Larnach's Farmstead
Otago Peninsula
Dunedin
Site I44/412

Archaeological Report on
Woolshed Building
for
Hereweka/Harbour Cone Trust
Archaeological Authority 2017/521
Revision 1

P.G. Petchey
Southern Archæology Ltd.
2018

Executive Summary
Larnach's Farmstead
Woolshed

The small woolshed at Larnach's Farmstead on the Otago Peninsula was one of two surviving buildings at this site, but its extremely poor condition meant that is was beyond saving, and it was demolished in 2018. Prior to and during the demolition process the building was analysed in some detail in order to determine its likely original form and the history of modifications that resulted in its final appearance.

What this analysis revealed is that it was probably originally built for William Larnach as an open-fronted implement or cart shed with posts and corbels supporting the open front wall, and with an overall length (of approximately 60 feet) that matched the byre opposite. The roof was probably gable ended, and clad with corrugated iron. However, the building had been built on the edge of the cut-and-fill terrace created for the farmstead, and a combination of a natural spring and rainfall runoff caused the southern edge of the farmyard to subside and slip, seriously damaging the building. The structure was rebuilt, utilising the original front posts, corbels and top plate, but the rest of the building was constructed from a mixture of timbers salvaged from a number of structures; but the standard of construction was not high. A hipped roof was used instead of the original gable-ended design. The reconstructed building now extended over the edge of the eroded farmyard, supported on substantial timber posts.

This new building was itself heavily modified sometime between 1942 and 1958, when the western end was removed, probably due to continuing instability of the edge of the farmyard. A very small extension subsequently reoccupied a part of this footprint. This building then stood until 2018, but a combination of poor construction, natural decay and lack of maintenance (the latter two leading to decay of many structural elements) meant that by this date the building was collapsing and unsafe to enter. It was finally demolished in May 2018.

It is notable that only a very small part of the original fabric of Larnach's farmstead building was still present at the time of demolition, and much of this material was retained for use as patterns if a future reconstruction is contemplated.

Table of Contents

Larnach Farmstead
Report on the Structure of the Small Barn/Woolshed
P.G. Petchey

Introduction

Larnach's Farmstead is located on the Otago Peninsula, within the Harbour Cone property that was purchased by the Dunedin City Council in 2008. The farmstead was established by William Larnach in the 1870s, and consisted of a farmhouse on a terrace cut into the hillside, with a group of farm buildings surrounding a cobbled farmyard on a large lower terrace. Of this group of buildings by 2018 only the cow byre on the west side of the farmyard survived in a largely complete condition; all of the other buildings had gone except for the extremely derelict building opposite the byre (Figure 1). This small structure is the subject of this report. It was latterly converted for use as a shearing shed, but its original form and function were very different, and it was probably an open-fronted implement or cart shed. The building was significant in terms of the context of the historic farmstead, but its condition was so poor that it was deemed beyond restoration. Therefore the Hereweka Harbour Cone Trust decided that it should be recorded and analysed before it was dismantled. This report describes the building prior to its final demolition in May 2018, and attempts to determine its original form. This work was carried out under Archaeological Authority No. 2017/521 issued by Heritage New Zealand.

Figure 1
Larnach's Farmstead in November 2017. The small building closer to the camera is the subject of this report. Its state of dereliction is obvious in this view.

Figure 2
The small woolshed at the Larnach farmyard in September 2016.

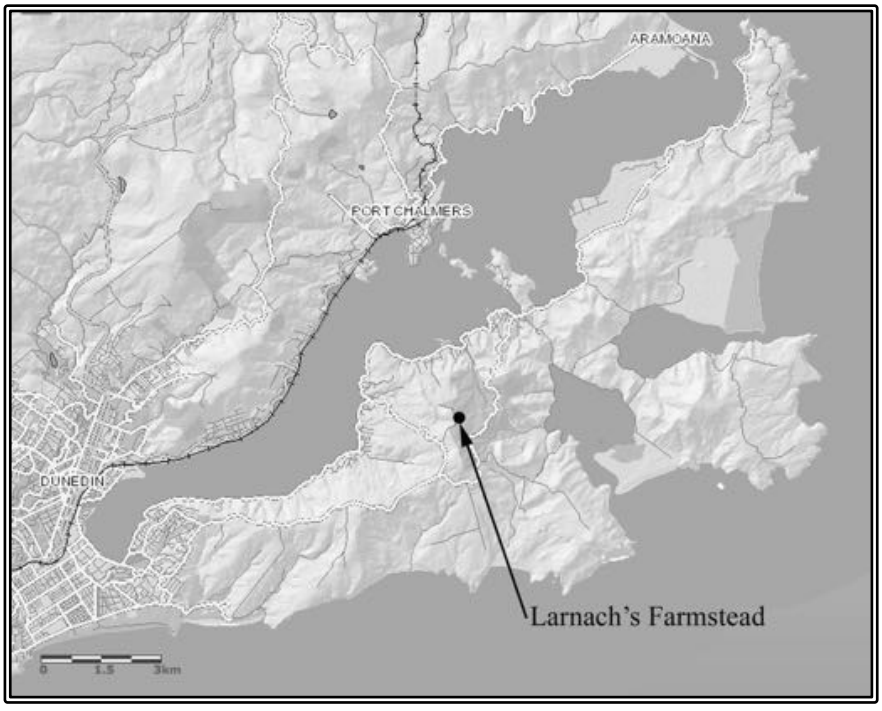


Figure 3
The location of Larnach's farmstead on the Otago Peninsula
(adapted from Dunedin City Council webmap).

History of Larnach's Farmstead

The history of William Larnach has been related several times (Knight 1979, 1981; Snedden 1997), and more specifically Larnach's Farmstead has been recently described in some detail by Gosling (2009). The following is paraphrased from Gosling's work unless otherwise referenced:

William Larnach was born in Australia in 1833, the fourth of nine children to John and Emily Larnach. He attended Sydney Collage, and then worked as a clerk in the Bank of New South Wales in Melbourne, before joining the gold rush to Victoria. This was not particularly profitable, and he returned to the employ of the bank as a bank officer in the goldfields in 1853. Larnach's father was wealthy, and in 1859 William married Eliza Jane Guise who had a large inheritance, and so he was certainly affluent. In 1867 Larnach and his family moved to New Zealand, where he took up the position of chief colonial manager of the Bank of Otago, and he also invested in land speculation, farming investments and a timber milling business. Eventually he left the bank, and established the partnership of Guthrie and Larnach with Walter Guthrie, to supply timber and building products. The business grew to be one of the largest of its kind in New Zealand, with warehouses in Dunedin, Invercargill and other centres. He was also involved with the development of frozen meat shipments from New Zealand to Britain, which became an essential industry for the country. The business encountered financial trouble in the 1880s, and the partnership with Guthrie was dissolved in 1883.

Larnach also became involved with politics at the national level, and in 1876 he became a Member of Parliament for the City of Dunedin, and then Colonial Treasurer and Minister of Public Works in 1877. He was sent to London in 1880 to raise a business loan, and did not immediately re-involve himself in politics on his return in 1880. In 1883 he was re-elected to Parliament, this time as MP for the Otago Peninsula electorate, and in 1884 he joined the Stout-Vogel Government as Minister for Mines and Marine, and held that post until their defeat in 1890. Three years later Richard Seddon persuaded him to run for the Tuapeka electorate after the death of the incumbent, and he won the seat, and he remained involved in politics until his suicide in Parliament House in 1898.

The reason for his suicide is not clear, but it is thought that it was a combination of financial woes due the failure of many of his investments, and family troubles. Larnach's first wife, Eliza Jane had died in 1880 soon after he returned from London, and two years later he married her younger sister, Mary Alleyne. Mary died in 1887, and in 1891 Larnach married his third wife, Constance de Bath Brandon, the daughter of a political colleague. Larnach's children by his first wife were unhappy about the marriage, partly because they were concerned about their inheritance. After Larnach's death he was buried in the Dunedin northern cemetery alongside his first two wives, in a tomb designed by R.A. Lawson in a similar style to First Church. His daughter and one of his sons are also interred in the same tomb.

Larnach's Farms & Castle

In the present context, it is William Larnach's landholdings and fascination with farming that are most significant. He was probably influenced by his uncle in this: while William was in England in 1866, Donald Larnach had purchased the Sussex country estate of Brambletye with a ruinous house that had been built in 1631. Donald built a new grand house in its place (which now houses Brambletye School), with extensive gardens and a huge conservatory (Snedden 1997: 57-58). William's desire to own a similar estate was eventually realised in the development of his Castle, but first he dabbled in the development of Moa Flat Station in Central Otago. After he moved to Dunedin, William Larnach formed a partnership with John Kitchings and Henry Driver to lease Moa Flat Station 1871, where they set out to create a model station (Snedden 1997: 66). They not only acquired livestock, but also additional land until the property comprised 500,000 acres.

Closer to home, in 1870 William had purchased a large block of land on the Otago Peninsula, where he had a temporary cottage built that his family used during weekends. He subdivided some of his

Peninsula holdings, including the area of the Township of Portobello the sections of which were sold of over nine years from 1872. For his own use, he commissioned the architect R.A. Lawson to design a grand house to stand atop Peggy's Hill, one of the highest hills on the Peninsula. The 'Camp' (now known as Larnach Castle) was built between 1873 and 1887, but was complete enough by 1874 for Larnach and his family to move in. The building was constructed using the finest materials, including stone, the best quality native timbers, Burmese teak, English oak, Italian marble fireplaces, Belgian tiles, Scottish flagstones and Venetian glass (Snedden 1997: 80-81). Skilled artisans were employed to construct and decorate the cattle.

Larnach also established a substantial farmstead complex near the Castle, which took the form of a cobbled farmyard surrounded on all four sides by farm buildings (Figures 4 & 5), with the farmhouse (for the farm manager rather than Larnach himself) overlooking the complex (Figure 10). The manager's house was the original cottage from the 'Camp' relocated (and from the available photographic evidence, extended). The date that this farmstead was established is not recorded, but it was probably during the 1870s. Larnach also invested in his cattle herd, and his Alderney stock won numerous prizes at Agricultural shows; the quality of his livestock was greatly respected locally.

