 3: Distribution of Ceramics by NISP

Key:  A = ≤ 50g; B = 51-100g; C = 101-200g; D = 201-300g; E = 301-400g

Figure 3.6  Area 3: Distribution of Ceramics by weight
Key: A = 5 or less; B = 6-10; C = 11-15; D = 16-20; E = 21-25

Figure 3.7 Area 4: Distribution of Ceramics by NISP

Key: A = \leq 50g; B = 51-100g; C = 101-200g; D = 201-300g; E = 301-400g

Figure 3.8 Area 4: Distribution of Ceramics by weight
Key:  A = 5 or less; B = 6-10; C = 11-15; D = 16-20; E = 21-25

Figure 3.9  Area 5: Distribution of Ceramics by NISP

Key:  A = ≤50g; B = 51-100g; C = 101-200g; D = 201-300g; E = 301-400g

Figure 3.10  Area 5: Distribution of Ceramics by weight
Key:  A = 5 or less; B = 6-10; C = 11-15; D = 16-20; E = 21-25

Figure 3.11 Area 7: Distribution of Ceramics by NISP

Key:  A = ≤50g; B = 51-100g; C = 101-200g; D = 201-300g; E = 301-400g

Figure 3.12 Area 7: Distribution of Ceramics by weight
Minor concentrations of glass in Area 2 represent more complete vessels and heavier portions such as bottle bases, with a significantly greater quantity being found in units S128/E22-24. Two whole bottles and a number of broken vessels were found in this corner of the building. The ground naturally slopes away on the north side of Area 2 towards the stream and it is possible that rubbish was allowed to accumulate in this area to level it off. This corner also contained the highest concentration of ceramics.

Many of the bottle fragments in Area 2 were partially melted, including those found away from the chimney tumble, suggesting that the building may have burned down. Charring on many of the wooden piles and fragments of burnt timbers also suggest this. Whether this occurred while the building was still in service or after it was abandoned is not able to be determined. Vessels found in the top layer of Area 2 include bottles produced in turn and paste moulds dating to 1880 or later and ones made with the aid of a sabot or snap case technology dating to after 1860. This points to the Area 2 building being used after the main whaling period, possibly up to the early 1880s. The area was undoubtedly used by whalers, as attested by early period artefacts also being found in the historic midden, but this does not exclude the possibility that the building excavated was a later addition to the station or replaced an earlier one on the same site.

Clay Pipes show a clear pattern of differential distribution across the site. Areas 5 and 7 account for 74% of the clay pipe fragments by both NISP and weight. When calculating the MNI separately for each area these two contain 18 of a total of 28 pipes (Table 3.3). Very few were found around the two tryworks areas, which reflects the fact that this was the factory part of the operation where men were expected to work, not socialise. The lack of pipes from the Area 3 hut is surprising and it may be that it was either occupied by light smokers or they were encouraged to smoke elsewhere. The small number of pipes from Area 2 may be a reflection of its construction, a precaution seemingly at odds with the more immediate danger posed by a wooden building attached to a large open fireplace, or more plausibly that the building had a function other than as crew accommodation.

From the Area 5 and 7 huts it is clear that smoking, along with drinking, were two habits the average whaler was well enamoured of. In Area 5 pipe fragments are clustered in the south-east corner of the hut beside the fireplace and around the north side of the building, where the doorway is thought to have been (Figure 3.24). Pipe fragments were also recovered from the stream bank, which was scraped down to expose the soil profile. One could easily imagine a whaler enjoying a pipe of tobacco, hunkered down by the fireside of an evening, or sitting on a whalebone vertebrae stool outside the doorway of his hut during the day. Area 7 exhibits a similar pattern with most of the clay pipe fragments found around the doorway and to either side of the fireplace (Figure 3.25). Unlike Area 5 though, most of the pipe fragments are located inside the house.

A significant amount of clear flat glass, interpreted as being window glass, was recovered from Area 2. Most of it was concentrated around squares S128/E23 and 24, with smaller quantities along the southern side of the building (Figure 3.13). The obvious explanation for this material is that the structure had glass windows. No similar concentrations were found elsewhere in the site although 238g were found in unit S142/E6 in Area 4, suggesting that their may have been some type of building associated with the tryworks.

