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**Recycling & Working Class Architectural
Respectability
The Buildings Archaeology of 38 Richmond Street,
Dunedin**

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Introduction

The façade that a house presents to the street is only one aspect of the meaning in that building, and more detailed analysis of the structure can provide additional layers of information. This analysis can become more interesting and informative when the construction of the house steps away from standard practices. In the present case of a small cottage in South Dunedin evidence of recycling of older timbers in the house can inform us about both the builder of the house itself, and the fate of the previous generation of 'settler' houses.

In 2017 a small timber cottage at 38 Richmond in South Dunedin in Dunedin was demolished, having been damaged in extensive floods in June 2015. The cottage had been built in ca. 1892 and was recorded as site I44/728, and the demolition work was carried out under Archaeological Authority No. 2017/179. One of the requirements of this Authority was for the building to be recorded prior to demolition, and the for the ground works for the replacement house to be monitored. This work is detailed by Petchey (2017).

The small cottage presented an unremarkable aspect to the road, as it has been modernised in the mid-twentieth century and all of its typical late-Victorian detailing had been removed. However, a closer analysis of the building not only revealed its original design, but also showed how it had been somewhat roughly constructed using material salvaged from earlier structures. The typical Victorian bay cottage details of the original design (such as a front door with side and fan lights, and sash windows) concealed the humble scavenged origins of much of the timber and the shortcuts that were taken in its construction.

This paper describes the cottage in both its final and its postulated original forms, some of the changes that were made over time, and how outward respectability, and street frontage have always been important considerations

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for urban home owners of all classes. It also considers the fate of some of Dunedin's earliest houses, as they were replaced by (and in this example incorporated into) the second generation of domestic building.



Figure 1. The house at 38 Richmond Street in August 2016.

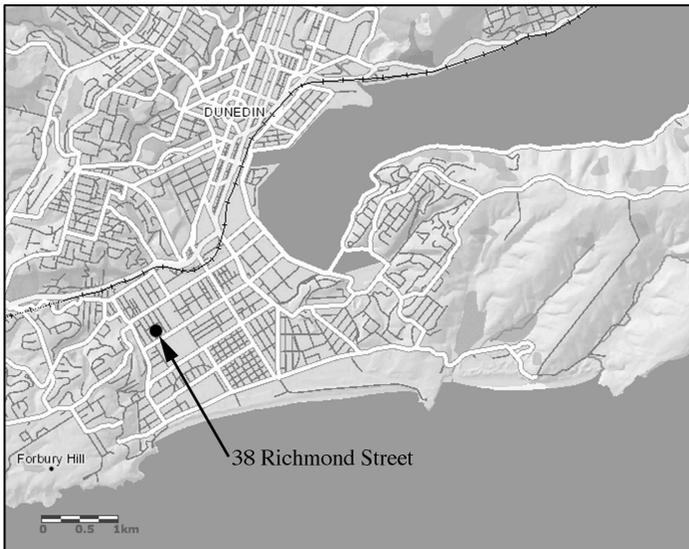


Figure 2. The location of 38 Richmond Street, Dunedin (DCC Webmap).

General History

The Otago settlement was a joint venture between the New Zealand Company and the Lay Association of the Free Church of Scotland, which purchased 144,600 acres of land in coastal Otago in 1844. Charles Kettle and his assistants Robert Park and William Davidson carried out the survey of the main settlement site of Dunedin in 1846, and the first two ships carrying settlers, the *John Wickliffe* and the *Philip Laing*, arrived in March and April 1848 (McDonald 1965: 1-4). A makeshift barracks was built to house the settlers, but they were soon making efforts to construct new homes. There had been several sawyers on the first ships, and they soon set to work felling trees and supplying timber (Hocken 1898: 10; Wood 1997: 57). Those materials that were to hand were used, which included native timbers that grew locally, clay, and thatched or shingled roofs.

Dunedin's early growth was concentrated along Princes and Rattray Streets on the south side of Bell Hill, in the area now known as the Exchange. Very few settlers chose ground north of Stuart Street or in South Dunedin in the initial land ballots, as much of these areas were low-lying and swampy (McDonald 1965:13); it was with the economic boom generated by the Otago gold rushes of the early 1860s that these peripheral areas began to be developed more intensively. South Dunedin evolved as a working class suburb, with development following the horse tram routes as they were developed in the 1880s.