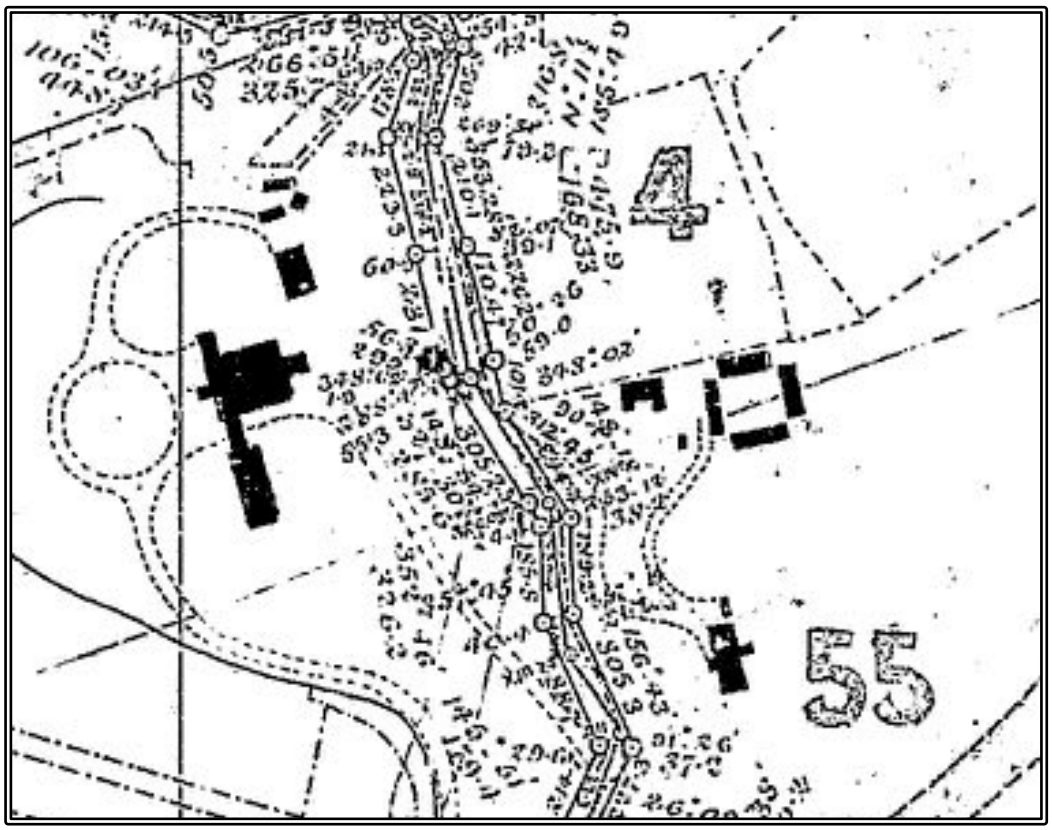


Figure 4
A detail from a miscellaneous 1888 Lands & Survey plan showing the proposed subdivision of the Camp Estate, the property of W.J.M. Larnach. Larnach Castle is the large structure to the left, while the farmstead is the group of four buildings in a square to the right, with the manager's house just to the left of the farmstead (LINZ).

After Larnach's death in 1898 his son Douglas and solicitor Basil Sievwright broke up and sold off parts of the estate to other local landowners (CT124/48). Allotments 2, 3 and 15, covering a central section of the valley as well as the farm buildings, were transferred to the ownership of James Nyhon, likely to be the son of John Nyhon whose house (I44/428) was located on the uphill side of Highcliff Road, while neighbouring Allotment 4 was transferred to sisters Hannah and Ann Nyhon. Both these blocks of land came into the ownership of Margaret Nyhon, of Broad Bay, by about 1951

(Middleton 2008). In 1973 Margaret Nyhon constructed a large new woolshed on the side of the farmstead (DCC Archives), but this was removed in 1996 by subsequent owners. The farmstead was part of the Harbour Cone block that was purchased by the Dunedin City Council in 2008.

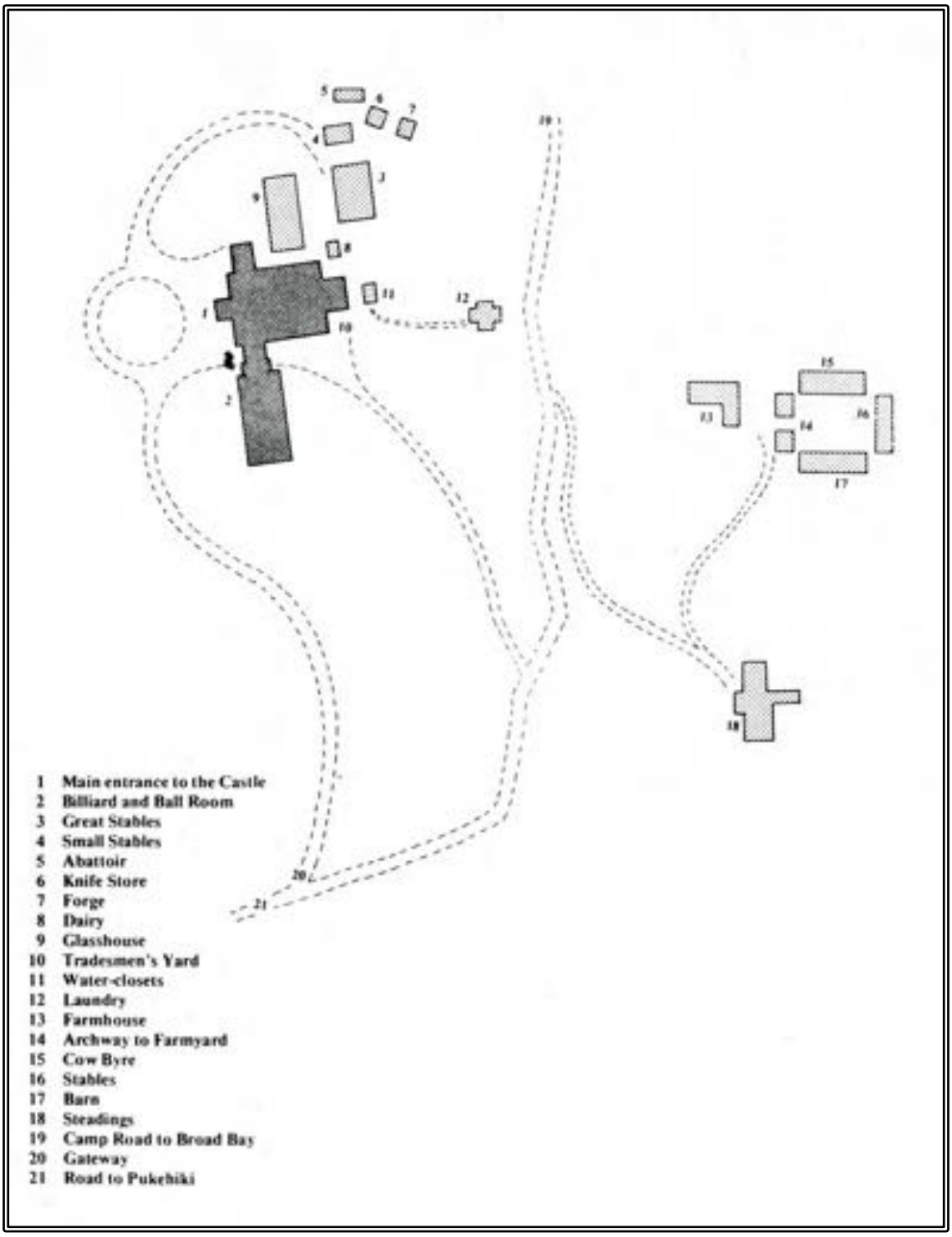


Figure 5
Plan of the Larnach estate buildings by Hardwicke Knight (Knight 1981). Knight's interpretation of the roles of the farmstead buildings is shown (numbers 13 to 18). No. 15 (byre) is the only building now (in 2018) still standing at the farmstead site.

Figure 6
1942 aerial photograph of Larnach's farmstead (reproduced from Gosling 2009). The building discussed here is the bottom one in this view. At this date three of the four buildings that enclosed the farmyard still stood, and the footprint of the fourth was still visible. However, as is discussed below, it appears that the small woolshed had already been rebuilt at this stage. The manager's house stood on the hillside above (left in this view).

Figure 7
Larnach's Farmstead, probably in the 1960s. The byre is to the left and the building that is the subject of this report is to the right. The stables in the centre of the view no longer exist (Hardwicke Knight, Hocken Library Collection).

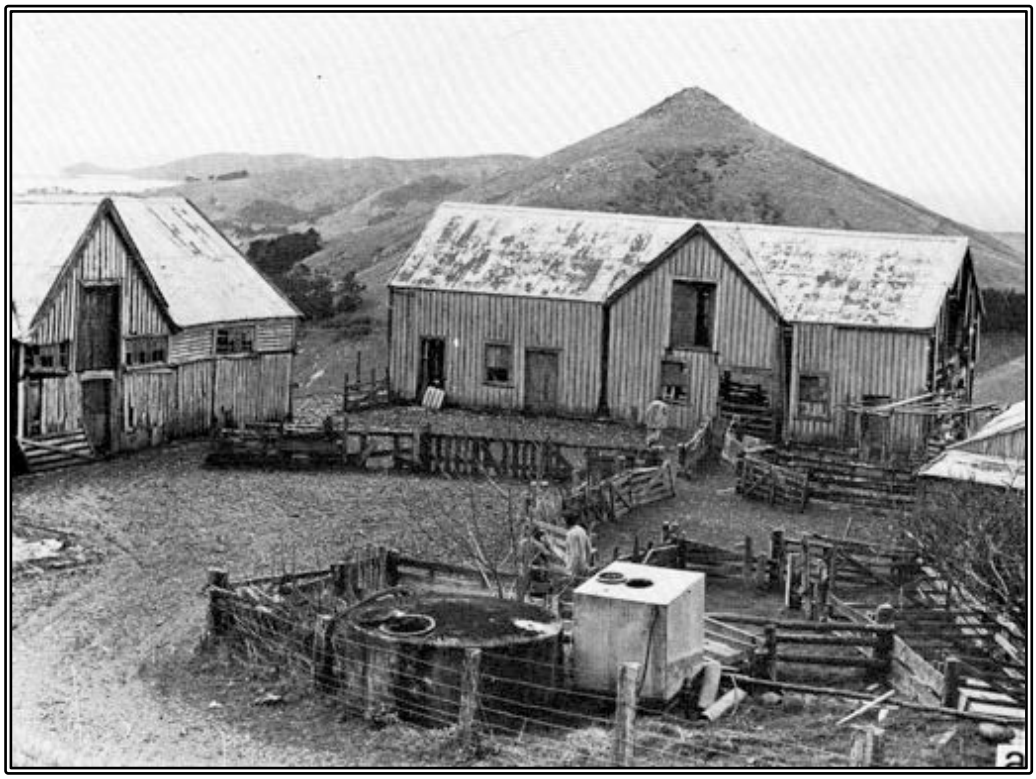


Figure 8
Another view of the farmstead, probably taken in the 1960s. This view clearly shows the original board and batten cladding on the byre and stables (Knight 1979).

Figure 9
A view from further back along the access track, probably taken in the 1960s (Hardwicke Knight, Hocken Library Collection).