The distribution of other structural materials, such as nails, can also provide an insight into how the buildings may have been constructed. From Figures 3.26 to 3.29 it can be seen that all the house sites yielded only small quantities of nails. This suggests that these building were lightly built structures, composed of materials which did not
Table 3.2 MNV of ceramic vessels by area

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<th>Vessel Type</th>
<th>A1</th>
<th>A2</th>
<th>A3</th>
<th>A4</th>
<th>A5</th>
<th>A7</th>
<th>A8</th>
<th>A10</th>
<th>Total</th>
</tr>
</thead>
<tbody>
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<td>Plate</td>
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<td></td>
<td></td>
<td>29</td>
</tr>
<tr>
<td>Bowl</td>
<td>131</td>
<td>22</td>
<td>9</td>
<td></td>
<td></td>
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<td>24</td>
</tr>
<tr>
<td>Cup</td>
<td>143</td>
<td>16</td>
<td>11</td>
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<td>22</td>
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<td></td>
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<td></td>
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</tr>
<tr>
<td>Teapot</td>
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<td></td>
</tr>
<tr>
<td>Jug/Mug</td>
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<td>3</td>
<td>6</td>
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<td>11</td>
<td>2</td>
<td>17</td>
<td>26</td>
<td>1</td>
<td>2</td>
<td>89</td>
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Table 3.3 MNI of clay pipes by area

<table>
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<th>Area</th>
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<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>7</th>
<th>8</th>
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</thead>
<tbody>
<tr>
<td>MNI</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>10</td>
<td>8</td>
<td>2</td>
<td>28</td>
</tr>
</tbody>
</table>

Key: A = ≤ 50g; B = 51-100g; C = 101-200g; D = 201-300g; E = 301-400g

Figure 3.13 Area 2: Distribution of Window Glass by weight
Key: A = ≤ 50; B = 51-100; C = 101-150; D = 151-200; E = 201-250; F = ≥ 250

Figure 3.14 Area 2: Distribution of Bottle Glass by NISP

Key: A = ≤ 100g; B = 101-500g; C = 501-1000g; D = 1-2kg; E = 2-3kg; F = ≥ 3kg

Figure 3.15 Area 2: Distribution of Bottle Glass by weight
Figure 3.16 Area 1: Distribution of Bottle Glass by NISP

Figure 3.17 Area 1: Distribution of Bottle Glass by weight
Key:  
A = ≤ 50; B = 51-100; C = 101-150; D = 151-200; E = 201-250; F = ≥ 250

Figure 3.18 Area 4: Distribution of Bottle Glass by NISP

Key:  
A = ≤ 100g; B = 101-500g; C = 501-1000g; D = 1-2kg; E = 2-3kg; F = 3-4kg

Figure 3.19 Area 4: Distribution of Bottle Glass by weight
Figure 3.20 Area 5: Distribution of Bottle Glass by NISP

Figure 3.21 Area 5: Distribution of Bottle Glass by weight
Figure 3.22  Area 7: Distribution of Bottle Glass by NISP

Figure 3.23  Area 7: Distribution of Bottle Glass by weight
Figure 3.24 Area 5: Distribution of clay pipes

Figure 3.25 Area 7: Distribution of clay pipes
Figure 3.26  Area 2: Distribution of Nails by weight

Figure 3.27  Area 3: Distribution of Nails by weight
Key: A = ≤ 50; B = 51-250g; C = 251-500g; D = 501-750g; E = 751-1000g; F = ≥ 1000g

Figure 3.28 Area 5: Distribution of Nails by weight

Key: A = ≤ 50; B = 51-250g; C = 251-500g; D = 501-750g; E = 751-1000g; F = ≥ 1000g

Figure 3.29 Area 7: Distribution of Nails by weight
generally require the use of nails. Areas 1 and 4 also contained a number of nails but it is not known how these relate to any possible structures in these areas. In contrast, Area 2 contains a substantial amount of nails and other fastenings, including large concentrations around the fireplace and to either side of it. This is what would be expected if the building had been largely constructed of wood and had been left to decay on site. As discussed earlier other evidence also suggests a wooden structure, which was destroyed by burning. The higher concentration of nails in and around the fireplace may possibly be the result of later visitors to the site burning any surviving timbers in the fireplace.

