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# Fort Ligar: A Colonial Redoubt In Central Auckland

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## ABSTRACT

Fort Ligar (R11/1656) was an earthwork redoubt constructed by Auckland Militia in 1845. It has been overlooked in the historical record for 100 years. Archaeological investigation uncovered part of its perimeter ditch, and documentary research located official correspondence, a photograph and contemporary newspaper references to the redoubt. Together these permit partial reconstruction of its form. Comparison with contemporary earthworks indicates that Fort Ligar was one of the most elaborate undertaken by New Zealand colonists in the first half of the nineteenth century. Both archaeological and documentary evidence indicate that the redoubt was never completed, suggesting that the social panic which prompted its construction was short lived.

*Keywords:* FORTIFICATIONS, HISTORIC ARCHAEOLOGY, NINETEENTH CENTURY, NEW ZEALAND WARS, AUCKLAND.

## INTRODUCTION

Nineteenth century fortifications in New Zealand can be divided into four main classes in terms of when and by whom they were built. The first half of the century saw the construction of many new Maori pā, particularly during the Musket Wars from 1807 to 1839 (Wilson 1985). During the same period some 30 forts of various styles were built by European colonists and British troops (Appendix 1). In the second half of the century the major period of fort building was during the New Zealand wars of the 1860s and 1870s (Cowan 1922, 1923). Forts of this era can be divided into those constructed by Maori combatants, and those of the various British and Colonial forces opposing them.

Archaeological investigations have focussed largely on British and colonial sites from the second half of the century. Seven of the eleven excavated sites fall into this category (Prickett 1981a; Spring-Rice 1982; Mitchell 1983; McFadgen and Walton 1988; Fyfe 1988). Surface surveys have also concentrated on this group (Bellwood 1968; Buist 1968; McKenzie 1972; Prickett 1981a; Mitchell 1983). A considerable number of Maori sites of the 1860s have also been described (Smart 1961; Taylor 1964; Mitcalfe 1968; McFadgen 1977; Nevin and Nevin 1980; Jones 1983), although none have been excavated. More limited attention has been given to forts constructed in the first half of the century. Small areas of two Maori pā, Mokoia and Waitete, have been excavated (Bulmer 1983), and surface features mapped or described for another five (Harrowfield 1969; Brailsford 1981: 123, 186, 232). There have also been limited excavations at two British sites of the late 1840s — Paremata Barracks, 1846–1852 (Davis 1963; Sinclair 1977; Prickett 1981b), and Albert Barracks, 1848–71 (Nichol 1979).

Earlier European fortifications are known, incompletely, only from historical descriptions. Prickett (1981a: 10–14) summarised some 18 British and colonial fortifications known to have been constructed before 1850. These, and a further 12 are listed in Appendix 1. Other than the 1801 Waihou River stockade, all date from the 1840s and, with the exception of Fort Britomart, were constructed in response to a series of localised Maori-European conflicts: the Wairau affair of 1843, the Northern War of 1845–46, and conflicts in the Wellington and Wanganui districts during 1846 and 1847 (Cowan 1922; Belich 1986). More than half (57%) of these were built by the British Army or Navy, and the remaining 13 by colonists, usually organised into local militia.

These defences fall into four types. Most substantial was the stone-walled Albert Barracks, but nearly all the rest were of less permanent materials. Stockades of heavy timbers were most common (53%), followed by blockhouses (23%), also mostly of wood. There were seven earthen redoubts, although at least seven of the other sites are reported to have utilised ditches and/or banks in addition to their primary form of defence. Only one of these redoubts was built by the British Army, the remainder by local settlers.

This paper presents the first archaeological description of a pre-1850 colonial redoubt. The site in question was constructed in Auckland in 1845, shortly after Hone Heke's sacking of Kororareka which precipitated European involvement in the Northern War.

## HISTORICAL BACKGROUND

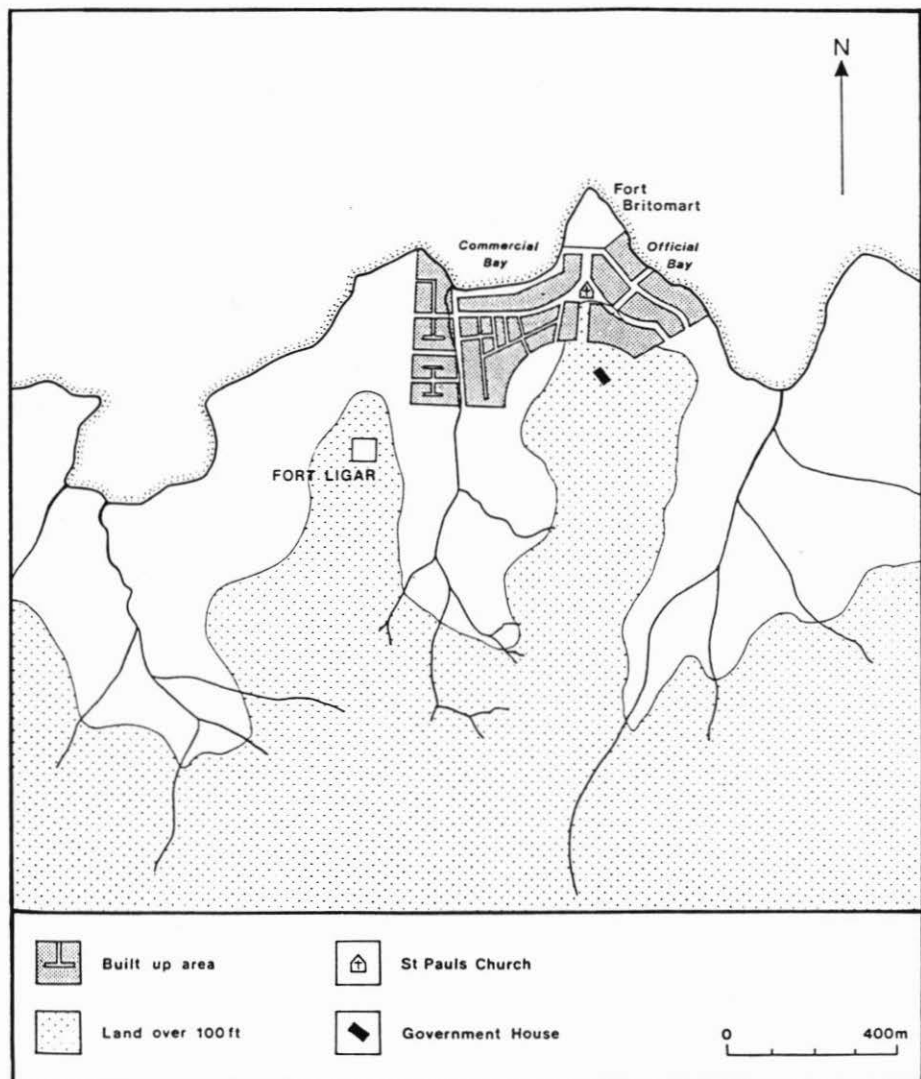
In 1845 Auckland was a small town of some 3000 inhabitants (McLean 1989). Nearly all of these people lived within 100 m of the shore behind Commercial Bay, Official Bay and on the Princes Street ridge in between (Fig. 1). Fort Britomart, above cliffs at the end of this ridge, was the fledgling capital's only defensive installation. Behind the ditch and bank of an earlier Maori pā, stone barracks had been constructed, providing accommodation for 200 men and stores (Cowan 1922: 34).

At the beginning of March 1845, most of the 100 or so men of the 96th Regiment stationed there were absent on field duty in the Bay of Islands (Phillips 1966: 71). When refugees from the fall of Kororareka arrived in Auckland on the 12th of that month local residents were thrown into panic, in fear of imminent attack from the north (Belich 1986: 37). A militia was immediately enrolled, and further troops and ammunition requested from Australia. A guardroom and hospital were constructed at Fort Britomart, and the windows of nearby St Pauls Church were planked and loopholed to provide a refuge for some of the citizenry (Cowan 1922: 34; Platt 1971: 123).

An entirely new defensive installation was also constructed. It was an earthwork redoubt on the ridge commanding the western approaches to the town (Wallace 1890: 703). Contemporary newspapers indicate that work was in progress "on the high ground at the back of the courthouse" (*Southern Cross* 19 April 1845: 1), then known as Albert Hill (*New Zealander* 2 July 1845: 3). It was constructed by local militia and named after its designer, the Surveyor-General C.W. Ligar.