The History of 38 Richmond Street

Richmond Street was part of the Forbury extension, a subdivision of a block of land in Caversham that had been purchased by William Kennedy in 1875 (Certificate of Title 18/140), and the property that is now 38 Richmond Street (Allotment 18 Block XVI Dunedin) was advertised for sale by auction in December 1888 (*Otago Daily Times* 19 December 1888: 4). William Dodds (a carpenter) purchased the property, and the title (CT 86/266) immediately registered a mortgage to Sievwright and Burton; whether this was to purchase the land or to raise funds for building a house is not clear. However, the available evidence is that Dodds did build a new house on the property in 1892, as his name first appeared in the *Stones Directory* in 1892, interpolated between two neighbouring residents that had already been listed in the previous year.

The Certificates of Title (86/266; 91/252), together with additional information from the Dunedin City Council rates books and *Stones*

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Directories, records the series of owners and occupiers of the property through the years:

- 1891 William Dodds, carpenter.
- 1895 Julia Gertrude Lear (with another occupier named Cope after 1896).
- 1902 Mary Anne Munro and George Munro, stone mason.
- 1907 Agatha Mary Shiel
- 1908 Janet Chalmers, wife of Thomas Chalmers of Dunedin, building contractor.
- 1909 Janet Chalmers died, title passed to Thomas Chalmers.
- 1912 Thomas Chalmers died, title passed to executors John Wilkinson and Eardley Reynolds.
- 1913 Isabella Chalmers.
- 1921 John Hay, builder.
- 1923 Edwin Charles Haddon Jacob, tramway employee.
- 1925 Lilian Buchanan, widow.
- 1950 George Lindsay Fleming, storeman.
- 1957 George Robert Howrie, labourer.
- 1958 Ruth Constance Grace, divorcee.
- 1960 Geoff Charlton Simmonds, factory employee (married Ruth Constance Grace)
- 1961 Ruth Constance Simmonds

It is notable that all of these occupants were of a similar socio-economic status, with jobs such as stonemason, builder, tramway employee, storeman and labourer. These were all working class occupations, but provided sufficient income to allow a modest house and garden to be purchased. Clark (1962) analysed the values of houses in the year 1901 throughout Dunedin, and placed Richmond Street on the edge of his 'Class D' where the general value of the improvements was from £250 to £500. He described the Class D houses as 'usually monotonous single-storey dwellings, although many did have a veranda and some garden' (Clark 1962: 105). While a little harsh, it does describe the Richmond Street area with rows of small cottages each surrounded by a small garden, and agrees with the Caversham Project's discussion of Caversham as being more affluent than other parts of South Dunedin (<http://caversham.otago.ac.nz>). It was certainly a contrast to the 'Class E' houses (worth £0 to £250) that Clark described as 'little more than oblong boxes.'

There are only limited records regarding changes and modifications to the house over the years: the only record that the Dunedin City Council Archives holds is a 1920 plan for a rear extension to replace an original smaller lean-to

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kitchen and make alterations to laundry, coal shed and toilet (DCC Archives, Building Plan - 1920 4905). There is no record of when the original Victorian sash windows were replaced by casement windows, but the style suggests that this was carried out in the early/mid-20th century. In June 2015 heavy rainfall in coastal Otago and caused widespread flooding in South Dunedin, which is a naturally low-lying area with high groundwater. The house at 38 Richmond Street was flooded and it was not subsequently reoccupied, and was demolished in early 2017.

The House

The house stood with its front square to the street, as was the universal practice at the time of its construction. The façade consisted of a single bay on the south side with a large plate glass window with side casement, a four-panel glazed front door, and a three-casement window on the north side (Figure 3). The overall proportions of the house gave away its late nineteenth century origins, but the late Victorian detailing that it would once have possessed had been removed.