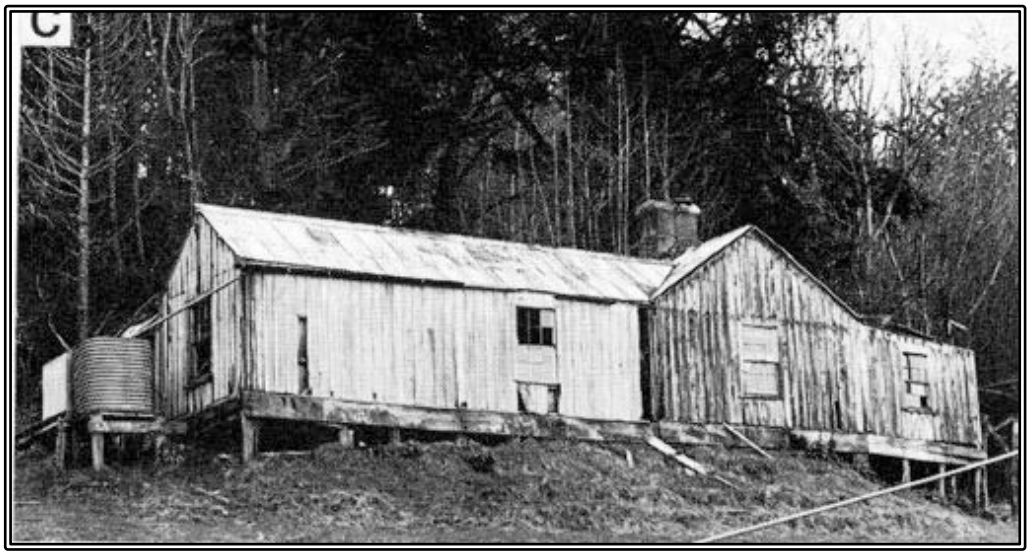


Figure 10
The farm manager's house at Larnach's farmstead. Note the board and batten cladding, matching the other farmstead buildings (Knight 1979).

Physical Description

Larnach's farmstead is located on a large man-made terrace on the eastern flank of Peggy's Hill, 200 metres to the east of Larnach Castle. The terrace measures approximately 45 metres by 30 metres, and the farmyard area is now covered with a layer of turf (largely derived from animal manure). There appears to be a spring or natural seep at the foot of the slope near where the farm track enters the yard, as this area is always wet and muddy. This water flow has implications for the site interpretation that are discussed further below. A smaller terrace (uphill, to the west of the farmyard) was the site of the manager's house, and the access track zig-zags down from Camp Road. The site has been mapped (Figure 11) and described in detail by Gosling (2009). At least seven buildings have been known to exist in this area, one of which was a modern woolshed that was built in 1973 and removed in 1996 (and is only of interest here in terms of the concrete piles that were removed as part of the current work, and damage that may have been caused to earlier evidence). In 2018 the only two remaining buildings were the cow byre and the small structure opposite that is the subject of this report (and which was dismantled in May 2018). This small building was latterly used as a small shearing shed (presumably prior to the construction of the large woolshed in 1973 by Margaret Nyhon), while Knight (1981) thought that it was originally a barn. It is here described simply as 'the building,' and its likely original form and use is discussed in more detail below. By early 2018 the building had partially collapsed, and detailed examination of the building structure was problematic because of its very poor condition and height off the ground, making it unsafe to enter.

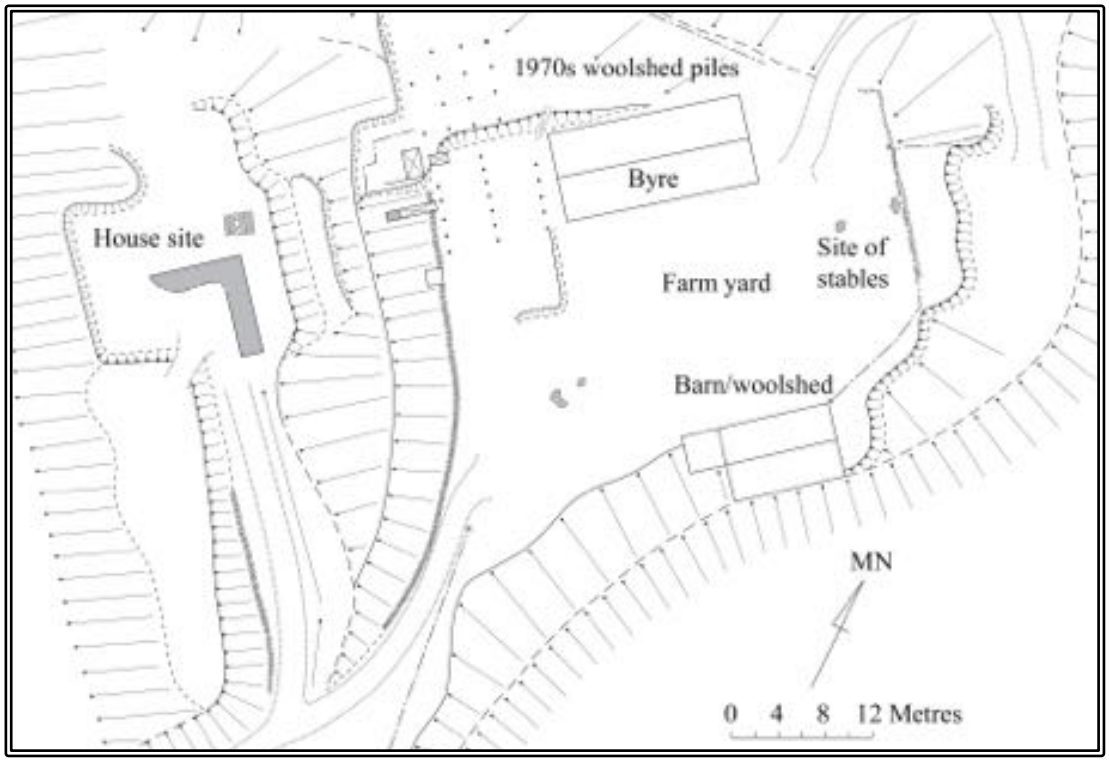


Figure 11
Site plan of Larnach's farmstead, with the small derelict barn/woolshed labelled (adapted from Gosling 2009).

The building was a timber structure that measured 31 feet 5 inches by 20 feet 8 inches (9.3 metres by 6.3 metres), with a 10 feet 2 inch (3.1m by 3.1m) extension on the western end. It was constructed out over the bank at the side of the farmyard terrace, with the front wall resting on the farmyard surface and the rear wall supported three metres off the ground by four large adzed posts all of which had severe decay. There was serious decay in many parts of the structure, and the eastern wall had failed completely, causing the partial collapse of the roof. Part of the floor had fallen away. The four

main elevations of the building are shown below (Figures 12 to 15), and then the building is described below in terms of its main structural components.

Figure 12
The front of the building in 2017.

Figure 13
The western end wall in 2017.

Figure 14
The rear wall in 2017.

Figure 15
The collapsed east wall, with the collapsed hip roof, in 2017.

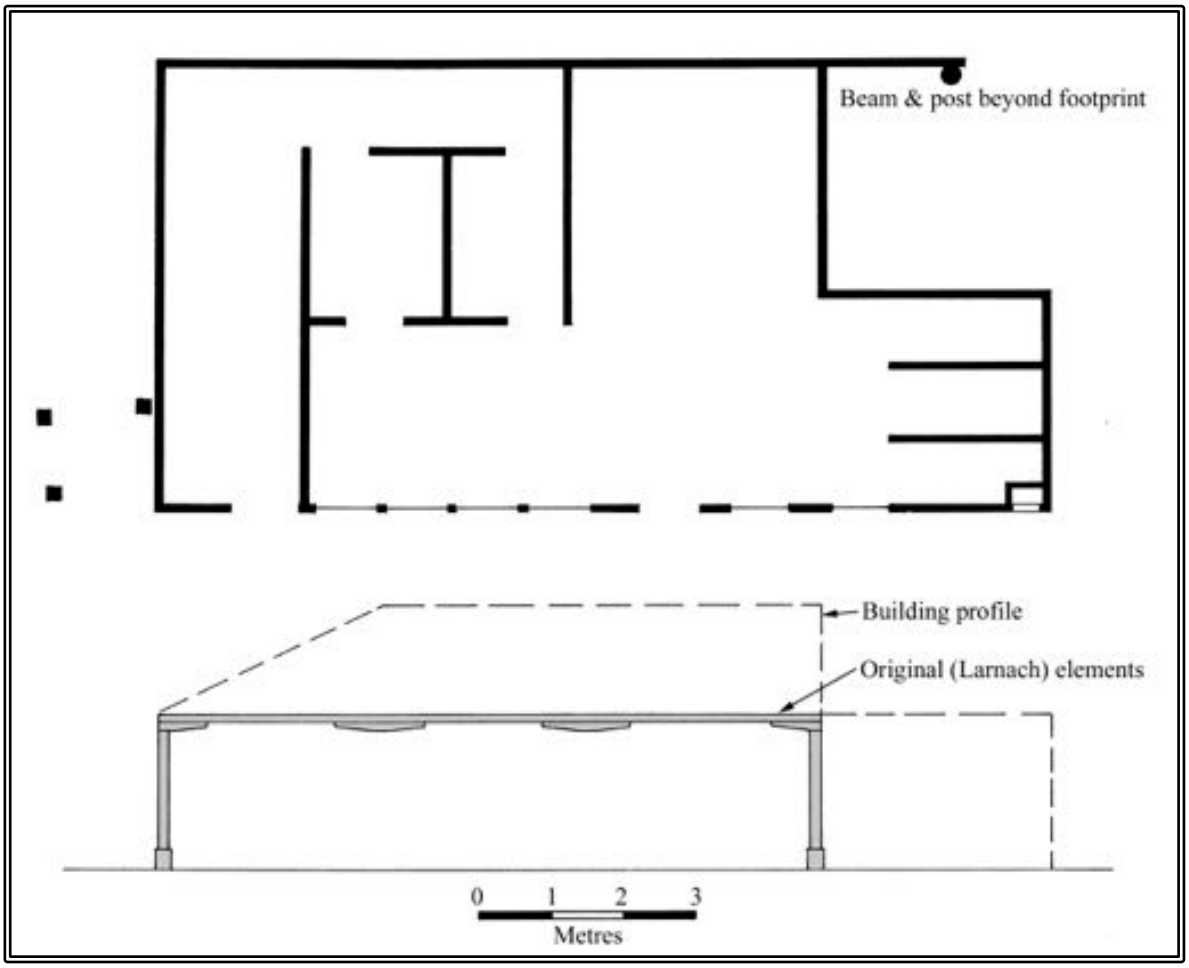


Figure 16
Floor plan (top) of the building as its stood in 2018. The three piles to the left are those that were investigated by archaeological excavation in 2018 (see discussion below). The elevation (bottom) shows the building profile (dashed lines) as it was prior to the roof collapse, and the only surviving original (Larnach-era) elements that were identified during the analysis work.