3.3 Life at Te Hoe

Shore whaling stations were usually isolated settlements and relied on supplies being shipped in from a centralised location for their operation and survival. Even where stations were located in close proximity to one another they tended to maintain their independence, as they were primarily economic enterprises competing for the same finite resource. Whaling was focused upon producing oil for profit and so investment in anything not essential for the industrial side of the activity was often minimal. Men were ranked in a shore station crew, in much the same way as they would be on a ship and the operation was run on a similar basis. From the archaeological record however there is no clear evidence of any differential status between groups. In general while a semblance of order would have been maintained, life on a shore whaling station was probably fairly basic for all members of the party.

The most substantial remains pertaining to life at Te Hoe are the ruins of the whalers’ houses or huts. As only a few of all the possible house sites were investigated and allowing for the possibility that huts may have been used at different times, it is not possible to estimate how many people may have lived at the station at any one time. At least three definite house structures were excavated (Areas 3, 5, and 7) with Area 10 also possibly being the remains of a house.

The Area 3 hut and that in Area 5 are very similar, in that apart from the chimney, very little structural evidence was found concerning their construction. From documentary sources, such as Wakefield, it is highly likely that they were lightly built structures with walls of sticks, mud, and rushes, and a thatched roof. Both have stamped earth floors and required a minimum investment in time and money to erect. Huts such as these would have been built by the crew or local Maori and were only designed to last the duration of the season. There is evidence from Area 3 at least that pieces of copper sheathing were used to patch holes in an effort to make the hut more weather-tight. The Area 7 hut is only slightly more substantial, having walls composed of wooden slabs set into the ground. Like the other huts it has an earthen floor and probably had a thatched roof.

All of the huts have chimneys and fireplaces of flat mudstone boulders constructed by crude masonry. None of the stones are dressed and are simply neatly stacked together and the gaps chinked with dirt. All of the fireplaces are relatively large, taking up at least half of the back wall of the huts, and it must be remembered that whaling was carried out during the winter months and could often be wet and cold work. Like the huts, the chimneys and fireplaces would undoubtedly have required some maintenance or rebuilding at the start of each season.

The Area 2 building is the only one which gives the appearance of having been erected as a more permanent structure. The building had a wooden floor which sat on wooden piles and may have had wooden walls with glass windows. The size and construction of the building suggest that it may have played a communal role in the day to day functioning of the whaling station. It may possibly have been the station store, cookhouse, or served a number of functions.
From an analysis of the various classes of material remains left by the whalers some of the details concerning how they lived their daily lives can be reconstructed. The ceramics paint a picture of the whalers as being slightly more cultured than they are generally given credit for. The majority of the 89 vessels represented in the assemblage are decorated in some way with 56 sporting fashionable transfer prints. Cheaper undecorated pieces and industrial slipware would have served the same purpose, suggesting that factors other than practicality were considered when buying ceramics. Very few, if any, appear to come from matching sets and were probably purchased as separate pieces or mixed lots. While transfer printing was used on some of the finest tableware of the day, it was also used on some of the cheapest. As discussed below (section 2.3.3) Willow pattern wares were the cheapest available transfer printed ceramics by the second decade of the 19th-century and shell-edge ware remained one of the lowest priced decorated wares throughout the century.

The type of ceramic vessels used also provides clues as to how the whalers may have lived. The assemblage is dominated by plates and teacups. Bowls, mugs, jugs and saucers are present but far less common. No items of kitchenware or sanitary ware could be identified. The lack of variety in vessel types further suggests that ceramics were purchased by individuals according to their needs and tastes. Tea drinking was obviously a popular habit amongst all members of the crew, as attested by the remains of 24 cups and 2 teapots found throughout the site (Table 3.2). Tea may well have been supplied as part of the rations given to the men throughout the season. Saucers were obviously not a prerequisite for the taking of tea in the company of whalers, as only two could be tentatively identified. Ceramic cups and mugs may also have been used as drinking vessels in general. The only plate size that could be reconstructed from the surviving fragments was the standard dinner plate of about 10 inches in diameter. All of the more complete examples have the relatively deep well common to plates at the time and would have been sufficient for most meals, including stew (Lawrence 2001:224). The number of broken plates and teacups suggests that Te Hoe had a reasonably large crew or was repeatedly used for at least several seasons.