The 1845 newspaper accounts provide only vague and ambiguous indications of the location of Fort Ligar (R11/1656). The reference to Albert Hill appears to have misled Platt (1971: 124–5, 128) who suggested that unspecified defensive works were undertaken on the ridge to the east, subsequently occupied by Albert Barracks. However, several later references clearly apply this name to the hill above Albert Street, and confirm the presence of Fort Ligar there (*New Zealander* 28 June 1848: 1, 16 August 1849: 1, 6 March 1852: 1,

13 July 1853: 1). The only published reference to its precise location is in the *Southern Cross Extra* (25 October 1855: 1) which states that "Allotments Nos. 15 and 16, Section 22, Town of Auckland were taken in April 1845, to build a fort for public safety". This information also appears on the respective Title Deeds, and fix the fort's location on the block now bounded by Hobson, Wellesley, Frederick (formerly Chapel) and Victoria Streets (Fig. 2).



B. Maingay, Regional Archaeology Unit, D.O.C., Auckland, 1989

Figure 1: Auckland in 1845.

The Title Deeds show that the western half of City Section 22 was first subdivided in 1843, and most of the allotments granted or sold in the following two years. In 1844 Lots 14 and 15 were purchased by Thomas Cassidy of Hokianga, and Lot 16 by Alexander Kennedy, Manager of the New Zealand Banking Company. Lots 17 and 18 appear to have remained with the Crown. No evidence could be found for construction of any buildings there in 1844–45.

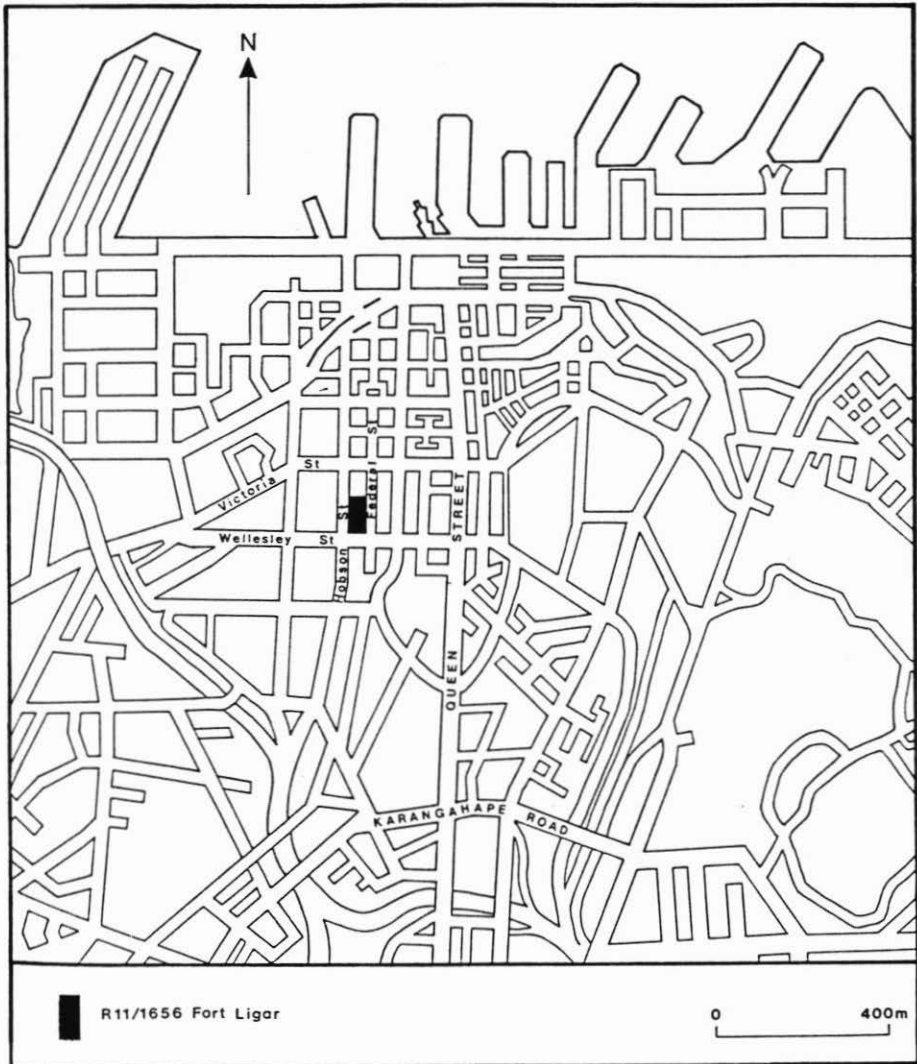


Figure 2: Central Auckland 1988, showing site location.

Confusion about the location of Fort Ligar was not confined to modern times. As one contemporary correspondent noted (*New Zealander* 26 July 1845: 3), the panic of 1845 was so great that "...the authorities could not even wait the necessary time to enquire whether they were building on their own ground or that of private individuals...". The latter proved to be the case and compensation was paid, but not without some scandal. Mr (later Sir) Frederick Whitaker was accused of purchasing one of the sections immediately after construction of the redoubt, then demanding compensation (*Southern Cross Extra* 25 October 1855: 1). Dates of transactions on the Title Deeds seem to bear this out. What Mr Whitaker accepted in return for his newly acquired section was title to "a small rock" adjacent to Kawau Island on which he proceeded to develop a highly productive copper mine (McDonald 1865: 14-16).

There is only one known reference to the size and form of Fort Ligar. During construction it was reported that the redoubt was to be "...surrounded by a stone wall and deep ditch, with a Martello tower of stone in the centre, on which will be mounted a piece of ordnance...The interior will be capable of affording shelter...to considerable numbers; and the militia could well defend such works from any attacks..." (*Southern Cross* 19 April 1845: 1).

Exactly how far work proceeded is not clear, because three months later a concerned citizen complained that "the workmen are withdrawn, the incipient fortifications left to go to ruin" (*New Zealander* 26 July 1845: 3). A much later account indicates that it "maintained a rather ragged appearance for many years — being regarded as a grand monument to the engineering skills of former days" (McDonald 1865: 15).

Disappearance of the fort can be dated from documentary sources. In 1850 Allotments 14-18 were granted by the Crown to the Trustees for College and Grammar Schools. However they were not developed immediately. In 1853 a section for sale near the north end of the block was described as "remarkably healthy and open having Fort Ligar on one side and Mr Hobson's property on the other" (*New Zealander* 13 July 1853: 1). The following year all four allotments were leased to Connell and Ridings, Auctioneers, but only two buildings, on the eastern half of Allotment 18, appear to have been constructed there by 1857 (see below, Figs 7 and 8). Leases and mortgages over the remaining Allotments first appear in the Deeds Index (A1.253) in 1859, and show that each lot was subdivided into four sections. This year almost certainly dates the initial levelling of Fort Ligar, "the eastern entrenchments of which disappeared when the allotments were let in building sections by the Board of Education" (*NZ Herald* 24 December 1884). An 1860 photograph (Auckland Public Library Negative No. 1403) certainly shows most of the area covered in buildings. The locations of these, and later, buildings on the site are recorded on the Vercoe and Harding (1866), Hickson (1882) and Wrigg (1908) plans of Auckland City.

## THE INVESTIGATIONS

Proposed development of a Mid City Transport Centre on the block in question provided the last opportunity to recover subsurface evidence from the site. The investigations reported here were undertaken by the Auckland Regional Archaeology Unit, Department of Conservation, in June 1988 after existing buildings on the central portion of the block were demolished to make way for a temporary carpark. They were funded by the owners, the Auckland City Council, as a condition of the NZHPT Authority to undertake the necessary ground levelling operations.

The investigations involved both historical and archaeological research. The former was directed towards recovering evidence of the redoubt from primary documentary sources, and establishing what activities took place on the site before and after 1845. Excavations were undertaken in two phases: the first to establish whether evidence of Fort Ligar still remained in the ground; and the second to recover that information before its final destruction.

This paper presents only a partial description and analysis of the findings of these investigations, dealing almost exclusively with evidence pertaining to the redoubt. As would be expected, considerable evidence of later unrelated activities was also recovered. These are discussed elsewhere (Smith 1989; Brassey 1989).

## SITE DESCRIPTION

At the time of investigation all but one of the buildings occupying the southern and central portions of the block had been demolished. This cleared area covered lots 12, 14, 15, 16 and 17 of the original (1843) subdivision. A layer of demolition rubble, intermixed, in places, with the upper soil layers, was virtually continuous over the exposed ground surface. Nevertheless, some aspects of predemolition topography were apparent (Fig. 3).