Foundations

The ground beneath the building sloped steeply to the south, with a scour gully running beneath the middle of the building, and much of the building was supported on tall posts. The foundations consisted of short timber piles along the front wall, and a variety of timber posts elsewhere. A row of four substantial adzed timber posts (varying in size from 9 inches square to 14 inches square) ran along the rear wall (one of which stood beyond the western end of the existing structure; evidence of the building having once been larger, discussed further below). These posts all had severe decay at their bases. Elsewhere there was a mixture of posts that supported the floor joists. These posts were of various sizes, from full round fence posts to pieces of 4x2 set upright (Figure 19). In once place a corbel identical to those remaining in the structure of the front wall had been placed vertically and used as a post (this reuse of materials is discussed further below).

Figure 17 (Above)
The rear of the building, showing one of the main rear posts and the mixture of posts under the floor.

Figure 18 (Left)
A large pocket of decay in the base of one of the main support posts at the rear of the building.

Figure 19
Underfloor view, showing the posts of various sizes that supported the building, the lightweight floor framing, and the steep ground surface.

Figure 20
A corbel and attached section of top plate that matches the corbels and plate in the front wall, repurposed as a post beneath the building.

Floor structure

The floor structure was very lightweight, poorly constructed and in poor condition. The overall design was conventional, and consisted of bearers (supported by the foundation posts) that supported floor joists. The bearers were lightweight timbers (4x2 inch or lighter, and in one place two light timbers were doubled up) and did not fully span the building. The floor joists were 4x2 inch timbers, and in some places these had failed, sections were missing, and joints were simply overlapped and nailed, without being supported on a pile. It is clear that the original construction was lightweight and poor, and ongoing repairs had been carried out as various elements failed. This poor construction and condition of the floor limited the ability to record the rest of the structure in more detail, as it was unsafe to walk on. The floor cladding consisted of a mixture of floor boards and timber slats (with gaps between), consistent with the last use of the building as a woolshed.

Figure 21
Underfloor view, showing the lightweight and ramshackle nature of the floor construction. The posts vary from heavy to very lightweight, the bearers were lightweight or missing, and the joists were lightweight or missing. Joints were simply nailed, and were not supported by a post.

Figure 22
Another underfloor view, showing the mixed quality of the construction.

Wall structure & cladding

The building was timber framed; the rear and eastern end wall consisted of conventional framing with vertical studs between top and bottom plates, with dwangs between the studs. The studs were widely spaced (37.5 inches centre to centre), and these walls were of relatively light construction (and were failing). The western main wall was notably different: it had more closely spaced studs (19 inches centre to centre), but no top plate, and instead had a cross-brace that extended across the entire wall (Figure 24), but this had been cut through when the small western extension was added. The walls were clad in weatherboards, although the upper gable area of the western wall was clad with corrugated iron sheets.

Figure 23
The rear wall framing, of very lightweight conventional construction with widely spaced (37.5 inches centre to centre) studs. By this date (2018) the wall was on the verge of collapse.

Figure 24
The western end wall showing the cross-brace. This cross-brace is probably the main reason the building was still standing in early 2018. Note the close spacing of the studs in this wall (19 inches centre to centre).

The front of the building had a different construction, and consisted of a substantial beam (5.75 inches by 4 inches) that had originally been supported by posts (6 inches x 5.5 inches, set into timber piles) and corbels (4 feet long) (arrowed in Figure 25). However, only the outer two posts remained in place, and the corbels associated with these two posts had both been cut off short. The shortened corbels suggest that the building once extended further to both the east and west (the west extension was shown in the 1942 aerial photo). The eastward extension was investigated archaeologically (see discussion below). In addition, another corbel was found repurposed as a post below the building (see Figure 20 above), suggesting that more of the structure had been dismantled in the past. Another conundrum was that three of the surviving in situ corbels had mortices to match the tenons on the tops of the posts (see Figure 28), but one corbel was blank with no such detail, suggesting that its associated post was just butted beneath it. The repurposed corbel (Figure 20) also had no mortice. The corbels that did have mortices matched mortices in the beam, indicating that the relative locations of the surviving in situ elements were original to those elements. Other lightweight studs had been added into the structure to support the sagging top plate (due to the removal of the original posts) and to provide framing for the corrugated iron and board & batten cladding.

Figure 25
The three visible original timber corbels in the front wall of the building (arrowed) prior to stripping of the remaining cladding.

Figure 26
The front of the building after much of the cladding was stripped, exposing the two remaining posts (at either end of the main structure) and four corbels.

Figure 27
Detail of the easternmost corbel, which had been cut off when the structure was shortened.

Figure 28
Another detail of the easternmost corbel, with the tenon on the end of the post exposed where the corbel had been cut through. Note that the tenon extended through both the corbel and the plate.

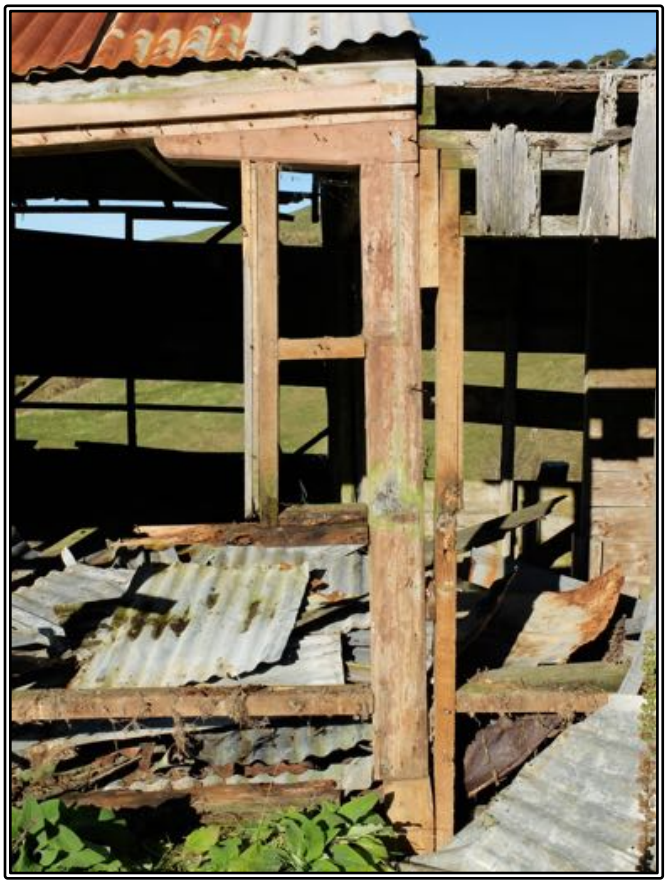


Figure 29
The westernmost intact post and the cut corbel that it supported. Note the base of the post is set into a timber pile.

Figure 30
View out from inside the building, showing an intact corbel, no longer supported from below by a post. Note also the sarking board with notches cut out of it: clear evidence that it has been recycled from elsewhere.

The small westward extension of the building was conventionally framed, and was clad with weatherboards on its rear and side elevations, and with vertical boards and corrugated iron on the front elevation, to match the rest of this side of the building.

Figure 31
A detail of the board and batten and corrugated iron cladding on the western end of the main building, and the vertical boards on the western extension, in 2016.

Figure 32
The same area of the building after the cladding had been stripped off the main building, showing how the extension was added to the main structure.

The large area beneath the building was enclosed using corrugated iron attached to a light timber frame attached to the main rear posts of the foundation structure (Figure). Over a third of this cladding had come away from the building and was lying on the ground.

Figure 33
A view of the rear of the building, showing the corrugated iron cladding covering the sub-floor area, and the weatherboards on the wall of the building.

Roof structure & cladding

The roof was hipped at the eastern end and gabled at the western end (due to the building having been truncated at some time: see discussion below), but the hipped end had partially collapsed due the total failure of the eastern wall. The structure consisted of rafters (2 by 4 inch) and rafter ties, with sarking (made up of a mixture of timbers, some clearly recycled, see Figure 30 above) fixed directly to the rafters, without the use of purlins (the sarking took the place of purlins). Corrugated iron was then nailed directly over the sarking. This structure, with the added triangulation strength provided by the hipped end and the corrugated iron cladding, proved quite strong and did much to hold the building together. The iron was nailed down using early pattern roofing nails.

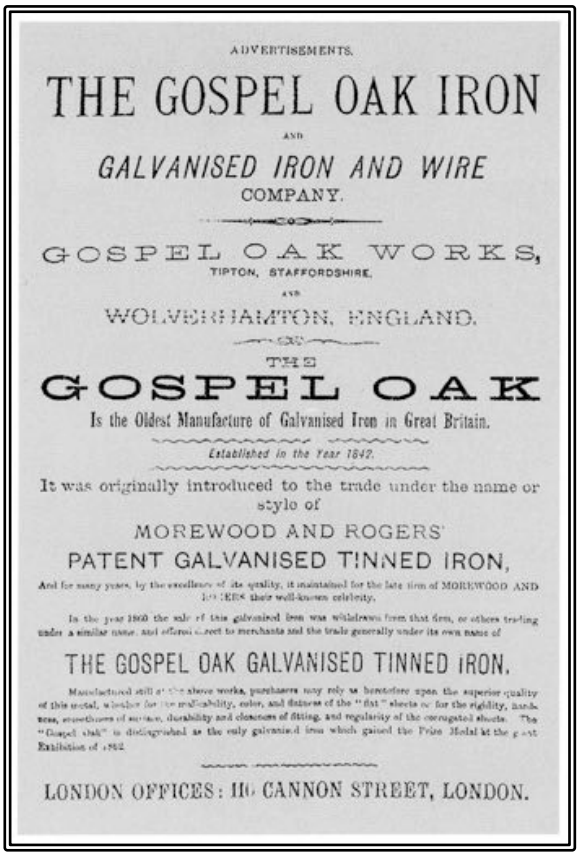
All of the identified corrugated iron was 'Gospel Oak' brand. Gospel Oak iron was originally manufactured by Morewood & Rogers from about 1842, and in 1860 the brand appears to have been set up as a stand alone operation, at the Gospel Oak Works in Tipton, Staffordshire (Thomson 2005: 41). Some time prior to 1901 the Gospel Oak Company was acquired by the Blackwall Galvanised Iron Company, and in 1902 this company was in turn acquired by Baldwins Ltd. (www.gracesguide.co.uk). Gospel Oak was imported in some quantities to both Australia and New Zealand (Thomson 2005; Warr 2000). The nails that secured the iron (Figure 39) were heavy galvanised items with round section and lead washers. These are similar to the early-mid nineteenth century roofing nails illustrated by Thomson (2005: 108).