The almost religious fervour with which whalers are said to have given to their bouts of drinking does not seem to be justified by the archaeological record alone. Just over half (66) of the total MNV (117) of bottles represented in the assemblage can be identified as probably having contained alcohol, but this number seems insignificant for a station which probably operated for multiple seasons. It is quite possible that large quantities of bottle glass and other rubbish were dumped elsewhere on the site and were not sampled by the present excavation. Another more likely explanation is that the majority of alcohol consumed by the whalers arrived at the station in casks, and as casks were reused when empty, they would leave no trace in the archaeological record. No glass tumblers were found and so whalers may have drunk from teacups and mugs, bottles, or some other type of vessel. It is important to remember that the archaeological record may not represent the complete range of drinking and other vessels used, as any items which were still serviceable when men left the station would have been taken with them. Conversely other articles, such as tin plates and mugs which do not survive well in the ground, could also have been used (Lawrence 2004).

That whalers were fond of the odd drink is unquestioned, with numerous historic accounts attesting to their disposition in this regard. For the Mahia Peninsula Lambert states that the arrival of a ship off any of the whaling stations or settlements "was the signal for the commencement of a series of drunken orgies, disorder, riot, and, it is alleged, murder also" all under the influence of the whalers god, the potent spirit rum (Lambert 1998:374-75). At one of the northern Hawke's Bay stations, described simply as the 'Heads', no sooner had casks of rum been unloaded off the ship and the account settled, then the heads were knocked in and "the men drank until they had to lie down to
it" *(ibid)*. A similar anecdote is given for the Moeraki station in Otago, where at the start of one season "a cask of rum was rolled up the beach, the head knocked out, and all hands allowed to help themselves" (Shortland 1851:131). Such extreme cases of debauchery are likely to have been confined to the beginning and end of the season, with the chief headsman or owner strictly controlling the supply of alcohol during the season in the interest of productivity. Maori wives, whom many men took for the season, are also said to have been moderating influences in curbing some of the whalers more undesirable habits (Wilson 1939:136; Wakefield 1845:50).

Smoking was an almost universal pastime amongst the working classes in nineteenth century Britain and this was equally true for the colonies. For those at the lower end of the social scale, the only smoking paraphernalia required was the humble clay pipe. Virtually all of the clay pipes recovered were plain, with only three bowl fragments showing signs of moulded decorative motifs. The lack of variety in the clay pipe assemblage and the small number of manufacturers reflects the availability of such items at the station. Tobacco and pipes would have been purchased by the owner of the station and sold to the men through the store or slops chest. Bulk buying helps to explain the plainness of the pipes, with the range of makers probably representing purchases at different times (Lawrence 2004).

Whaling was hard on clothing and from the range of buttons and buckles recovered; it seems that function was favoured over fashion. It has been argued that "in a period when the majority of the working classes in Britain owned only one set of clothing, it would have been desirable for the whalers to possess multiple items of clothing" (George 1999:12). This seems a reasonable proposition considering the extreme conditions which whalers often had to work in. Rowing an open boat at sea in any sort of weather would have soaked men to the bone, only for them to be covered in blood and gore once a whale was towed to shore and the cutting in begun. On top of this was the black oily smoke of the trying-out and the 'black oil' itself, which would have made the ground greasy around the tryworks and permeated the very person of the whaler himself.

Buttons were recovered from all the house sites and the tryworks areas and are of styles likely to have come from the plain utilitarian clothing favoured by the whalers. Bone and ceramic buttons are most likely to have come from shirts and undergarments. The majority of brass and other metal buttons were probably used on work trousers, while smaller examples could have been used on shirts. The most commonly described item of whalers' dress is of either red or blue shirts. Accounts for James Kelly's whaling ship *Amity* in 1841 record the most common item purchased as being red or blue shirts, with five whalers buying at least three each (George 1999:13). Other items likely to have been worn by whalers include canvas trousers, jackets, and stout hob-nailed boots.

One interesting feature of the Te Hoe assemblage is the lack of artefacts that could be termed as personal items. The men undoubtedly owned their own clothing and possibly a basic set of ceramic dishes as well, but these are purely practical possessions. Clay pipes appear to be the only items owned by the men which were not purely functional objects. Many whalers were ex-sailors and so may not have vested much time or money into improving their material status. During the season, if they did not already have any, whalers would have had little opportunity to attain goods, other than the basic supplies available from the store, and the presence of men of uncertain character in the crew no likely further discouraged the possession of anything of value.