Three scarps divided the area into four terraces (I-IV) which all appeared to relate to activities after abandonment of the redoubt. The long scarp running in a northerly direction midway between Hobson and Federal Streets follows a line of subdivision apparent on the 1882 plan, and presumably reflects progressive levelling of sections since they were first let in 1859. The two shorter scarps in the western half of the site are probably more recent. Remnants of concrete and brick wall footings were apparent at the foot of each scarp, suggesting that terraces II and III had been formed during excavations for building foundations.

The ground surface was totally obscured in two areas. A large pile of bricks salvaged from the demolished buildings had been stockpiled on the higher ground near the southwest end of the site. Access to these was provided by a ramp of demolition rubble which buried the southern end of the long scarp.

## EXCAVATIONS

### PHASE ONE

The initial phase of investigations was designed to establish whether evidence of Fort Ligar survived, where it occurred on the site, and if it warranted further investigation. A machine excavator with 2m wide straight-edged bucket was used to clear overburden from the long scarp (Fig. 3: Area 1), and excavate six trenches (Areas 2-6, 8) to depths ranging from 0.2 m to 1.5 m below ground surface. The machine also cleared demolition rubble from the ground surface (Area 7) between two of the trenches, and a series of six test pits (Area 9) were excavated by hand. Four further areas (A-D) were identified where service trenches or demolition machinery had exposed the stratigraphy of Terrace IV.

All exposed surfaces were cleaned down and examined. This showed that remnants of the original ground surface survived only on parts of Terrace I. Elsewhere progressive levelling

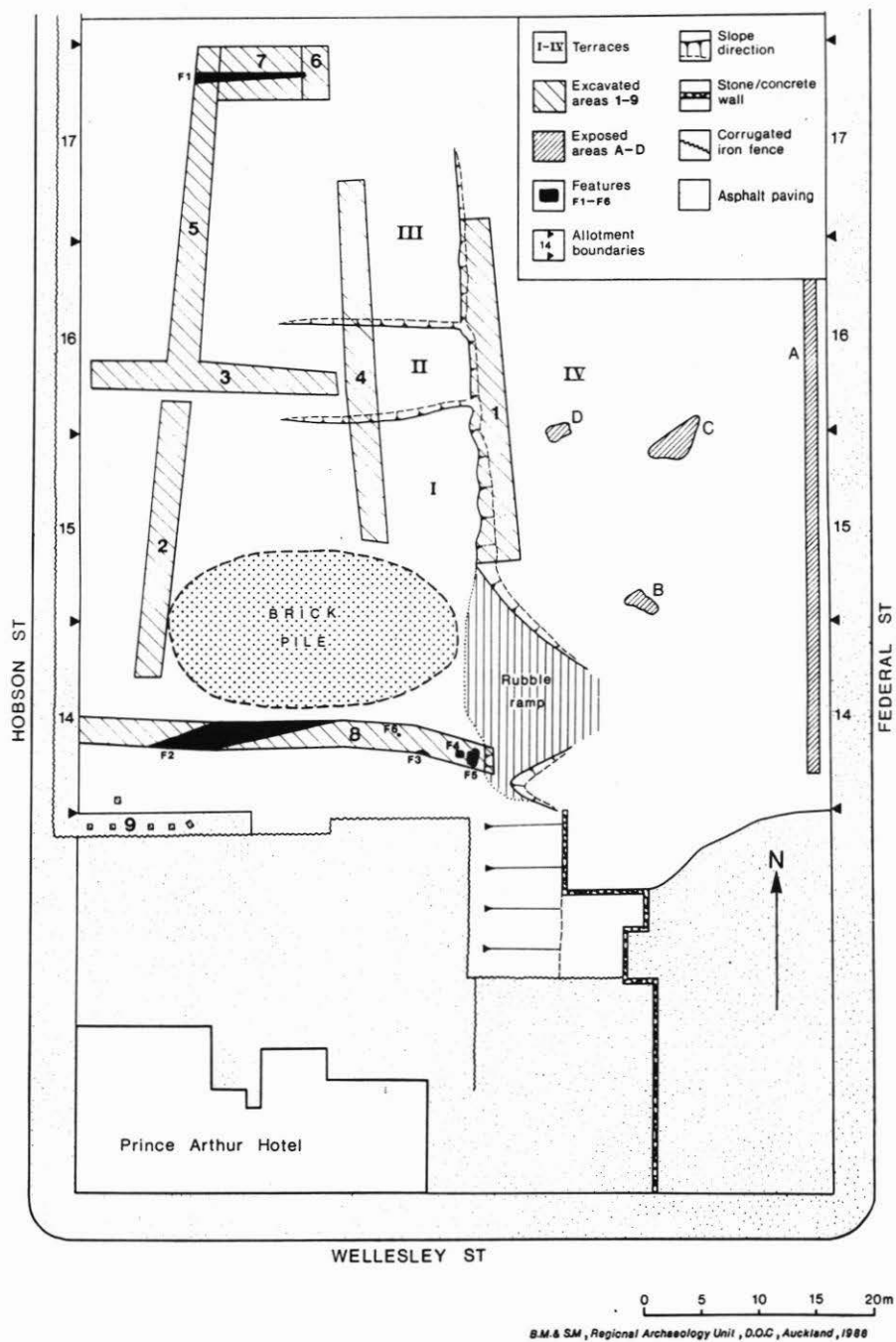


Figure 3: R11/1656 — Phase One Investigations.



had removed at least 20–50 cm of the upper horizons (Smith 1989: 9). The remnant soil profiles were exposed in Areas 1 and 4, south of the scarp separating Terraces I and II. Beneath demolition rubble these revealed:

Layer 1 Black loam topsoil (0–20 cm), with artefacts.

Layer 2 Brown weathered clay (20–50 cm), with occasional artefacts in the upper 10 cm, grading into

Layer 3 Yellow compact clay with mottled patches of white and orange. Very sticky below 70 cm.

Other than recent building foundations and associated drains, subsurface features were observed only on Terrace I (Area 8) and at the north end of Terrace III (Areas 5/6/7). These included two ditches (Features 1 and 2), the edge of a well (Feature 3), two rectangular pits (Features 4 and 5) and a post hole (Feature 6) (*ibid.*: 7–12).

Most important of these were the two ditches. Feature 1 was approximately 1 m wide, 15–20 cm deep, with cleanly cut straight sides and filled with a light grey silty sand. It appeared in both east and west baulks at the northern end of Area 5. It was also exposed in plan in Area 7, and in section in the west baulk of Area 6. Here it had narrowed to just less than 50 cm in width and showed a shallow U-shaped profile. It did not appear in the east baulk of Area 6.

Feature 2 was more substantial. It appeared as a dark grey band, some 2 m wide and 12 m long, crossing the machine trench obliquely from southwest to northeast. Because of the angle at which the trench had cut this ditch it was impossible to gauge accurately the original width or cross-sectional shape of the feature. Nevertheless, examination of its elongated sections in the trench baulks indicated that the ditch had cleanly cut sloping sides, and that its fill comprised two components; a dark grey silty clay at its base (Fill A), and above that a mixed layer of grey and yellow clay (Fill B). These sections also indicated that the ditch had been dug and then refilled before lowering of the original ground surface. Excavation of a small transverse section across the dark grey fill remaining on the bottom of the machine trench (Fig. 6b) showed that the base of the ditch had a shallow U-shaped profile. Some clods of mottled yellow-brown clay lay in a heap across part of the ditch bottom, and beside these the lower half of Fill A was lighter in colour and with a sandy texture. At its deepest the base of the ditch was some 70 cm below the layer 3 surface. Its original depth must have been greater, as this surface had been lowered at least 20–30 cm by subsequent building activity.

Of these two features the second seemed most likely to have been part of the redoubt. Feature 1 was irregular in size and shape, and much narrower at its eastern end than would be expected if it had had a defensive function. Furthermore, comparison with Wrigg's (1908) plan of Auckland showed that it fell precisely on the boundary between the two sections into which the northern half of Lot 17 had by then been divided. Thus it seemed likely that this was a boundary ditch, postdating the redoubt, although evidence discovered subsequently (see below) may suggest otherwise.

Feature 2 was more obviously part of the redoubt. It was in a position clear of any buildings or section boundaries recorded on the 1866, 1882 or 1908 plans. Furthermore its orientation was out of alignment with the parallel arrangement of the historically recorded features, suggesting that it predates the development of those sections. Although its size and

shape could not be accurately measured it was certainly large enough to have functioned as a defensive ditch. The composition of its fill suggested that some of the material dug from the ditch had fallen back in soon afterwards, but that it had remained open long enough for a silty deposit to develop at its base. The upper component of the fill suggested infilling in a single episode with redeposited clay. This may have been the material originally dug from the ditch, which had presumably been formed into a defensive parapet paralleling the ditch.