Figure 34
The roof framing, showing the rafters and sarking.

Figure 35
Detail of the ridge structure at the hipped end of the roof.

Figure 36
Detail of the corrugated iron roof cladding, showing the lead-washer roofing nails that were used to fix the iron.

Figure 37
Detail of the maker's mark on one sheet of iron (all sheets inspected were from the same maker); 'Gospel Oak, Best Quality, Galvanized Tinned Iron.'



ADVERTISEMENTS.

THE GOSPEL OAK IRON

AND

GALVANISED IRON AND WIRE

COMPANY.

GOSPEL OAK WORKS,

TIPTON, STAFFORDSHIRE,

AND

WOLVERHAMPTON, ENGLAND.

THE

GOSPEL OAK

Is the Oldest Manufacture of Galvanised Iron in Great Britain.

Established in the Year 1842.

It was originally introduced to the trade under the name or style of

MOREWOOD AND ROGERS'

PATENT GALVANISED TINNED IRON,

And for many years, by the excellence of its quality, it maintained for the late firm of MOREWOOD AND ROGERS their well-known celebrity.

In the year 1860 the sale of this galvanised iron was withdrawn from that firm, or others trading under a similar name, and offered direct to merchants and the trade generally under its own name of

THE GOSPEL OAK GALVANISED TINNED IRON.

Manufactured still at the above works, purchasers may rely as heretofore upon the superior quality of this metal, whether for the malleability, color, and fineness of the "flat" sheets or for the rigidity, hardness, smoothness of surface, durability and closeness of fitting, and regularity of the corrugated sheets. The "Gospel Oak" is distinguished as the only galvanised iron which gained the Prize Medal at the great Exhibition of 1862.

LONDON OFFICES: 116 CANNON STREET, LONDON.

Figure 38
Advertisement for Gospel Oak galvanised iron (Thomson 2005).

Figure 39
Sample of roofing nails recovered during the building deconstruction.

Internal Layout

The interior of the building was divided up into two main areas: a pen area with slatted floor at the eastern end, and an open shearing floor with boarded floor at the western end. The penned area had a main holding pen across the western end of the building, which connected to two smaller pens, each with a swinging gate into the main area (Figure 40). The small extension at the western end of the building was divided into three with railings. A small box or cupboard occupied the NW corner.

Figure 40
The interior of the building, showing the pens at the eastern end.

Timber Identifications

A number of timber samples were taken for identification, which was carried out by Dr. Rod Wallace at the University of Auckland. The results of this analysis are shown in Table 1.

Table 1
Timber identifications of a sample taken from the building during deconstruction. Identifications by Rod Wallace, University of Auckland.

	Structural element	Common name	Formal name
1	Pile for front post	Totara	*Podocarpus totara*
2	Front post	Rimu	*Dacrydium cupressinum*
3	Front corbel	Rimu	*Dacrydium cupressinum*
4	Rear post	Rimu	*Dacrydium cupressinum*
5	Cross-brace in frame	Matai	*Prumnopitys taxifolia*
6	Pit sawn sarking	Rimu	*Dacrydium cupressinum*
7	Ass. timbers (roof structure)	Prob. gum	*Eucalyptus sp.*
8	Ass. timbers (roof structure)	Exotic conifer (Baltic Pine?)	*Pinus sp.*
9	Ass timbers (hardwood beam)	Prob. gum	*Eucalyptus sp.*
10	Ass. timbers (recycled T&G)	Exotic conifer (Baltic pine?)	*Pinus sp.*

The mixture of timbers is notable. The front piles, posts and corbels are interpreted as original elements of the building (see discussion below), and are consistent with contemporary structural uses of timber: totara for the ground-contact piles and rimu for the framing (Figure 41).

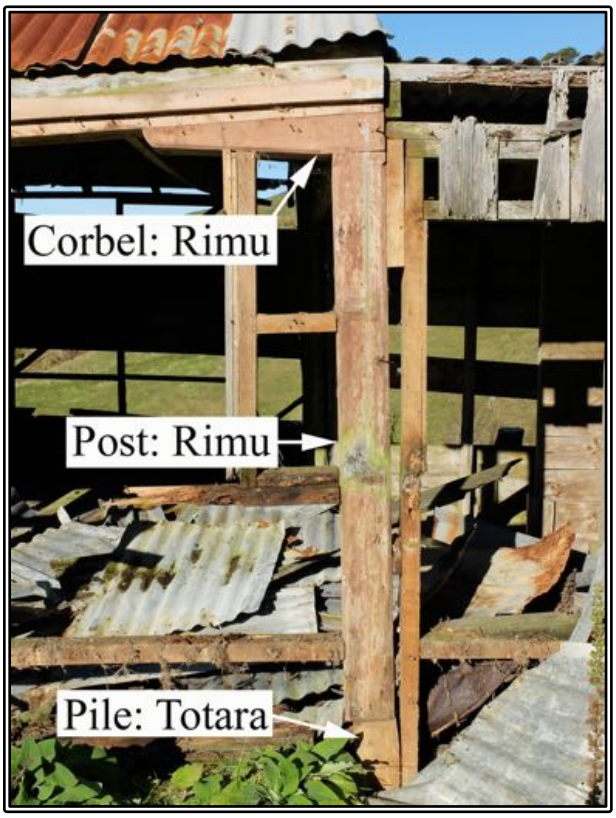


Figure 41
Annotated detail of post and corbel at the front of the building, showing the timbers utilised.

The mixture of timbers used elsewhere in the building is more idiosyncratic: a mixture of native timbers was not unusual in this period (so Matai framing is not unexpected), but the Australian gum and Baltic pine are more unusual in the contexts that they were found, and the tested samples showed clear evidence that they were recycled from other structures: one Baltic pine sample was a board with beaded edge that had probably originally been a skirting board. Overall both the timber identifications and observations regarding timber mouldings and other evidence of use elsewhere supports that argument that much of the structure was built using recycled timbers.

Archaeological investigation of Foundations

Various strands of evidence suggested that the building had originally been longer that its 2018 form, including:

- The presence of the cut corbels at either end.
- The presence of a fourth main rear post beyond the western end of the main structure.
- The 1940s aerial photos that confirmed that the building once extended further west.
- The presence of several decayed timber piles in the ground to the east of the building.

In order to examine the evidence for the eastward extension of the building footprint a small archaeological excavation was carried out by Otago Anthropological Society members to examine this area more closely (Figure 42).

Figure 42
OAS members excavating at the eastern end of the building in August 2017.

This excavation revealed a rough rubble surface with three timber piles set into the ground (Figures 43 and 44), suggesting that the building once extended 5 feet (1.5m) further in this direction (see Figure 16 above). The excavation also found a small amount of artefactual material, including a bottle and a file (discussed in more detail below).

Overall the main result of the investigation was confirmation that the building had been shortened at this end by approximately 5 feet (1.5m).

Figure 43
Timber piles and rock rubble surface exposed during the excavation. View looking towards the west.

Figure 44
Another view of the timber piles and rock rubble surface.

Demolition

The building was demolished in May 2018 using a hydraulic digger to pull it apart (it was not safe for workers to carry this out by hand). Care was taken during the demolition to recover items and information from the structure. The Posts, corbels and top plate from the front of the building were removed, as were two substantial hardwood beams. A sample of the roofing iron (see Figure 37 above) was kept, and timber samples were taken for identification purposes. The items that were retained are temporarily stored in the adjacent byre. The opportunity was also taken to remove the concrete piles from the Nyhon's 1970s woolshed (the piles had been left in place when the woolshed was removed in the 1990s). The timber was burned on site (much of it was decayed and insect-ridden) and the roofing iron was removed and taken to scrap.

Figure 45
Lifting the roof off the building (Neville Peat).

Figure 46
The building superstructure during demolition.

Figure 47
The rear support structure exposed after the removal of the floor.

Figure 48
One of the corbels from the front wall after removal.

Figure 49
The site after the building had been demolished and all of the debris removed. The digger in the left background is in the process of collecting and loading the concrete piles from Margaret Nyhon's 1973 woolshed (Jill Hamel).

Artefactual Material

There was a small amount of artefactual material associated with the building. A set of woolbale stencils were found during the recording of the structure, and a green ring seal beer (RSB) bottle and file were found during excavations to define the northern end of the building. During demolition a handle and a large rock drill were recovered: the rock drill had been driven into a post to act as a fixing.

Stencils

A set of eight metal wool bale stencils were found resting on the top of the top plate of the front wall of the building. These appear to have been placed there when in use, and simply abandoned. Most were professionally cut from sheet metal (probably zinc sheet), but one ('Merino') had been crudely cut from a piece of iron sheet. The lettering differed on the professionally made examples: three were in a san serif font, and four in a serif font. One ('Pieces') was heavily encrusted with tar, and seems to have had the most use. This variation indicates that the stencils were acquired over a period of time and/or from different places, rather than being purchased from a single supplier all at once.

Table 2
Wool bale stencil details.

Text	Material	Font
Combing	Zinc	San serif
Ewe	Zinc	San-serif
Fine Crossbred	Zinc	Serif
Lambs	Zinc	San-serif
Locks	Zinc	Serif
Merino	Iron	Hand made
Pieces	Zinc	Serif
Wedders	Zinc	Serif

Figure 50
'COMBING' stencil.

Figure 51
'EWE' stencil.

Figure 52
'FINE CROSSBRED' stencil.

Figure 53
'LAMBS' stencil.

Figure 54
'LOCKS' stencil.

Figure 55
Hand-made ‘MERINO’ stencil.

Figure 56
Well-used ‘PIECES’ stencil.