From the material and documentary evidence it is also clear that cultural groups other than Europeans were living at Te Hoe. Historical records show that at least one Tasmanian aboriginal worked at Te Hoe, a fact which would have been impossible to deduce from the archaeological record alone. Although no similar records exist for Maori whalers, several distinctive artefacts provide a strong case for Maori having lived
and worked at the station. From other stations in the Mahia region it is well recorded that Maori often made up a significant proportion of the crew. The copper alloy fishing lure and whalebone patu, clearly show Maori influence in their design and were probably made by Maori. The similarity between the amount and range of shellfish and fish bone in the prehistoric midden and the historic midden also suggests that Maori were living at the whaling station. Women and children were also likely living at the station, although there is no specific evidence from the material record to suggest this.

In summary it seems that whalers at Te Hoe lived in much the same fashion as those at other shore whaling stations. The material record reflects the fact that whaling stations were not permanent settlements, but temporary camps based on a seasonal industrial activity. Consequently only a minimum investment seems to have gone into housing the crew or supplying them with anything other than functional items required for whaling. Rations would most likely have been basic and repetitive, with alcohol and tobacco, available to the men through a cash advance on their wages or on credit, providing some small pleasure in their lives.

3.4 Comparison With Other Shore Whaling Stations

Shore whaling in both Australia and New Zealand was a relatively short lived industry, with few operations dating to before the mid-1820s or after the 1840s. The primary objective of each owner was first and foremost to make a profit and so stations were situated wherever whales were found close to shore, and supplied with the whalegear required for turning whales into oil. A good crew was essential for any successful operation and stations were usually provisioned with enough basic supplies to feed and house the whalers at the start of each season. Before 1840 virtually all shore stations in both countries were supplied through the port of Sydney, with most of the material goods ultimately coming from Britain. After 1840 and the formal annexation of New Zealand as a British colony, the newly formed port of Wellington quickly took over this role for local stations. The singularity of the supply lines and the virtually identical requirements for individual stations means that the material culture of most whaling stations is likely to be very similar. Minor variations would be expected depending on the length and success of the individual operation and the number of men employed at any one time.

Generally whaling station site assemblages are characterised by large quantities of iron artefacts, especially from industrial areas, and by ceramics, glass, clay pipes and clothing hardware from the domestic parts of the sites. Table 3.3 lists the presence or absence of selected artefacts commonly found in or associated with whaling station sites. Items of whalecraft, such as harpoons and lances, which provide a direct link with whaling, have to date been relatively scarce in excavated sites. Two double-barbed harpoon heads were found at Oashore and one lance-head at Te Hoe, with no similar items being recovered from extensive excavations at Cheyne Beach, Adventure Bay, or Lagoon Bay. Perhaps it was common practice for whalers to take these items with them as souvenirs when they finished whaling.

Hoop iron is much more common, being found in all the sites covered in the present study except Oashore. The lack of hoop iron from Oashore is more likely a reflection of the areas that were sampled, rather than suggesting that casks were not used there. As discussed earlier (section 2.12.2) wooden casks were used for everything from whale oil and alcohol, to foodstuffs and hardware during the period in question. Casks mainly represent the bulk transport of goods and from other contemporary and later settlements which were closer to the market, evidence for the use of casks is not as prevalent.
Table 3.4  Comparison of selected artefact categories between Te Hoe and other whaling stations in New Zealand and Australia

<table>
<thead>
<tr>
<th>Site</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
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</thead>
<tbody>
<tr>
<td>Te Hoe</td>
<td></td>
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<tr>
<td>Oashore</td>
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<tr>
<td>Taieri Island</td>
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<tr>
<td>Cheyne Beach</td>
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<tr>
<td>Adventure Bay</td>
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<tr>
<td>Lagoon Bay</td>
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</tbody>
</table>

Key: 1 = shell-edge ceramics  
      2 = willow pattern ceramics  
      3 = whalecraft  
      4 = gun parts  
      5 = gun flints  
      6 = hoop iron

Table 3.5  Comparison of selected artefact categories between Te Hoe and other historic sites in New Zealand