The presence of this ditch along with a group of other features in Area 8, and the surviving remnants of original ground surface nearby, justified further, more intensive investigations on Terrace I. These were undertaken once the large pile of bricks north of Area 8 had been removed.

## PHASE TWO

The principal objective of the second phase of excavations was to define, as far as possible, the size and shape of the redoubt. It was also intended to locate subsurface features in the general vicinity and establish whether any of these related to the redoubt. Four areas (Fig. 4: Areas 10-13) were investigated by first using the machine to remove demolition rubble from the ground surface, then scraping down with spades and trowels to expose subsurface features in plan. Test trenches were excavated to confirm the presence of such features and define their limits. Selected features were then partially or completely excavated (*ibid.*: 13-22).

AREA 11: Investigations were conducted initially where the defensive ditch extended southwestward from Area 8. Clearing of Area 11 revealed remnant foundations of the late 19th century building that had until recently stood on the site (Fig. 4). These consisted of brick walls set on reddish concrete footings, brick footings for wooden piles, and a drainage pipe that sloped westward from the rear of the building towards Hobson Street. They were set into the truncated layer 3 surface.

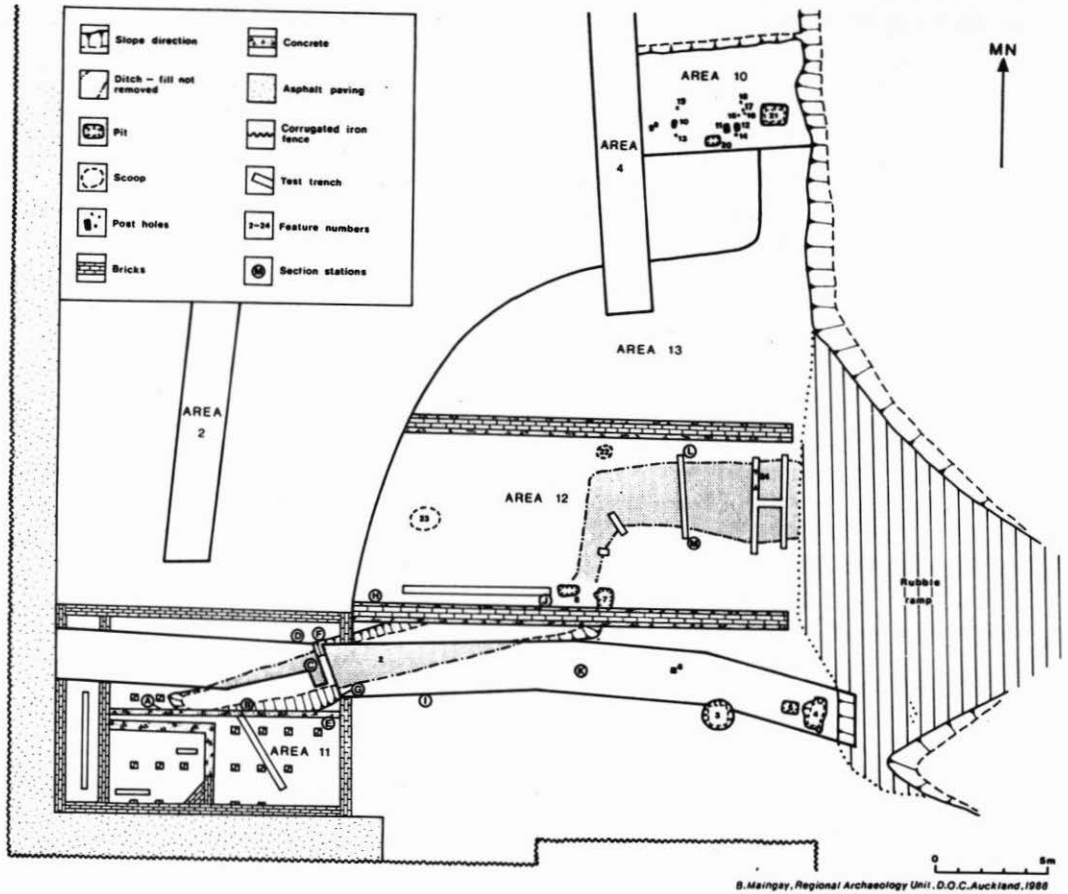
The only signs of disturbance in this surface were to the north, between the pipe trench and Area 8. Four test trenches confirmed this impression. In section, ditch fill was apparent only at the northwest end of test trench 1 where it extended beyond the pipe trench, and in the north baulk of the pipe trench itself.

Examination of the latter profile (Fig. 5a) showed that the ditch came to an end within Area 11. The base of the ditch rose abruptly at this point, and distinct banding in the sandy grey fill indicates repeated ponding of water here while the ditch was open, or only partially infilled.

Excavation of the ditch revealed the same two basic fill components as recognised in Area 8, along with several small brown lenses of what appeared to be rotted organic material and charcoal on the surface of the lower deposit. Within Fill A were found occasional scatters of bottle glass, a clay pipe stem and a few fragments of china. Several small scoria stones were also recovered.

Once excavated it became clear that the ditch narrowed and rose gently from Area 8 towards its end point in Area 11 (Fig. 5b).

Removal of the fill revealed parts of both the southern and northern sides of the ditch. A small portion of the southern side remained intact at the east end of Area 11, and showed a steeply sloping profile (Fig. 6a). Westward of this point the edge of the ditch had been

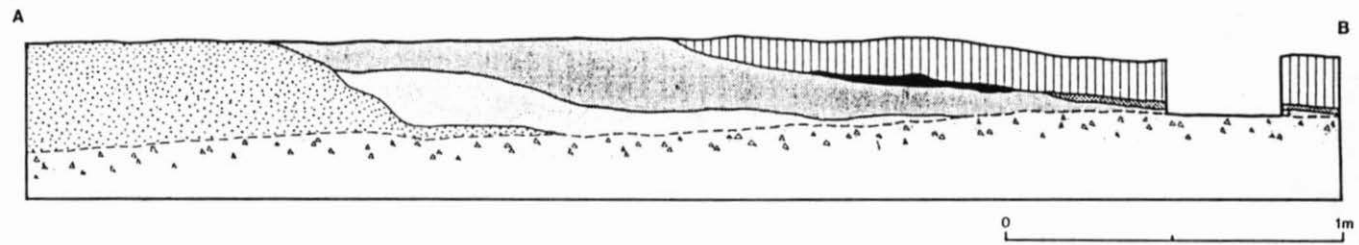


partially destroyed by the pipe trench. However the surviving remnant suggested that the ditch had been shallower with less steeply sloping sides towards its western end. The small surviving portion of the northern side had a similarly shallow profile.

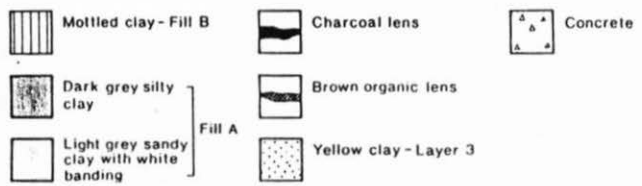
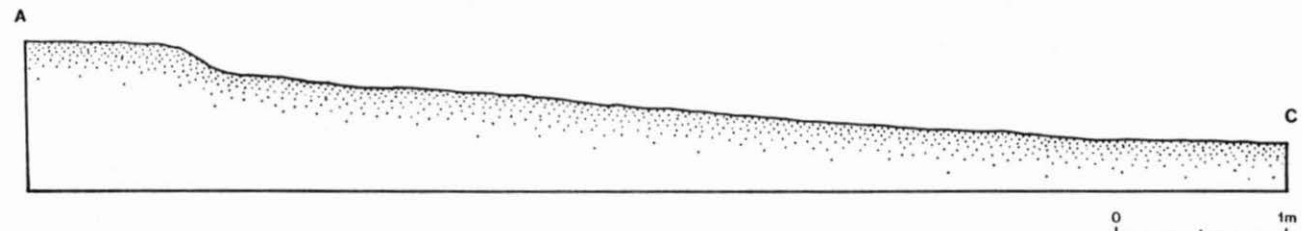
**AREA 8/12 BAULK:** Both sides of the ditch were also encountered immediately north of the machine trench in the baulk between Areas 8 and 12. This was a strip approximately 1 m wide between the machine trench and a second set of building foundations (Fig. 4). Clearing of rubble from the baulk showed layer 3 truncated to the same level as in Area 11. Both ditch edges were clearly marked on this surface by narrow bands of dark grey silty clay. Removal of the fill between revealed the site's two most complete profiles of the ditch sides (Figs. 6c and 6d). Fill A again yielded scattered glass, crockery and stones.