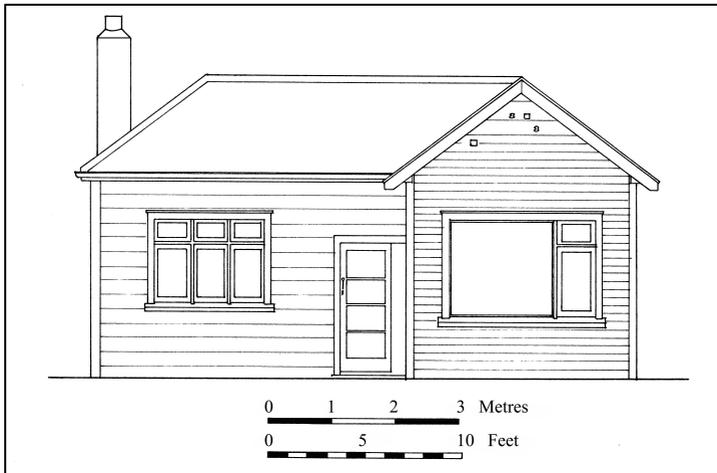


Figure 3. The front of 38 Richmond Street in 2016. The basic form was of a small bay cottage, but all of the windows had been changed to update its appearance during the twentieth century.

It was a small (approx. 1185 sq.ft., 110 sq.m.) house on a typically small flat South Dunedin section (17.3 poles, 438 sq.m.). The house measured 45 feet 3

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inches (13.8 metres) front to rear (including the bay) and 27 feet 10 inches (8.5 metres) side to side. There had been at least three (and possibly four) main phases of construction, which had cumulatively more than doubled the size of the house. These consisted of the original 1892 house, possibly two extensions of unknown date (but probably ca. 1900) and a 1920 rear extension. Figure 4 shows the house floor plan as recorded in 2016 and the construction phase interpretation based on archaeological evidence.

The house was of timber construction, clad mostly with wide (9 inch, 230mm) rusticated weatherboards (typical of its 1890s build date), except for the front bay, which was clad with narrow (5 inch, 130mm) boards of a much more modern pattern. Repairs to the walls, the cladding of the 1920 lean-to, and reinstatement of weatherboards around modernised windows and the front door (covering the side and fan lights) had all been carried out with rusticated boards to match the originals (except for the front bay already mentioned). All of the windows were timber-framed casements, none of which were contemporary with the 1892 build date of the house, and they were all probably installed in the mid-twentieth century. Evidence of earlier window forms was visible once the interior wall linings were stripped off. One chimney remained in place (between Rooms 4 and 5) but there was internal evidence that there had been another chimney between Rooms 1 and 2. The roof over the older (pre-1920) part of the house was a U-shaped plan in corrugated iron, with the central gully discharging to the rear. The 1920 rear lean-to had a modern coloursteel roof.

Interior Description

In 2016 the interior of the house was divided into six rooms (Figure 4) opening off a central hallway. The wall lining throughout much of the older part of the house (Rooms 1 to 5) was modern gib board fixed over the old sarking boards, with some scrim and paper also still in place beneath the gib. Some original interior details remained, including four-panel doors and architraves in Rooms 1, 2 and 4, and board and batten lined ceilings in Rooms 1 and 4. The hall and Room 3 also had original ceilings, hidden behind more modern dropped fibreboard ceilings (Figure 5). In the hallway the original 1892 front door frame was still in place with the side and fanlights partially intact (but covered over on the exterior) (Figure 5). In general the surviving original details was typical of a nineteenth working class cottage, with moderate amounts of ornamentation, but none of the elaborate plasterwork seen on middle class houses (see Petchey & Brosnahan 2016: Figure 6).