<table>
<thead>
<tr>
<th>Site</th>
<th>Date*</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rewa's Pa</td>
<td>c.1830</td>
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<tr>
<td>Te Puna Mission</td>
<td>c.1832</td>
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<tr>
<td>Te Hoe</td>
<td>c.1840</td>
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<tr>
<td>Edmonds Ruins</td>
<td>c.1840</td>
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<tr>
<td>Brown's Mill</td>
<td>c.1841</td>
<td></td>
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<td></td>
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<tr>
<td>Mechanics Institute</td>
<td>c.1843</td>
<td></td>
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<tr>
<td>Fort Ligar</td>
<td>c.1845</td>
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<tr>
<td>Omata Stockade</td>
<td>c.1860</td>
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</tbody>
</table>

* Dates refer to the earliest context at each site

Key: 1 = shell-edge ceramics  
      2 = 'black-beer' bottles  
      3 = whalecraft  
      4 = muzzle loading weapon technology  
      5 = edgebanded and hairlined ceramics
Gunparts and gunflints representing firearms technology of the first half of the 19th-century are also items commonly found at whaling stations. None were recovered from Te Hoe, although a single .577 calibre Enfield bullet may date to the latter part of the whaling period. Gunflints are especially instructive, as they represent older flintlock mechanism weapons, which were often unreliable and had been largely replaced by percussion-lock technology before the middle of the century (Gibbs 1996:238). The absence of gunflints from Te Hoe probably reflects its slightly later date, with a similar case likely for Cheyne Beach and Oashore.

Shell-edge decorated ceramics are another early marker and are present in all sites where the assemblages have been fully analysed. Also common to whaling station sites is transfer printed Willow pattern tableware. As discussed below these particular styles are largely confined to the first half of the 19th-century. Interestingly enough, the majority of all the vessels represented in the assemblages are not simply plain and functional as might be expected but are decorated in some way, with fashionable transfer prints being the most common. Blue is the most common colour, but other colours such as purple, green and brown, popular from 1830 to 1850 are also present. At Cheyne Beach 71 of a minimum number of 128 ceramic vessels are transfer printed; at Adventure Bay 17 of 25; and from Lagoon Bay 22 of 31. At Oashore 22 of 41 earthenware vessels were transfer printed. This compares well with Te Hoe where 56 of 84 earthenware vessels are transfer printed.

The range of vessel types is also very similar, with plates and teacups dominating the assemblages. Fragments of teapots were also recovered from Lagoon Bay and Cheyne Beach, which along with two from Te Hoe; suggest that tea drinking was customary at whaling stations. For the two Tasmanian sites there is documentary evidence from James Kelly's ration lists that men were supplied with one-third of a pound of tea each week as part of their crew agreement, as well as two pounds of sugar with which to sweeten it (Lawrence 2001:219). From Adventure Bay and Lagoon Bay the general impression of the china "is that it was owned by individuals, acquired at different places and times, and selected according to personal taste and resources" (Lawrence 2004).

As discussed for Te Hoe above, alcohol consumption is not so easy to document, especially when looking at the material record alone. Only nine 'black-beer' type bottles likely relating to the whaling station were found at Oashore, with similarly low numbers recovered from Cheyne Beach. From Adventure Bay only 23 alcohol bottles were found and 38 at Lagoon Bay (Lawrence 2004). When looking at the known occupation periods of each station and the number of men who worked there at any one time, the numbers of glass bottles suggest that alcohol consumption was an insignificant part of whaling. Oashore operated for at least several years and at one stage employed 35 men (Ogilvie 1994). Cheyne Beach was occupied seasonally for thirty years by crews of a dozen men or more (Gibbs 1996:262). Adventure Bay and Lagoon Bay operated intermittently between the 1820s and 1840s, crewed by parties of 20-30 men (Lawrence 2003:215). Most of the alcohol consumed on whaling stations was probably shipped in casks, rather than bottles. Accounts from some of James Kelly's whaling ships make it clear that he was purchasing rum by the gallon in casks not bottles, and this was most likely the case for his shore stations as well (Lawrence 2004). The recovery of a brass spigot from Adventure Bay presents a slightly more refined picture of drinking, than some popular accounts describing a free-for-all situation, with the heads of casks simply being knocked in.