The first of two corners in the ditch was discovered at the east end of Area 8/12. Here the ditch turned abruptly northward, only centimetres before disappearing into the southern foundation trench of Area 12 (Fig. 4).

A. Area 11—north baulk of pipe trench



B. Areas 8/11—ditch profile after excavation



B. Meingay, Regional Archaeology Unit, D.O.C., Auckland, 1989

Figure 5: Fort Ligar, Defensive Ditch — Longitudinal Sections (see Figure 4 for location of sections).

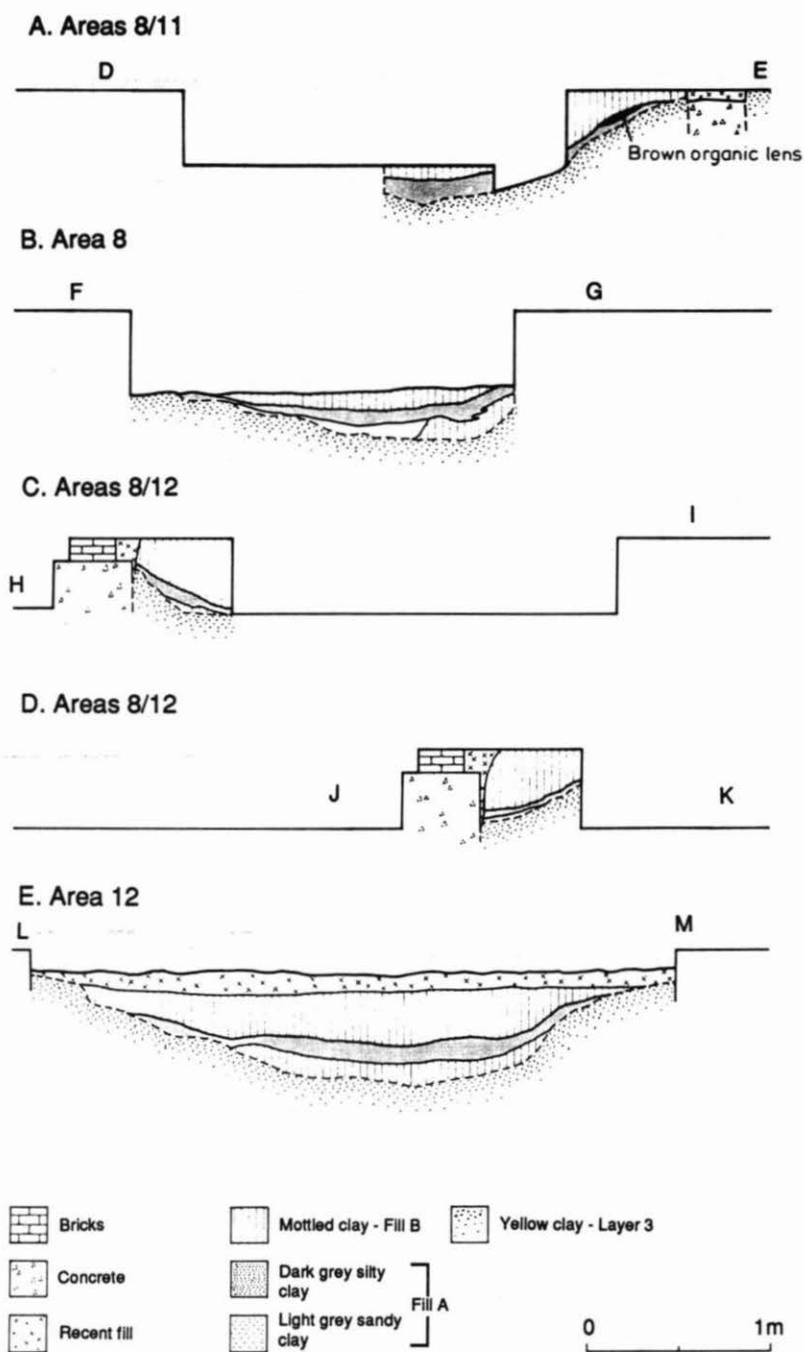


Figure 6: Fort Ligar, Defensive Ditch — Cross Sections (see Figure 4 for location of sections).

AREA 12: This area was delineated by the brick and concrete foundations of a large building that had been constructed at some time between 1908 and ca. 1930 (*ibid.*: 17, 36). Beneath its concrete floor was about 10–15 cm of black, artefact-rich soil. Test trenches through this layer showed that it was redeposited. Everywhere it lay upon a sticky yellow clay surface, obviously lowered when this building was constructed.

As would be expected, this levelling had its greatest impact on the uphill side of the area. No trace of the ditch was apparent in test trenches close to the southern wall footing. However, obliteration of this portion of the ditch was not entirely due to levelling and foundation trenching. Two rubbish pits (Fig. 4: Features 7 and 8) also cut through the expected line of the ditch. Analysis of artefacts from these pits indicates that they date from the early part of the 20th century (Brassey 1989: 63).

The line of the ditch was picked up again about 1.5 m north of the wall footing, and further clearing of the clay surface exposed a second corner in the ditch. Eastward of this corner the surviving width of the ditch broadened, suggesting that much less of the original ground surface had been removed in this area. The test trenches across this portion of the ditch (e.g., Fig. 6e) certainly showed the closest to a full ditch profile encountered anywhere on the site. Once again clods of mottled yellow-brown clay had fallen across the base of the ditch before the development of Fill A.

Unfortunately, just where some indication of the original dimensions of the ditch might have been found, all evidence of the feature was obliterated, cut away by the scarp (ca. 1.5 m) down to Terrace IV. The maximum width of the ditch at its deepest (easternmost) point was about 3.5 m. It could not be measured precisely because the southern ditch edge had been cut through by a trench for a brick wall, perhaps a buttress for the single-storeyed brick building that had stood immediately below the scarp since at least 1908.

AREAS 10 and 13: These areas were cleared and examined in the hope that remnants of the original ground surface would have survived in the area presumed to have been inside the redoubt. The latter was devoid of any subsurface features, having been levelled prior to the construction of a building in the early 1960s. The original ground surface did survive in Area 10, located between the two natural soil profiles identified in Areas 1 and 4 during Phase One. Eleven post and stake holes (Fig. 4: Features 9–19) and two rubbish pits (Features 20 and 21) were located here. However these all appear to post-date the redoubt. At least four of the postholes fall precisely on the line of a fence recorded on the 1908 plan (Smith 1989: 33), and the contents of one of the rubbish pits suggest deposition in the 1880s or 1890s (Brassey 1989: 63).

## THE ARTEFACTS AND FAUNAL REMAINS

Assemblages of artefacts and faunal remains were recovered from nine of the features excavated on the site: the defensive ditch (Feature 2), the well (Feature 3), six pits (Features 4, 5, 7, 8, 21 and 24) and a shallow scoop (Feature 22). These have been analysed in detail by Brassey (1989) who has shown that with one exception they date to the period after levelling of the redoubt. Only the earlier material, from the defensive ditch, is considered here, and this only in terms of assemblage formation and dating.

All the material from Feature 2 was recovered from within or on the surface of Fill A, the lower silty grey layer which appeared to have developed in the base of the ditch before it was infilled. This deposit was only partially excavated. Most of the assemblage was

recovered from the northern edge of Area 11, the immediately adjacent portion of Area 8, and the Area 8/12 baulk (Fig. 4). A small amount of material also came from the test trenches excavated in Area 12.

The animal remains included 53 bone fragments and teeth representing a minimum number of 9 elements from a cow (*Bos taurus*), 8 from a pig (*Sus scrofa*) and 1 from a sheep (*Ovis aries*) (Brassey 1989: Table 8). All the bones had been cut or sawn, indicating that they derived from butchered animals; however, several factors suggest that they are unlikely to represent human food waste. A large proportion (72%) of the elements are from parts of the carcasses not usually used as food. These include mandibles and teeth of both the cow and pig, and lower limb bones of the pig and sheep. All the bones show signs of dog gnawing, and 40% have evidence of weathering, indicating that they were exposed to the elements for some time before burial. Thus it seems likely that all or most of these bones were dragged into the ditch by dogs.

Table 1 summarises the artefact assemblage. Fragments of bottle glass and crockery were the most common items. The former represented at least 14 individual bottles. All but two of these were containers for alcoholic beverages, which may suggest that at least part of the assemblage formed through casual disposal of individual items by people passing by or through the site of the redoubt. However the two salad oil and/or vinegar bottles, along with the domestic glassware and crockery, indicate that household rubbish was also discarded in the ditch.