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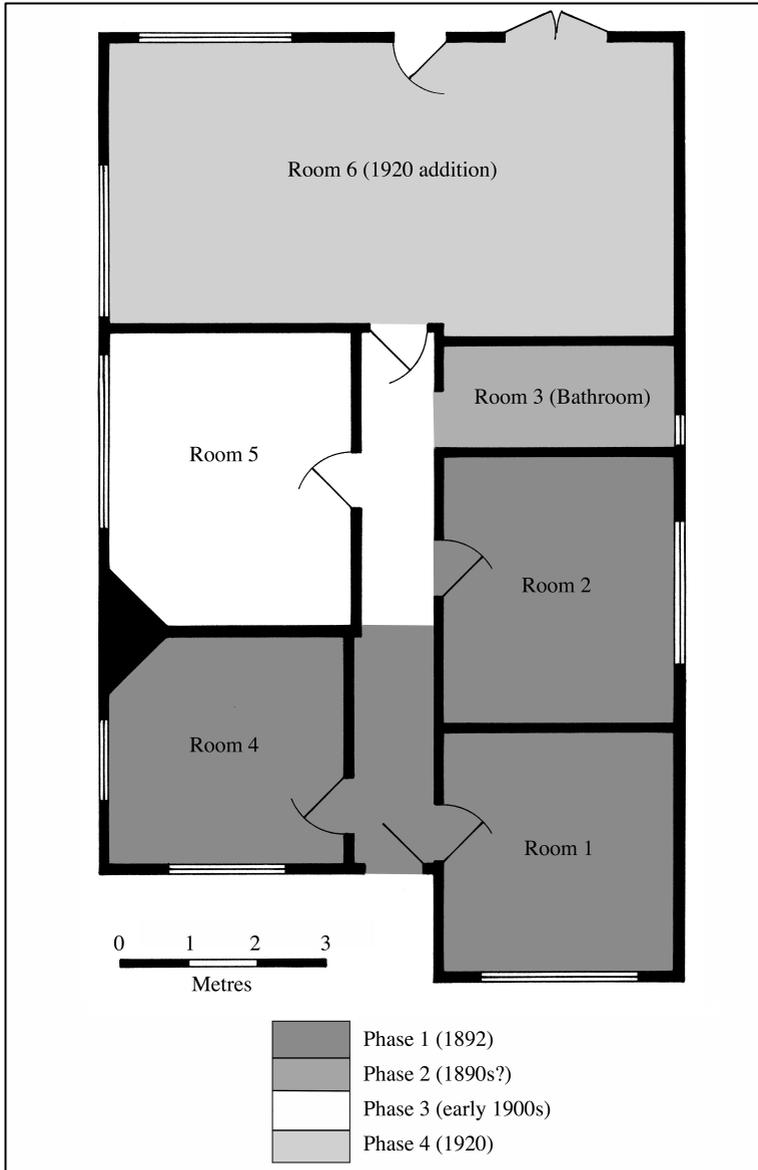


Figure 4. Floor plan of 38 Richmond Street in 2016 showing building phases based on examination of the house structure and room number used in the house description.

Figure 5. The hallway, showing the original hall ceiling that had been hidden by a later dropped ceiling, and the old door frame with sidelights and fanlights.



Structure

The house was of conventional timber construction, but both the original (1892) house (Rooms 1, 2, 4) and the 1920 addition (Room 6) had been built using a great deal of second-hand timber in the structure. Evidence of this included considerable variation in timber size, evidence of pit sawing (anachronistic for the 1890s), redundant mortise holes, old paint on the timbers, and general discolouration.

The foundations were mainly timber piles, many of which were rotten, and there were numerous repairs in concrete and timber along the front wall, including a carved limestone post (Figure 6) that had been used as a support. This was clearly recycled from elsewhere, although it was not possible to determine whether it was incorporated during the 1892 house build or during a later repair. The piles of the rear 1920 extension (Room 6) were concrete, and some were formed simply by using a bucket as a mould, and one galvanised steel bucket was even left in place on the pile it had created (Figure 7). These piles simply sat on the surface and were not dug into the ground.

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Figure 6. The carved limestone post that had been incorporated into the front wall foundations.



Figure 7. Bucket shaped concrete pile with the bucket left in place in the 1920 section of the house. These 'bucket' piles were not set into the ground, but just rested on an earlier asphalt surface.