Tobacco smoking was obviously a popular habit among whalers, as clay pipes seem to be well represented at most whaling station sites. While the total number from Te Hoe (168) is not high, representing 23 to 28 pipes; pipes were found in quantity from two of the hut sites. A similar number were found at Oashore, representing just 12 pipes, with clusters found outside one corner of the Area 1 cottage and in Area 4 (Harris 2005:121-
23). From Adventure Bay and Lagoon Bay minimum numbers of 73 and 28 were calculated from assemblages of 655 and 223 respectively. At Cheyne Beach 411 fragments were found representing at least 38 pipes. Even from the Taiieri Island site, for which detailed analysis is not available, a total of 293 clay pipe fragments were recovered from the excavation of just one hut site.

Most of the clay pipes are quite plain in form, with few having any decoration other than makers' marks. Only 3 bowl fragments from Te Hoe have any form of moulded decoration. From Lagoon Bay and Adventure Bay only 4 and 9 pipes respectively have any decoration, other than fluting. The plainness of the pipes and the narrow range of manufacturers represented may reflect the fact that most pipes used by whalers were purchased in bulk by the owner and sold to the men through the station store (Lawrence 2002). At Cheyne beach 18 bowl fragments show some form of decoration, other than makers marks, suggesting that pipes discarded here were acquired differently.

From all of the sites excavated to date, there is very little direct material evidence to suggest the presence of women and children at any of the stations. From documentary sources however it is clear that women were present at many stations in New Zealand and Australia and that some whalers did have families living with them at the stations. At Oashore onetime headsman William Woods married and raised four children while living there, and other whalers also had wives and children with them as well (Ogilvie 1994). At the Cheyne Beach site several decorative items, including beads and hair combs were found, and it was later discovered that the owner, Captain John Thomas, had a wife and raised three daughters while he was working at the station (Gibbs 1998:46). The presence of indigenous women at whaling stations is also well attested for both New Zealand and Australian sites through contemporary accounts.

What is more difficult to determine is the proportion of indigenous men who may have been employed in any particular location. In Western Australia Aboriginal men began to be employed in whaling crews from the 1840s and there is documentary evidence from Cheyne Beach that they were soon working on equal terms with their European colleagues (Gibbs 1998:40). From Tasmania there is little evidence for Aboriginal men working on whaling stations, and this may be due in part to the fact that by the time shore whaling was established, local indigenous populations had already been decimated by disease and the Tasmanian wars of the 1820s (Lawrence 2001:214). In New Zealand it is noted that Maori labour often formed a significant proportion of the crew, especially in areas such as Hawke's Bay, although there is as yet no direct documentary evidence for this at Te Hoe.

From none of the whaling stations is there any clear evidence for differentiation in social or economic status between different parts of the site. At Adventure Bay Lawrence interpreted the large stone cottage as representing the headsman's quarters, based mainly on its construction and the large amount of artefacts found in this area. Very little artefactual material was recovered from the other huts, which were probably lightly built structures of timber or bark with earthen floors. Lawrence herself suggests that the difference in the amount of artefacts between the cottage and the huts is largely due to differential preservation, with the collapsed stone walls affording more protection to whaling period material (Lawrence 2004). Another equally valid proposal for the large cottage is that at least part of it actually had a communal usage in the operation of the station, which would easily account for the greater quantity of material. At Oashore a similar situation was encountered, where a large quantity of material was recovered from under a layer of collapsed rubble, from the stone walled Area 1 cottage. The smaller number of artefacts from buildings, without the protection of stone walls, did not allow for a valid comparison between the assemblages from different areas. From excavated whaling station sites to date, there is also a lack of personal items, other than clay pipes and clothing, by which status might more easily be inferred.
3.5 Comparison with Contemporary New Zealand

**Historic Sites**

Before 1840 all European enterprises in New Zealand were quite isolated communities reliant largely on outside supply lines for their existence. After 1840 and the formal annexation of New Zealand as a British colony, the newly founded port of Wellington rapidly took over the internal trade supplying pioneer industries such as shore whaling. It would be expected then that the range of material culture in early to mid-19th century sites in New Zealand would be very similar, with any major differences reflecting functional variability between sites.