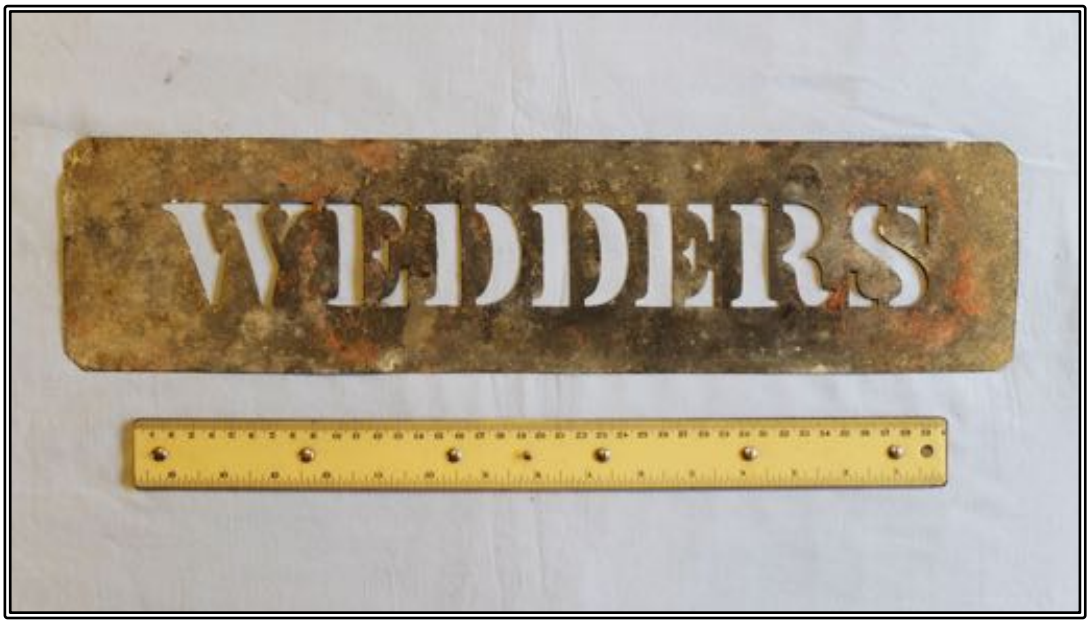


Figure 57
'WEDDERS' stencil.

Table 3
The meaning of each wool bale stencil, indicating the origins of the wool in each case.

Text	Meaning
Combing	Long staple wool with good tensile strength, suitable for worsteds.
Ewe	Female sheep capable of producing lambs.
Fine Crossbred	Fine wool from the offspring of two different breeds.
Lambs	A young sheep of either sex in its first year.
Locks	Short wool pieces created by cutting over the same area of the sheep twice.
Merino	Merino breed (produces fine wool)
Pieces	Short or sweaty edges from the fleece.
Wedders	Scottish/British variant of 'Wether' a castrated male sheep.

Other Artefactual Material

The iron handle (Figure 58) found during the building deconstruction could have belonged to any small workshop item such as a grindstone or a forge blower. If blade shearing was carried out in this woolshed prior to the use of combs it is highly likely that a grindstone would have been present.

The rock drill (Figure 58) had been used as a spike to fasten a beam to one of the main rear posts of the building. It is unlikely to have been used for its original purpose at the farmstead, but the nearby limeworks is one possible place where such tools would have been in regular use.

Figure 58
Handle (top) and rock drill recovered during the deconstruction of the building. The rock drill had been used as a spike driven into one of the rear main posts. The scale is 0.5m long.

The items recovered from the archaeological excavation at the eastern end of the building consisted of a bottle (Figure 59) and file (Figure 60), and some ceramic and bottle glass fragments. The fragments were not diagnostic, other than appearing to be of mid-twentieth century origin. The file is likely to have been used in the farmstead for general workshop activities. The bottle is of a type that was in common use from the late 1870s until the late 1910s, and could have contained one of a number of alcoholic or non-alcoholic beverages including beer and ginger ale (Petchey 2013).

Figure 59
Ring seal beer (RSB) bottle found during the excavation at the eastern end of the building.

Figure 60
File found during the excavation at the eastern end of the building.

Summary of Artefactual Material

The artefactual material found in and around the building is consistent with its use as a woolshed and general agricultural building throughout the twentieth century. The stencils clearly demonstrate its use as a woolshed, and appear to have simply been placed in a convenient place the last time they were used, and then never again required. The other items are all consistent with the general agricultural activities at the farm, except for the rock drill that is more likely to be associated with the local quarrying industry (which makes it consistent with the activities within the wider landscape).

Proposed Site History Narrative

Based on the evidence recorded before and during the deconstruction of the building, and observations of the site topography, it is possible to make some informed suggestions regarding the history and form of the building. It was quite clear from the outset that a mixture of building timbers had been used, many of which showed evidence of having been recycled from other structures. Some of these timbers were pit sawn, indicating a milling date in the 1860s (in the Otago Peninsula context), while most were mill-sawn (circular and reciprocating saws). These details, along with differences in construction techniques between different parts of the building, and the very poor quality of the floor construction, all point at a major reconstruction done on a restricted budget at some point. Of particular note are the piles, posts and corbels in the front wall that are discussed above, and appear to be the only original (ie Larnach-era) elements to have survived. The earliest visual evidence of the form of the building is the 1942 aerial photograph, that shows it as a long building (approximately the same length as the byre opposite) with a hipped roof. The 1958 aerial photograph shows that by that date the western end of the building had been removed, with the hipped eastern end of the roof retained, but the western end of the roof now terminating in a gable.

Figure 61
A 1942 aerial photograph of Larnach's farmstead, with the woolshed building at the bottom of the image.

Figure 62
A 1958 aerial photograph of Larnach's farmstead, to the same orientation as the above image. By this date the woolshed had been truncated, with the western half removed.

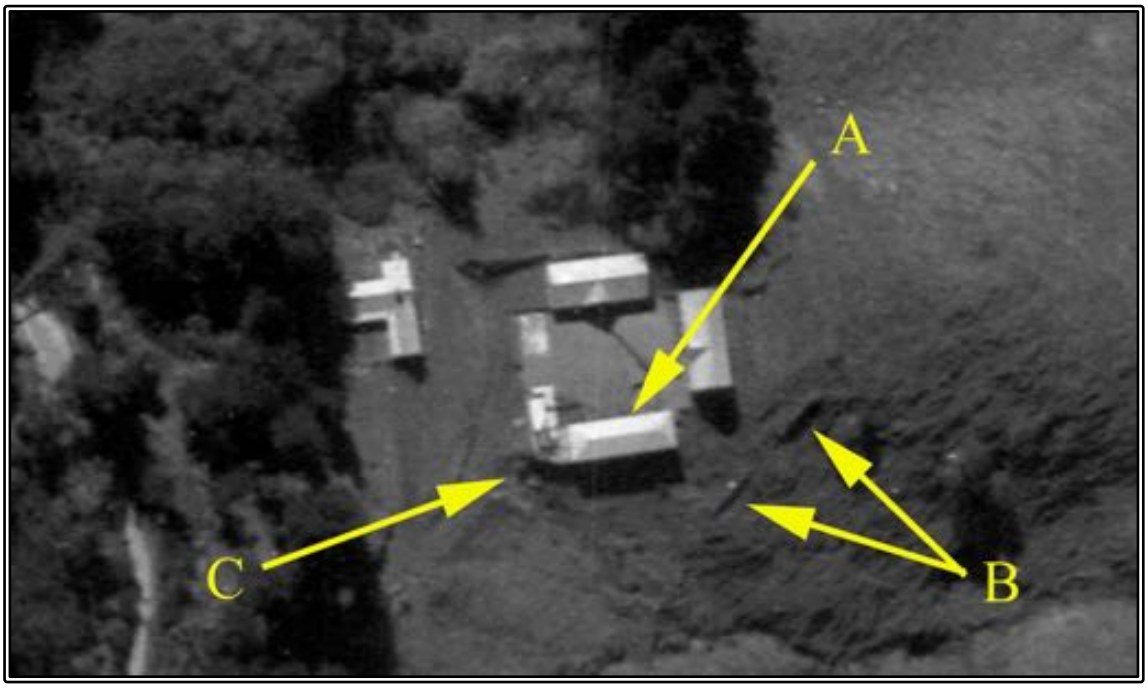
However, it is the postulated major reconstruction that occurred prior to 1942 that is of greatest interest here, as this relates to the fate of the original (1870s) building that was associated with William Larnach, and the interpretation of what are identified as the surviving elements of the front of this building (posts, corbels and beam).

Several lines of evidence suggest that Larnach's building had already been largely replaced by 1942 by the hipped roof building visible in the aerial photo of that year:

1. The hipped roof of the building is at odds with the gable roof of both the byre and the stables, which by the evidence of photographs of the farmstead in the 1960s (Figure 9 above) were consistent in their overall form, detailing and roof form. Given Larnach's desire to create architectural statements (*vide* the Castle) it is most likely that all of the original buildings would have matched.
2. The foundation piles outside the building envelope that were investigated indicated that the original structure extended 5 feet further east.
3. The surviving structural evidence within the small woolshed suggested that parts of a more substantial building were present; namely the posts, corbels and beam at the front of the building, and match more closely the style of construction of the byre. They are also consistent in the timber species used, with totara used for the piles and rimu for the other members.
4. The posts and corbels in the front of the building were internally consistent in their detailing and use of mortice and tenon joints, suggesting that they were originally erected as a single structure. The sawn-off corbel at the eastern end indicates that this structure was truncated at that end as well as the known (between 1942 and 1958) truncation at the western end.
5. The other elements of the building displayed a mixture of timbers and obviously recycled members, clearly showing that timbers recycled from other buildings had been incorporated into the structure. This mixture of timbers included what appeared to be Baltic pine skirting boards, which must have come from a cottage or house that had been dismantled.
6. It is suspected that some of Larnach's first farm buildings were moved to the new farmstead site, particularly the house that became the manager's house in its new location (Knight 1981; Gosling 2009: 37). It is possible that the woolshed was constructed in this way, but the details described above suggest otherwise.
7. There is good evidence that the side of the farmstead site slipped, probably carrying away the majority of the original building, and that the building visible in the 1942 aerial photo is a post-slip replacement structure. This evidence is described in more detail below.

Landslip Evidence

As stated in point 7 above, there is evidence that a slip has carried away part of the farmyard terrace, and almost certainly damaged the original building. The farmyard terrace itself is the result of cut and fill work on a spur to create a level area large enough for Larnach's intended fully-enclosed farmyard; from the lie of the land it appears most likely that the main line of the spur originally ran through the middle of the farmyard area. The cutting and filling carried out by Larnach's workmen created a large space, but there were probably stability issues that soon appeared. In particular there are two areas of revetment on the SE slope below the farmyard (B in Figure 63, and Figure 65) that suggest additional works were required there to stabilise the slope. The terracing works also apparently exposed a small spring or seep at the foot of the slope on the west side of the yard, which is still active today and keeps this area wet. The water from this seep runs off the edge of the terrace, and this combined with rainfall runoff appears to have caused the south side of the terrace to slip away: 'C' in Figure 63 shows where slip scarring was still clearly visible in 1942, and Figure 64 shows how much further the slip had progressed by 2007. The extent of the slip is visible today when viewed from the south (Figure 66). As described above, the area under the building still had an obvious erosion gully, a legacy of this instability and possibly the product of water continuing to run under the building at times.