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The floor framing in the front 1892 section of the house included bearers recycled from elsewhere, with redundant mortises (Figure 8). The wall framing in the same area (Rooms 1, 2, 4) was conventionally constructed from 2 inch by 3 inch (50mm by 75mm) studs set at nominal 22 inch (560mm) centres. The studs were butted and nailed into the plates, without the mortise and tenon joints that are often seen on slightly older houses. In Room 5 the external wall framing was conventional, using 2 inch by 4 inch (50mm by 100mm) studs at centres that varied between 16 inches and 17 ½ inches (400mm to 450mm). The framing timbers and the sarking in this room appeared to be newly milled and of a more consistent appearance than the timbers in the other parts of the house, suggesting that unlike the original 1892 cottage and 1920 extension, new timbers were used when this extension was made. In the 1920 extension (Room 6) the wall framing was built from a variety of second hand timbers including 2 inch by 3 inch (50mm by 75mm) lengths laid flat. The sarking was a mixture of second hand timbers.



Figure 8. A floor bearer in the front section of the house with a redundant mortise, evidence of its earlier use, probably as a top or bottom plate of a timber framed wall.

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The roof framing was lightweight and roughly built. The rafters were all recycled timbers of varying sizes (Table 1), and were widely and variably spaced, from 39 inches (1m) to 49 inches (1.24m) (centre to centre) apart. There was minimal use of purlins: in some places only a board at the top and bottom of the roof plane and one in the middle (Figure 9), and these boards were simply reused 1 inch (25mm) thick planks. Once again, timbers with redundant mortises were used in the roof structure.

Table 1: Variability in rafter dimensions.

Element	Size (imperial)	Size (metric)
Rafter	3 inch by 2 inch	75mm by 50mm
Rafter	4 inch by 1 ½ inch	100mm by 40mm
Rafter	4 inch by 2 ½ inch	100mm by 65mm
Rafter	4 inch by 3 inch	100mm by 75mm
Valley rafter	5 ½ inch by 2 inch	140mm by 50mm



Figure 9. The very lightweight and sparse framing of the roof at 38 Richmond Street, possible only because corrugated iron was used as the roof cladding.

Timber Identification

A selection of timber samples were taken from the original (1890s) part of the house and submitted to Rod Wallace at the University of Auckland for identification (Table 2). These revealed that rimu was most the most common building timber, but that totara and imported Oregon Pine (Douglas fir) was also used. Sample 2 (rimu roof frame) had clear pit-saw marks, while sample 3 (totara ceiling joist) was machine sawn but had a redundant mortise. Rimu and totara both grew naturally in the Dunedin area prior to European settlement, so would have been available to the early settlers (Allen 1994).

Table 2

Timber samples taken from 1890s section of 38 Richmond Street. Samples 2 and 3 had clear evidence of having been recycled from an earlier structure.

No.	Element	Timber (common name)	Timber (formal name)
1	Floor joist	Rimu	<i>Dacrydium cupressinum</i>
2	Roof frame	Rimu	<i>Dacrydium cupressinum</i>
3	Ceiling joist	Totara	<i>Podocarpus totara</i>
4	Weatherboard	Rimu	<i>Dacrydium cupressinum</i>
5	Joist	Oregon pine/Douglas fir	<i>Pseudotsuga menziesii</i>

Discussion

William Dodds probably built the house with the intention of living it himself, as he occupied it for about four years. He was clearly intent on saving money and utilised a lot of recycled materials in the structure; as a carpenter he presumably worked on houses that were being built, modified or demolished, and would have had contacts with others in the same industry, so he would have been well placed to obtain timbers from houses that were being demolished. These houses were probably built within the first few years of the establishment of Dunedin, as the evidence of pit sawing on some timbers suggests an early date of milling. The first saw mill to operate in Dunedin was established in the Leith Valley by W.H. Valpy in 1850 (Hocken 1898: 108) but much timber continued to be pit-sawn, and in outlying areas such as the Otago Peninsula where farmers had to clear their land with minimal capital, pit sawing was used well into the 1860s (Huggett 1966). The presence of numerous recycled timbers with redundant mortises also has dating implications; the use of mortise and tenon joints in wall framing (particularly where the studs were joined to the top and bottom plates) was in common use until the 1890s, after which joints were began to be simply butted and nailed (Salmond 1986: 113). The Richmond Street house was built

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with plain butted joints (consistent with its 1892 date), while the numerous redundant mortises in various timbers are clearly from an earlier building.