Several items provide indications of the age of the deposit. The three case gin bottles all have tops of the crude flared or 'pig snout' type which is characteristic of bottles dating to the 1860s or earlier (Fletcher 1976: 105). None of the other bottles can be dated accurately, although all are hand-moulded, indicating that they were made before about 1915 (Roycroft and Roycroft 1976: 43).

Two of the earthenware items bore maker's marks. One of these, a plate fragment transfer printed in blue with the 'English Rose' pattern, was incomplete (Brassey 1989: Fig. 10b) and could not be identified to manufacturer. The other (*ibid.*: Fig. 10a), part of a cream coloured chamber pot, was impressed with the letters "G.F.S. & Co.". George F. Smith was a Stockton-on-Tees manufacturer who operated from ca. 1855 to 1860 (Godden 1964: 582). This item was found on the surface of Fill A. On stylistic grounds one of the items found within this Fill was probably manufactured several decades earlier. This is a cup in the 'London shape' (*ibid.*: Fig. 8) which came into vogue in England about 1813 but had become unfashionable by the late 1820s (Millar 1983).

Maker's marks were also apparent on the three portions of clay pipes (Brassey 1989: Fig. 12a-c). Stamped inscriptions with maker's names occurred on both stem fragments. However they are of limited value for dating as both manufacturers operated for long periods: D. McDougall & Co., Glasgow, 1847-1968; A. Coghill, Glasgow, 1826-1904 (Oswald 1975). The third item, part of a bowl, was decorated with what appears to be a figure playing a trumpet, but this was too incomplete to permit proper identification.

## DISCUSSION

The second phase of investigations uncovered some 35 m of infilled ditch. This was clearly part of the perimeter defences of Fort Ligar. With two near right angle corners it cannot be a natural feature, nor does its orientation align with any buildings or boundaries recorded on early plans. Its stratigraphic position, beneath levelling and trenching for building

TABLE 1: ARTEFACTS FROM FEATURE TWO.

Description	Minimum number
<b>GLASS</b>	
Bottles:	
black, plain (beer or other liquor)	7
green, case (gin)	3
green, kickup base (champagne)	2
aqua, half-whirley (salad oil)	1
aqua (salad oil or vinegar)	1
	---
	14
Domestic Glassware:	
tumblers, clear cut glass	2
jug, clear moulded glass	1
vase, hand painted milk glass	1
?wide mouthed jar, clear glass	1
	---
	5
Other:	
'front door' glass	1 frag.
<b>CERAMICS</b>	
Earthenware:	
plates	11
cups	6
saucers	4
chamber pots	2
crock	1
?thimble	1
	---
	25
Stoneware:	
ginger beer bottle	1
wide mouthed jar	1
other, not identified	1
	---
	3
Clay Pipes:	
stem fragments	2
bowl fragments	1
	---
	3
<b>OTHER ITEMS</b>	
slate pencils	2
button, milk glass or porcelain	1
bricks, hand moulded	2 frags.
nails/spikes	5 frags.



foundations, demonstrates that the ditch predates all other recorded activities on the block. The only possible cause for doubt is the location of the ditch on Lot 14, as only Lots 15 and 16 were specified in the 1855 newspaper account (see above). However, subsequent checking of Title Deeds showed that Lots 14–16 were all returned to the Crown “for public purposes” in 1845.

Artefacts and bones from the ditch support the suggested dating and function of the site. One of the clay pipes found in the lower fill cannot have been made before 1847, and a plate fragment buried when the ditch was filled must have been made between ca. 1855 and 1860. The other scattered remains are consistent with casual accumulation of rubbish on an empty lot in the late 1840s and 1850s.

Although only a small part of it survived, Fort Ligar can be compared with the five other redoubts built by European colonists in 1843 and 1845. Contemporary plans and sections are available for two of the Wellington examples (Wards 1968: 233–234), and a sketch of the Nelson fort (Cowan 1922: 95). Descriptions of size and form are available for the others (*ibid.*: 93–94).

Fort Ligar’s ditch is similar in size to those reported from the five other redoubts (Table 2). Precise dimensions cannot be given for Fort Ligar because nowhere on the site did the full extent of the ditch survive. At the east end of Area 12, where it appeared to be closest to the original ground surface, it reached a maximum width of 3.5 m and depth of 0.8 m. While the former may be close to the original width, the latter is certainly an underestimate. If it is assumed that the original depths of topsoil (layer 1) and weathered clay (layer 2) here were similar to those evident in the natural profiles found in Areas 1 and 4, approximately 50 cm would need to be added, bringing the depth of the ditch to about 1.3 m. This would still leave the Fort Ligar ditch shallower than any of the recorded examples.

TABLE 2: COLONIAL REDOUBTS 1843–45. DITCH DIMENSIONS AND ESTIMATED AREAS.

Redoubt	Ditch width	Ditch depth	Area*	Source
Fort Arthur	12ft	8ft	>0.41	Cowan 1922: 94
Fort Thorndon	10ft	7ft	0.38	Wards 1968: 233
Te Aro	10ft	6ft	1.23	Wards 1968: 234
Clay Point	9ft	-	-	Cowan 1922: 93–4
Thorndon Redoubt 5ft	5ft	-	-	Cowan 1922: 93
	range	5.0–12.0ft 1.5–3.7m	5.0–7.0ft 1.5–2.1m	
Fort Ligar	3.5m	1.3m	0.25	see text

\* estimates (see text) in hectares

Its profile also differs from those illustrated for Fort Thorndon and Te Aro (Wards 1968: 233–234). These show straight sides, sloping inwards at an angle of about 15 degrees from the verticle towards the flat base of the ditch. The irregular U-shaped profiles (Fig. 6) and relatively shallow depths recorded here suggest that digging of the Fort Ligar ditch was never completed. This is also suggested by the abrupt termination of the ditch in Area 11 (Fig. 5), and by the heaps of clay spoil which appeared to have fallen back into the ditch soon after it was dug.

Confirmation of these inferences was subsequently found in two documents amongst the Colonial Secretary's Inward Correspondence (1A 1/45 — 1829) held in the National Archives, Wellington. The first was a note from Governor Fitzroy to Dr Sinclair, the Colonial Secretary, dated 29 October 1845, requesting the Superintendent of Works "to estimate the expense of completing the earthwork of Fort Ligar". The second, dated the following day, outlines the work needing to be done. This involved completing formation of the embankment and glacis (a smooth slope leading up to the defences) using "surplus earth to be dug from the ditch", cutting a drain to let off water from the ditch, and cutting clover turf to face the embankment. Fred Thatcher, Superintendent of Works, estimated that this would require the employment of 10 men for 117 days. Along with construction of a drawbridge and gate the total cost was estimated at £102.16.8. This report was annotated the following day by Fitzroy with the words "To lie over", presumably indicating that the work was not to proceed, at least until his replacement, George Grey, assumed office the following month. No evidence has been found that the new governor ordered completion of the work.

Although unfinished, the portion of ditch uncovered still provides valuable information. Even before final shaping it was wider than the ditches of most contemporary redoubts (Table 2), indicating that substantial earthworks were intended. The two corners in the ditch show that the fort's design incorporated at least one flanking angle, to permit defensive fire along the southern perimeter. Whether these occurred elsewhere in the defences could not be discovered archaeologically. Exploratory trenching of the site covered sufficient area to leave little doubt that the 35 m of ditch uncovered was all that survived of Fort Ligar. To the north and east, where the other sides must have been, all subsurface traces had subsequently disappeared.

Reconstruction of the original size and shape of the redoubt has been made possible by the recent discovery that it is partially visible in an 1857 view across central Auckland by an unknown photographer (Auckland Public Library Negative No. 1040). A detail from this (Fig. 7) shows the eastern parapet clearly visible between two houses (A and B) on Chapel Lane (now Frederick Street). The southern and northern sides extend across the block towards houses C and D. Between C and D the western parapet seems to partially obscure the view of Hobson Street.

Judging by the light falling upon the surrounding buildings, the photograph was taken in the early afternoon. This permits some interpretation of the orientation and shape of the defences. The portion of the northern parapet visible between houses B and E is in full sun, indicating an east-west orientation. The same applies to most of the southern parapet, extending west from house A. However, a southward bend in this feature is indicated by a short length of dark shadow just to the right and in front of house C. The estimated position of this bend (see below) suggests that it is the flanking angle identified archaeologically.

Three breaks are apparent in the line of the eastern parapet. While these could be no more than breaches in the uncompleted defences, closer examination suggests otherwise.