Figures 63 (above) and 64 (below)
The 1942 and 2007 aerial photos of the farmstead, annotated to indicate significant features:

A **The barn/woolshed building, as it stood before being truncated to half its length (above) and in its final form (below).**

B **Two areas of stone revetment constructed to support the farmyard terrace.**

C **Visible scour due to water run off from the farmyard, probably both from the natural seep in this area and rainfall draining off the access track and yard surface. Note how the slip has become worse in the 2007 image, causing the loss of the half of the structure.**

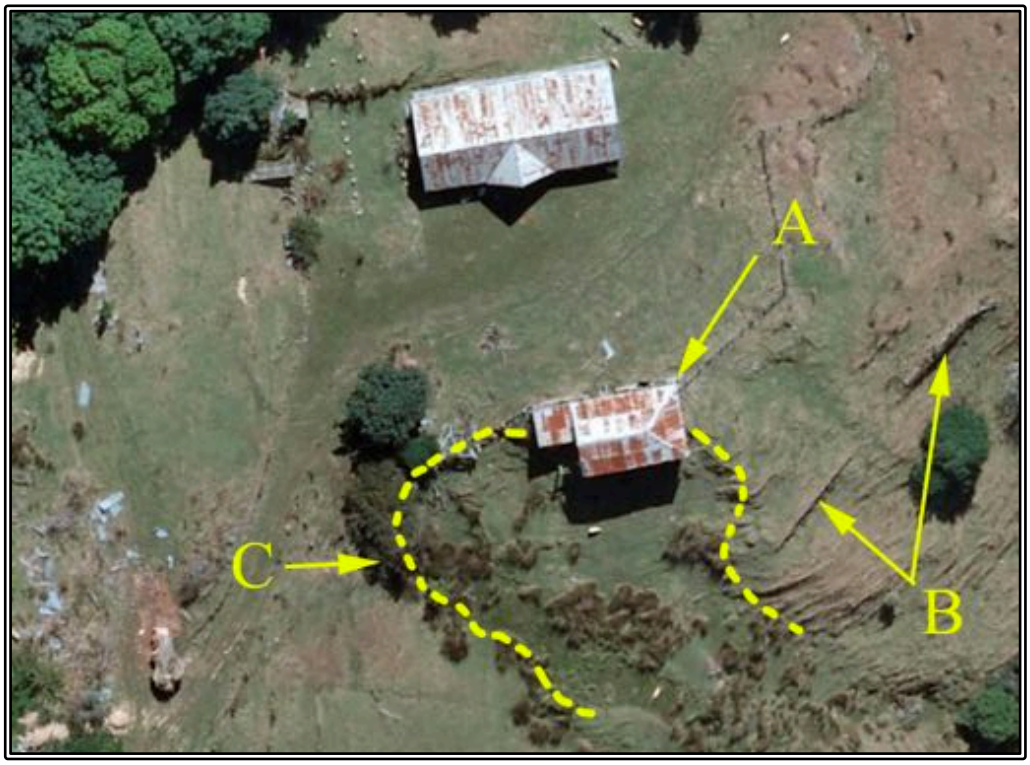


Figure 65
One of the sets of stone revetment indicated as 'B' in the Figure above.

Figure 66
The area of the slip that probably destroyed the original Larnach-era building.

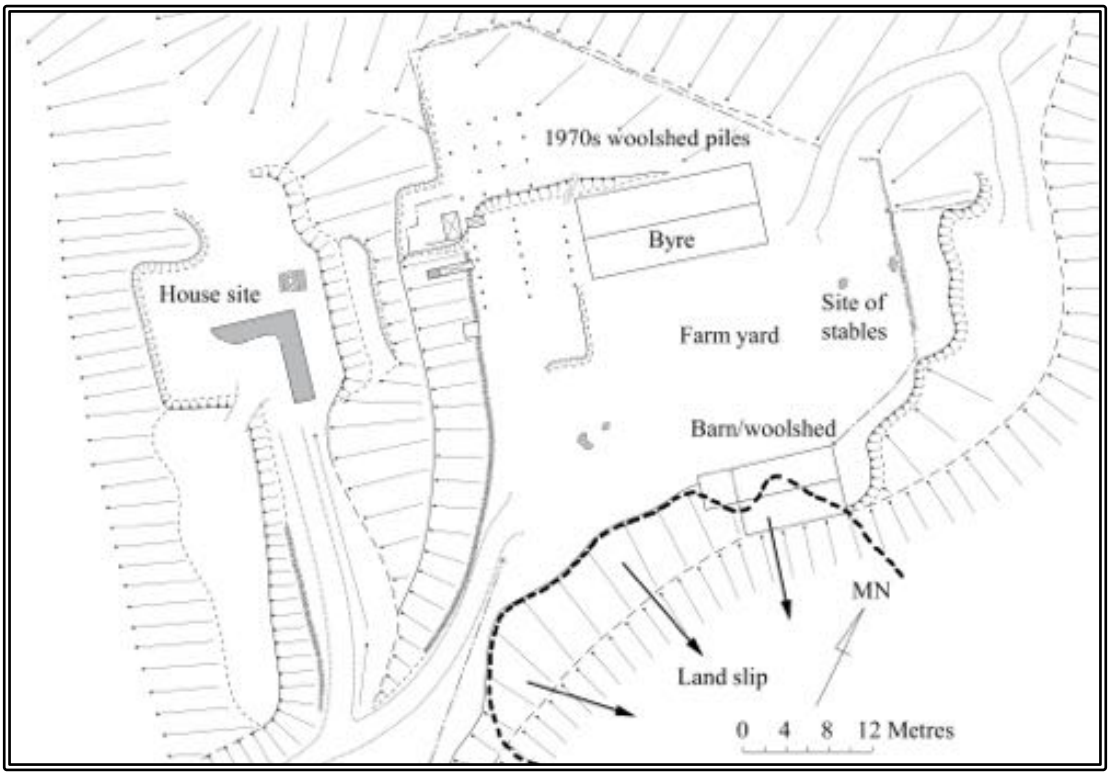


Figure 67
Annotated farmstead plan showing the slip site (adapted from Gosling 2009). Note that the slip probably happened in several separate episodes.

The proposed scenario is therefore that:

1. In the 1870s Larnach's workmen created a large terrace on the hillside by utilising a natural spur, with the cut material deposited on the southern side of the terrace.

2. They then built a series of four buildings, all timber framed, with board and batten wall cladding and corrugated iron roofs. These consisted of a byre, a stable, an open fronted implement shed, and a building that straddled the entranceway. It is possible that this housed the dairy.

3. There were quickly issues with the stability of the southern slope of the farmyard terrace, possibly due to drainage and the small spring at the western end of the farmyard. Several sections of stone revetment were built at the time of construction of the terrace or soon after to stabilise these slopes.

4. At a later date (probably after the land was sold, but before 1942) a major slip carried away the southern edge of the farmyard, collapsing the implement shed. The front of the shed remained standing but the rear wall and roof were destroyed.

5. A new building was erected to replace the shed, reusing the front posts, corbels and beam, and possibly recycling the corrugated iron from the roof. Other materials were sourced from nearby houses and other structures that were being dismantled. The new building was slightly shorter than the old implement shed had been, and had a hipped rather than gabled roof. It may have been constructed as a woolshed at the time, or may have been adapted for this use later *(That the reconstruction was done after the land was sold is likely because the construction was obviously done cheaply, with lightweight design and recycled materials. It was clearly not done by Larnach while his fortunes were high (ie prior to his financial*

troubles from the mid 1880s). Also, the use of recycled timbers suggests a period when settler houses began to be replaced and/or small landholdings began to be consolidated. Recent work in Dunedin has found an example of this process in the 1890s (Petchey 2017b)).

6. The land instability continued, and the western end of the reconstructed building was damaged some time between 1942 and 1958, leading to the building being truncated, with only the eastern half left in place. A small extension was later added over part of the earlier western footprint, where solid ground remained. The building was certainly in use as a woolshed at this time.

7. Maintenance probably ceased completely from 1973, after a new woolshed was built adjacent to the byre.

8. The building was demolished in 2018.

Comparative Analysis

A number of recent studies have considered the layout of historic farmsteads in Otago and on the Otago Peninsula (Gosling 2009; Hamel 2001; Kelly et al 2016; Petchey 2006, 2017; Thornton 1986; Webb 2009), and so there is some comparative information on which to base a discussion of Larnach's farmstead, and in particular to consider the changing form and function of the small woolshed building.

Of particular note is that the Peninsula farmsteads appear to have followed the British pattern of small compact complex designed to provide shelter for stock. This contrasts with the more spread out sheep stations of Central Otago, which Hamel (2001: 118) ascribes to the pastoralists' Australian training, where they knew that this provision of shelter was not necessary in New Zealand. Several surviving cow byres on the Otago Peninsula illustrate how sheltering stock was a common local practice, examples including Roger's McMeeking's and Mathieson's byres. Larnach's byre was large, although it is notable that Mathieson's byre is more substantial than Larnach's as it was constructed from masonry rather than timber.

However, in the context of the current consideration of the small woolshed, and the evidence for its original form as an open-fronted shed, it is comparison with implement shed design that is particularly relevant. These sheds were used to store items of farm machinery and vehicles (such as wagons and other horse-drawn vehicles). Geoffrey Thornton (1986) commented on the general form of implement sheds, observing that sometimes the barn or stable would have a long lean-to at the rear, but more often a separate structure would be built; this would be open at the front (Figure 68) and sometimes divided into a series of bays (Thornton 1986: 243).

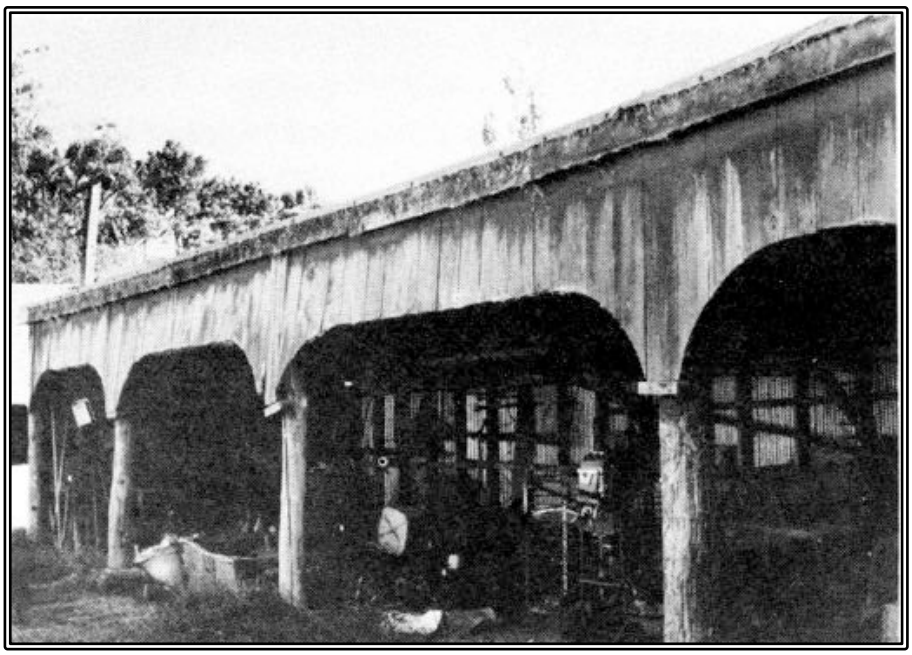


Figure 68
The Hollybrook implement shed on the Taieri Plain as illustrated in Thornton (1986: 244).