Table 3.5 lists a range of historic sites and presents a basic comparison with Te Hoe of the presence or absence of selected artefacts categories commonly found in early contexts. Of most interest for dating purposes are those artefacts, such as shell edge decorated ceramics, which are generally only found in early sites. At Rewa's Pa shell edge sherds were largely confined to the earliest cultural layers and the style of some sherds from Te Hoe suggests they were manufactured before 1845. The presence of shell edge at the Omata site, dating to the 1860s, is interesting, as at least one of the examples illustrated would appear to represent a style, consisting of impressed straight lines on a scalloped rim, not produced after 1840, suggesting a lengthy period of curation before deposition (Prickett 1994:59, Fig.2.42-H; Stelle 2001). Other ceramics such as edgebanded and hairline decorated wares appear not to be useful for dating and were found in all sites from contexts ranging from the 1830s to the end of the 19th-century. Likewise 'black beer' type bottles are present from all the sites and while certain technical attributes associated with their manufacture can be assigned to more specific time periods, the type seems to span most of the 19th-century.

Munitions and gun parts associated with muzzle loading weapon technology are generally associated with contexts dating to before the 1870s, but also provide information about the function of a site. Such artefacts, while relatively scarce at Te Hoe, are commonly found in whaling station sites and imply that firearms were used to procure food or for some other purpose. The presence of firearms at Rewa's Pa and the Omata Stockade is self explanatory, as they are both military sites, each after their own fashion. Edmonds Ruins on the other hand is a rural farmstead and firearms may have been used in food procurement much the same as on a whaling station.

Artefacts, such as items of whalecraft, are directly associated with whaling and this relationship could be used to imply the function of the site overall. A whaling lance was found at the Te Puna Mission Station site however and so the context of the site and associated artefacts is essential to imply function. The Bay of Islands, where Te Puna is located, was a frequent port of call for deep-sea whaling vessels in the first decades of the 19th-century and so a souvenir item of whalecraft is not likely to have been hard to obtain.

The range of styles within artefact categories and the relative quantities, also reflect the functional differences between shore whaling stations and other contemporary sites. This is clearly highlighted when comparing the range of ceramic vessels found between different sites. While whaling stations seem to yield mainly plates and cups, with the odd mug or jug, other historic sites often contain a far greater range. The Omata Stockade site is similar to Te Hoe in that it is a purpose specific occupation, dependent on outside supply lines and occupied mainly by men. The Omata ceramics include plates and cups but also saucers, sugar bowls, and milk jugs (Prickett 1994). From the Brown's Mill site, which contained domestic rubbish from contexts dating back to the 1840s, the ceramics, apart from plates, cups and bowls, included a chamber pot, egg cups and stoneware bottles and jars. When looking at decorative techniques however,
mid-19th-century ceramics assemblages are dominated by transfer printed vessels and so Te Hoe fits in with this pattern.

The number of glass bottles seems to be much greater from historic sites in general, then from shore whaling stations. For example, over 100kg of bottle glass was recovered from the Te Puna site, compared to just over 27kg for Te Hoe. At first glance it would appear that men of the cloth were outdoing their more raucous contemporaries in the drinking stakes, but this is almost certainly not the case. Most supplies were shipped to whaling stations in bulk containers and in the first half of the 19th-century this meant wooden casks. While whalers were drinking rum by the hogshead, men of more genteel disposition would drink out of a glass filled from a bottle. The purchase of bottles over casks reflects both the smaller economic unit, namely a single household and closer proximity to possible sources of supply. By the 1860s though, when the Omata Stockade site was occupied, bottles had taken over somewhat from casks, as attested by over 178kg of bottle glass (Prickett 1994:38).

Overall then it seems that there are some noticeable differences between the range and quantity of material goods recovered from shore whaling stations and other historic sites, reflecting the different functions of sites and the nature of their occupation. Whaling stations were typically temporary encampments engaged in a seasonal industrial activity and this is reflected in the material record. Stations were supplied in bulk from a central location with the minimum range of domestic and industrial goods deemed necessary for a successful operation. There seems to have been little investment in non-essential household and personal goods, which are often found from sites occupied by a more permanent household or business. Likewise the range of industrial goods, such as large iron bars, hoop iron, whalecraft, and boatgear, required for whaling, are not usually found in any great quantity in other sites.
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**Webpages and Online Resources**