Variations in the darkness of the shadow cast by this parapet indicate that it was not a single straight embankment. The lighter coloration apparent between the first and second breaks to the right of house A indicate that this portion of the parapet faced northeastward, suggesting the presence of another flanking angle. Furthermore the darker area to the left (south) of this angle appears to be closer to Chapel Lane than is that to the right. To the north of the third break, the eastern parapet appears to angle northwestward away from Chapel Lane.

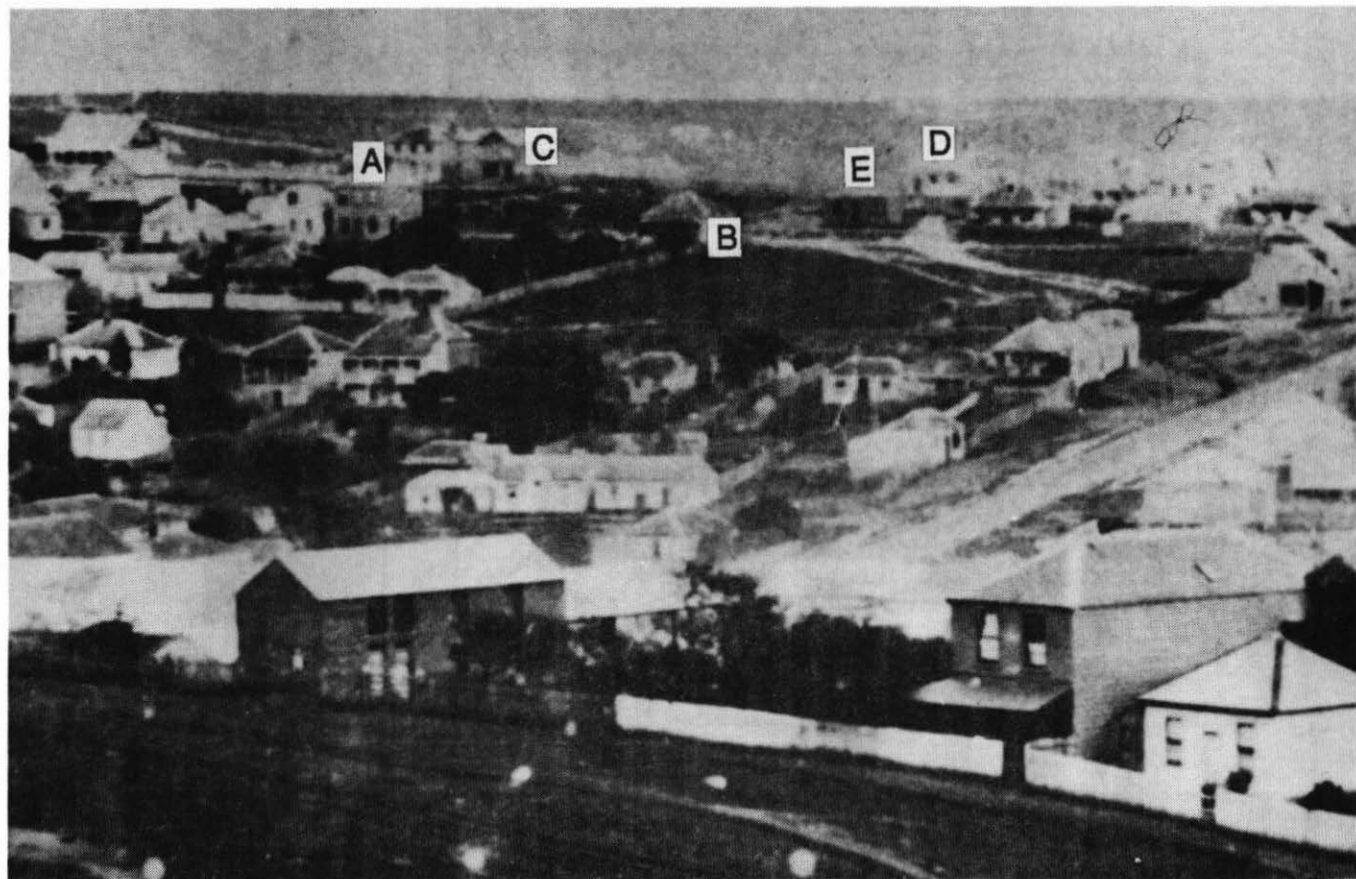
No details of the western parapet are clearly visible. However towards its southern end it appears to become a discontinuous series of earth piles. This seems to correspond with the archaeological evidence which suggested that the southwest corner of the redoubt was never completed.

Examination of relevant photographs in the Auckland Public Library showed that nearly all the buildings surrounding Fort Ligar in 1857 were still standing in 1866 (Smith 1989: 27, 36), enabling their locations to be plotted from the Vercoe and Harding plan. Figure 8 shows these, along with the estimated positions of the parapets visible in the 1857 photograph, and the areas of ditch exposed by excavation. The shapes illustrated for the southern and eastern defences can be considered as reasonably accurate representations of their original form. Those proposed for the northern and western sides are less certain. It seems likely that these would have included flanking angles. There would appear to be little point in providing these only on the south and east sides when the redoubt was built, at least in part, as defence against an attack on Auckland from the northwest. This raises the possibility that Feature 1, the ditch encountered in Areas 5, 6 and 7 during Phase One of the investigation (Fig. 3) could be a remnant of the northern perimeter defences. As already indicated, the size and form of this feature suggested that it was not intended to have a defensive function, but as there is now clear evidence that the redoubt's ditches were never completed, this cannot be entirely ruled out.

The reconstructed plan shows Fort Ligar covering some 50 x 50 m. This makes it smaller than the three best known of its contemporaries (Table 2). The estimate of "rather more than an acre" for Fort Arthur is from a contemporary description reported by Cowan (1922: 4). Areas for Fort Thorndon and the Te Aro fortification were calculated from plans reproduced by Wards (1968: 233, 234). The two 1843 Wellington earthworks were probably smaller than Fort Ligar. The first Thorndon redoubt was "not of any great size" (Cowan 1922: 93), while the Clay Point earthwork was not strictly speaking a redoubt, being no more than "a parapet facing the sea — an emplacement and protection for...guns" (*ibid.*: 94).

These redoubts all differed in design. Fort Arthur was the most elaborate. Its perimeter ditch and parapet formed an oblong hexagon with bastions at each angle, surrounding Nelson's Church Hill. An inner trench, and stockade around the hilltop provided further defences. In contrast, none of the Wellington fortifications was totally surrounded by ditch and parapet. In the case of the first Thorndon redoubt this was simply because the fourth side of its oblong perimeter was never completed. The Te Aro redoubt and Fort Thorndon both used existing buildings as part of their defences. The former was approximately rectangular in shape, the latter triangular, and incorporated a bastion and two other flanking angles in its perimeter. The design of Fort Ligar appears to fall part way between the more utilitarian and quickly constructed form of these Wellington examples, and the elaborate style of Fort Arthur.

Detailed comparison of these early colonial redoubts with other classes of nineteenth century fortifications is beyond the scope of this paper. However, several similarities and



*Figure 7: Albert Hill, Auckland in 1857. Letters refer to buildings discussed in text (sectional enlargement from APL Neg. 1040, Auckland Public Library, New Zealand).*