An excellent comparison is the implement shed at Ayrburn Farm in the Wakatipu Basin (Figure 69) (despite its stone construction). This is still in its original form, the major modification being the addition of corrugated iron roofing (the original shingles remain under the iron). As can be seen, this has an open front, with posts, corbels and top plate in a very similar form to the probable original front of Larnach's shed. The stables at Ayrburn Farm are also comparable to the (now gone) stables at Larnach's Farmstead, as they are two storied with a gabled dormer to provide access to the hayloft

(Figure 70). These two buildings face each other across a farmyard, although this yard is not enclosed in the way that Larnach's was.

Figure 69
The implement shed at Ayrburn Farm in the Wakatipu Basin. Note the open front, with a beam supported by posts and corbels (Petchey 2006).

Figure 70
The stables block standing opposite the implement shed at Ayrburn Farm in the Wakatipu Basin (Petchey 2006).

The combined evidence within the building at Larnach's farmstead and comparison with other comparable structures therefore strongly suggests that the building started life as an open-fronted implement or cart shed, probably used to store wagons, drays and other horse-drawn vehicles. The location of the building beside the stables would make it convenient for this purpose. The substantial access road to the farmstead that is still in use confirms that road transport was an important consideration when the farmstead was developed.

Probable Original Design

Based on the above discussions, the original appearance of the building at Larnach's farmstead was probably an open-fronted implement/cart shed, with the front consisting of posts, corbels and a beam, and the side and rear walls vertical board and batten to match the byre and stables. The roof would have been gable-ended, clad with corrugated iron (probably 'Gospel Oak' brand). The building would have been a similar length to the byre opposite, to create symmetry in the farmyard layout (Larnach was a man who was aware of architectural statements), which is supported by the 1888 map (Figure 4 above), which shows the buildings as being approximately the same length (the shed was probably very slightly longer than the byre, based on the locations of the old piles shown in Figures 43 and 44 above). It is not known whether it was single or two storied, but the former is more likely for implement sheds. Using the length of the bays between the posts (which vary between 9 feet 6 inches and 10 feet 5 inches, based on the measurement of the spacing of the surviving corbels) as unit of length, and adding half a bay at either end (as suggested by the piles that were investigated by the small archaeological excavation), the building would have been 60 feet (18.3m) long. Its width is impossible to now determine, and it is unlikely that the large rear posts used in the later building relate to the earlier building as they are rimu, while ground-contact timbers in the original structure were probably all totara. But it is likely that the width would have been similar to the existing building (approximately 20 feet or 6 metres wide), in part because this would have allowed roofing elements (such as rafters and roofing iron) to be easily reused.

Figure 72 shows a speculative front elevation of the building, based on all of the evidence discussed here. Some details are inevitably simplified, especially regarding the roof (the pitch used to estimate the roof height is relatively shallow, but a steeper pitch - leading to a higher ridge - may have been used to match the stables and byre. There is also evidence in paint shadows in some of the surviving corbels (Figure 71) that board and batten infill was used in some of the bays, creating enclosed areas rather than a completely open front.

Figure 71
Underside of corbel removed from the building during demolition, showing the paint shadow of board and batten infill walling. The fact that a layer of pint was applied prior to the board and batten being installed suggests that the building was partially enclosed during its life.

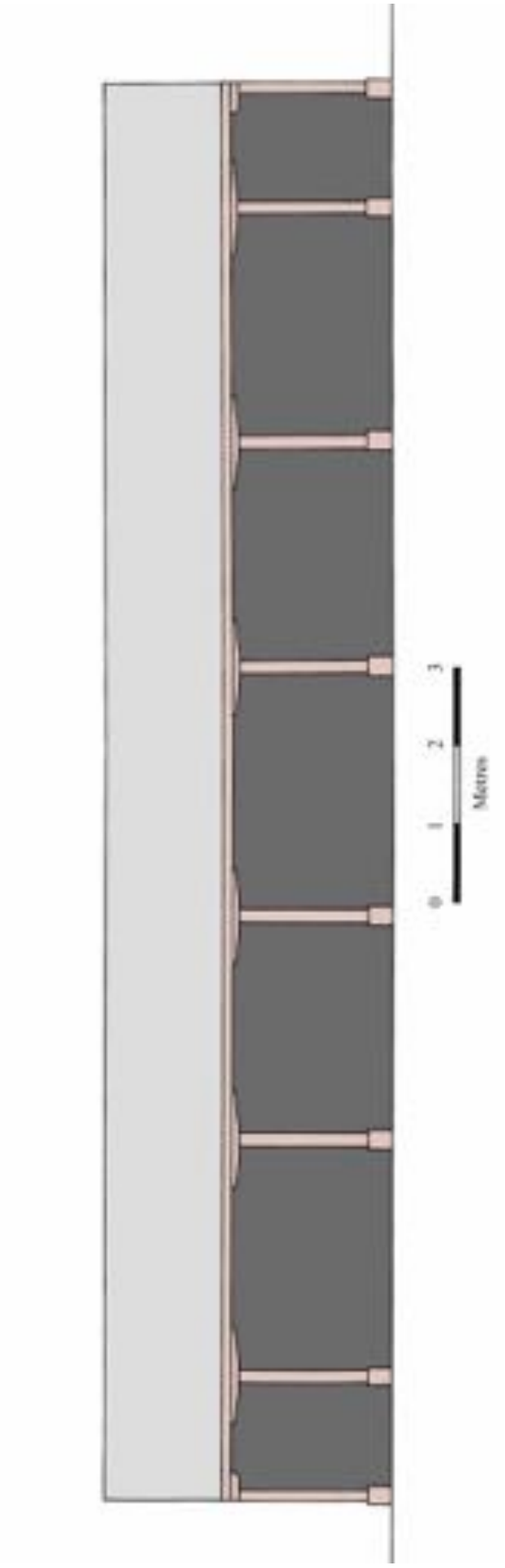


Figure 72
Reconstructed front elevation of Larnach's implement shed.

Conclusions

The small woolshed building at Larnach's old farmstead was significant for two main reasons; one historical/cultural/archaeological, and one aesthetic. It formed part of the historic Larnach farmstead complex, which is important both for its representative role as a nineteenth century farm and because of its association with William Larnach. It was also important as a visual element in the farmstead, as it created a visual boundary to the farmyard area, which was originally intended to be completely enclosed with buildings on all four sides.

The building was probably an open-fronted implement shed, approximately 60 feet long, located on the edge of the cut and fill farmyard terrace. However a small spring at the back of the farmyard and the unconsolidated fill combined to create serious instability, and there were several slips (probably in two major events) on the south side of the farmyard. The first slip seriously damaged the rear of Larnach's implement shed, which was subsequently rebuilt using some of the front of the original structure, but with other recycled timbers used elsewhere. This new building was built out partially over the slip, supported at the rear by substantial timber posts. At some time between 1942 and 1958 another slip occurred, damaging the western end of the new structure. This lead to the building being cut in half, with only the eastern half retained.

The latter use of the building was as a woolshed, but when Margaret Nyhon built a modern woolshed nearby in 1973 this use ceased, and the building probably had little or no maintenance since. By 2018 it had deteriorated to the point of collapse. When it was examined in detail all that remained of its original Larnach-era structure were two posts, four corbels and a beam, but these were sufficient to allow the construction history of the building to be determined.

Options for future recreation or partial recreation of the implement shed remain possible, but a limiting factor is the loss of land to the landslips, meaning that the original building footprint no longer exists. There also remains the issue of the unstable fill of the farmyard and the presence of the spring: addressing the spring and stormwater drainage of the terrace is essential, and geotechnical assessment of the ground may be helpful.

References

Cowley, C.E. (1936) *Classing the Clip. A Handbook on Wool-Classing*. Angus & Robertson Ltd., Sydney.

Gosling, A. (2009) 'Larnach's Farmsteading: an archaeological and historical study.' B.A. (Hons) dissertation, University of Otago.

Hamel, J. (2001) *The Archaeology of Otago*, Department of Conservation, Wellington

Kelly, A., Muir, A., Henderson, R. (2016) 'Rogers' Farmstead Survey, Otago Peninsula. *Archaeology in New Zealand*, 59 (3): 29-39.

Kelly, A. (2017) Larnach's Farmstead Survey and Excavations, Hereweka/Harbour Cone, Otago Peninsula.' *Archaeology in New Zealand*, 60 (4): 43-53.

Knight, H. (1979) *Otago Peninsula* (second edition). The author.

Knight, H. (1993) *The Ordeal of William Larnach*. The author.

Middleton, A. (2012) Hereweka/Harbour Cone: a relict landscape on the Otago Peninsula, *Australian Historical Archaeology*, 30 (1): 34-42.

Petchey, P. (2006) 'Ayrburn Farm, Wakatipu Basin, Archaeological Assessment' (Draft). Report for Mitchell Partnerships Ltd.

Petchey, P. (2013) 'The Ring Seal Beer/Champagne Bottle.' *Archaeology in New Zealand*. 56(4):215-224.

Petchey, P. (2017a) Heritage Assessment McMeeking's Farmstead, Otago Peninsula: Archaeological Site 144/769, Dunedin, New Zealand. Internal report for Southern Archaeology Ltd.

Petchey, P. (2017b) 'Recycling & Working Class Architectural Respectability. The Buildings Archaeology of 28 Richmond Street, Dunedin.' *Archaeology in New Zealand*, 60(4):54-69.

Snedden, F. (1997) *King of the Castle. A Biography of William Larnach*. David Bateman, Auckland.

Stephens, H. (1876) *The Book of the Farm*. William Blackwood and Sons, Edinburgh & London.

Thomson, S. (2005) *Wrinkly Tin. The story of corrugated iron in New Zealand*. Steele Roberts Ltd., Wellington.

Thornton, G.G. (1986) *The New Zealand Heritage of Farm Buildings*. Reed Methuem Publishers Ltd., Auckland.

Warr, A. (2000) Roofing, Corrugated Iron-Options for Repair. Part of seminar 'Material Evidence, Conserving Historic Building Fabric, New South Wales Heritage Office.

West, J. (2009) 'An Environmental History of the Otago Peninsula. Dialectics of ecological and cultural change from first settlement to 1900.' PhD Thesis, Department of History, University of Otago.