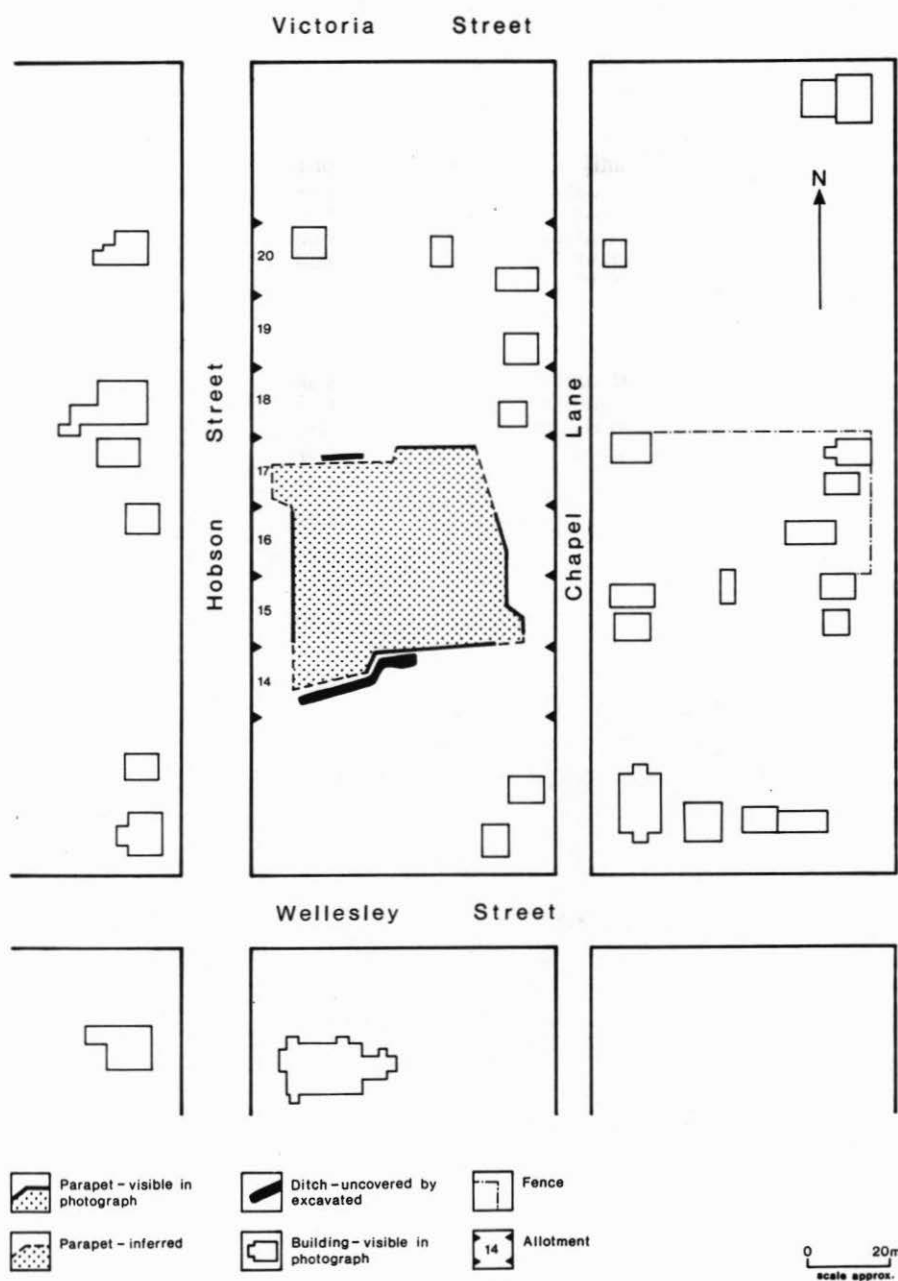


Figure 8: Fort Ligar in 1857, reconstructed from archaeological and photographic evidence.

differences can be noted. Firstly, redoubts were less common amongst pre-1850 European fortifications than was the case in the 1860s and 1870s when they were "the most important class of European fortification...in New Zealand" (Prickett 1981a: 318). Nevertheless, both groups share the same basic defensive characteristic, relying upon earthen parapets for protection of those within, and a deep ditch outside to obstruct attackers. In this respect they differ from Maori gunfighter pā in which ditches, serving as rifle trenches, were inside one or more line of palisades (Best 1927; Golson 1957). Both Maori and European fortifications of the nineteenth century frequently incorporated bastions or flanking angles. The diversity in designs apparent in early colonial redoubts is also apparent amongst the later European examples (cf. Prickett 1981a: 318–319). It is of interest to note that the reconstructed plan of Fort Ligar bears similarities with one of the more common designs of the later period, the so-called 'New Zealand' redoubt (*ibid.*: Figure 3.1c), and thus may have been the first example of this type constructed here.

## CONCLUSIONS

Fort Ligar has been totally overlooked in military histories and chronicles of early colonial Auckland for 100 years. The archaeological, documentary and photographic evidence reported here have been used to reconstruct the location, form and size of this earthwork redoubt, built for the protection of Auckland's citizenry after the fall of Kororareka in March 1845. Its location was clearly strategic, on the high ground commanding the unprotected western margin of the town. The ditch and parapet around its perimeter incorporated at least two flanking angles to permit effective defence by musket fire, and the area within was large enough to shelter several hundred people. Its design appears to have been among the most elaborate of those constructed by New Zealand colonists in the 1840s.

However, the investigations also showed that Fort Ligar never achieved quite the grandeur that its designer intended. The ditch was not extended right around the perimeter, nor was it excavated to its full depth or final shape. A few scoria stones were found in the ditch fill, but these could hardly be construed as evidence for either the stone wall which was to have surrounded the redoubt, or the stone tower planned for its centre. Neither of these is mentioned in the Colonial Secretary's correspondence about the fort, and no interior structures are visible in the 1857 photograph.

Both the grand intentions reflected in Fort Ligar's design, and their incomplete fruition, offer insight into Auckland society and politics of 1845. The redoubt seems to have been constructed more to allay the fears of local townspeople than in real anticipation that the capital would be under attack. During March and April 1845 those fears were widespread and almost at fever pitch (Campbell n.d.: 321; George n.d.: 468–471; Platt 1971: 122–127). A week after Kororareka, Fitzroy informed his Executive Council of the need to allay this alarm and satisfy the townspeople that "effective measures were at once being taken to safeguard the security of their persons and property" (Wards 1968: 126). Fort Ligar was just such a measure — visible, reassuring, physically occupying many of the townspeople, and at limited expense to the financially strapped colony. However, when additional troops arrived in Auckland a few days later, half of them were sent to relieve the garrison in Wellington, suggesting that Fitzroy did not seriously believe that Auckland was under threat.

Construction of Fort Ligar was abandoned before the end of July. This was clearly not determined by the course of warfare in the north, as the British troops did not achieve any substantive success during the winter of 1845 (Belich 1986: 41–57). Nor is there evidence

of any official instruction to halt the work. Rather it seems to reflect the decline of enthusiasm amongst the townspeople to ensure their own defence. Thus, in just the same way that work on the fort was commenced as a diversion for fearful citizens, it ended when their panic subsided.

On a more general level, the investigations at Fort Ligar have shown that early colonial redoubts incorporated the same range of defensive features as did those built largely by British troops some 20 to 30 years later. Indeed, it has been suggested that this fort may have been the first redoubt built in the style which was to become known as the 'New Zealand' redoubt.

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#### APPENDIX 1: PRE-1850 EUROPEAN FORTIFICATIONS IN NEW ZEALAND

date	location	name	primary form of defence	built by	reference
1801	Waihou River	-	stockade	British sailors	Prickett 1981a:12
1840	Auckland	Fort Britomart	blockhouses	British army	Cowan 1922:34
1843	Akaroa	-	blockhouse	colonists	Jacobsen 1917:97-8
	Akaroa	-	blockhouse	colonists	Jacobsen 1917:97-8
	Akaroa	-	blockhouse	colonists	Jacobsen 1917:97-8
	Nelson	Fort Arthur	redoubt	colonists	Cowan 1922:94-5
	Wellington	Thorndon Redoubt	redoubt	colonists	Cowan 1922:93
	Wellington	Clay Point	redoubt	colonists	Cowan 1922:93-4
1845	Kororaraka	Polack's Stockade	stockade	British army/navy	Cowan 1922:22
	Kororaraka	-	blockhouse	British army/navy	Cowan 1922:22
	Kororaraka	-	blockhouse	British army/navy	Cowan 1922:23
	Auckland	Fort Ligar	redoubt	colonists	this paper
	Hutt	Fort Richmond	stockade	colonists	Cowan 1922:95-7
	Wellington	Fort Thorndon	redoubt	colonists	Wards 1968:233
	Wellington	Te Aro	redoubt	colonists	Wards 1968:234
	Waimate	-	redoubt	British army	Prickett 1981a:12-13
1846	Wellington	Karori Stockade	stockade	colonists	Cowan 1922:96-8
	Hutt	Taita Stockade	stockade	colonists	Best 1921:19
	Johnsonville	Clifford's Stockade	stockade	colonists	Best 1921:20
	Johnsonville	Middleton's Stockade	stockade	British army	Best 1921:20-1
	Johnsonville	McCoy's Stockade	stockade	British army	Best 1921:21
	Johnsonville	Fort Leigh	stockade	British army	Best 1921:21
	Porirua	Elliot's Stockade	stockade	British army	Best 1921:21
	Porirua	Fort Elliot	stockade	British army	Best 1921:21
	Paremata	Paremata Barracks	stockade	British army	Best 1921:21-2
	Pauatahanui	-	stockade	British army	Best 1921:22-3
	Pauatahanui	Fort Strode	stockade	British army	Best 1921:24

1847	Wanganui	Rutland Stockade	stockade	British army	Cowan 1922:137-8
	Wanganui	York Stockade	stockade	British army	Cowan 1922:138
1848	Auckland	Albert Barracks	stone-walled fort	British army	Cowan 1922:245-6

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