This evidence therefore indicates that the first generation of ‘settler’ houses of the 1840s to 1860s were being replaced by newer structures in the 1890s (by which time many of them would have been 50 years old), and that some of the timbers from these earlier houses were finding their way into the newer houses. The available evidence is that this recycling was probably limited to cheaper (ie working class) houses, as recent examination of two middle class villas of the period showed no such reuse in the original construction (Petchey & Brosnahan 2016; Petchey in prep). Another difference between 38 Richmond Street and these middle class villas was the quality of construction. Not only did William Dodds use second-hand timbers, it also appears that he took short cuts in the erection of the house. This is most evident in the roof structure, where the (various sized) rafters were widely spaced, with minimal use of (again various sized) purlins. Such parsimony in construction materials was only possible through the use of corrugated iron for the roof cladding, as the iron is lightweight and acts as a structural material itself (it creates an effective diaphragm) (Thomson 2005: 17, 27, 43). As Thomson (2005: 43) observed, after the 1979 Abbotsford slip in Dunedin it was only the houses with corrugated iron roofs that remained in one piece after their impromptu journey. Another advantage is that iron is fireproof, an important consideration in a world where lighting and heating were supplied by naked flames. An Otago Provincial Council building ordinance in 1862 (Dunedin Building Ordinance 1862, Part F) banned timber shingles, and stipulated that fireproof roofing materials must be used; cheap and versatile iron became the roof cladding of choice for most structures.

But despite the second hand materials and structural shortcomings, the small cottage at 38 Richmond Street was finished off to conform with contemporary design aesthetics, with its bay window frontage, sash windows and front door with sidelights and fanlights (Figure 10), details shared with middle-class villas. These details immediately took it one step past the plain rectangular box cottage with simple door and windows (such as the Class E cottages discussed by Clarke 1962). Another nearby 1890s cottage at 13 Braemar Street that has recently been examined in detail (Moyle & Petchey 2015) had been modified during its life (in 1905) by the addition of two bay windows on the front, transforming it from a simple box cottage to a double bay cottage or even a small villa street: appearance was important even in working class South Dunedin. The implications of appearance and respectability in domestic houses are explored further in Petchey & Brosnahan (2016).

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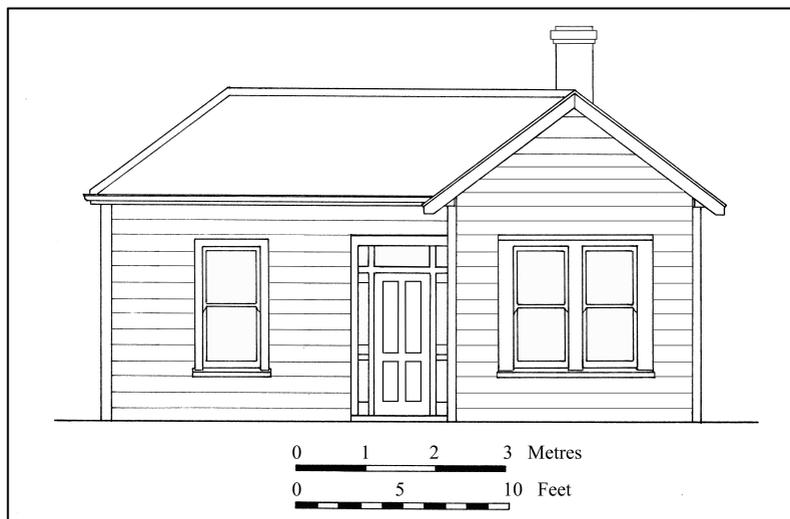


Figure 10. The possible appearance of 38 Richmond Street when it was built, based on structural evidence in the house. Compare this to Figure 3.

Over time 38 Richmond Street was modified and extended, and its appearance stripped and simplified. All of these changes are typical in the life of a building as deterioration, maintenance, and changes in fashion and occupants' requirements all come into play. The quality of such modifications can vary enormously: the 'middle' room addition (Room 5) was carried out with newly-milled timbers and appears to have been well-executed. The 1920 addition (Room 6) was less professional, with recycled timber again coming in to play, and the use of the upended bucket piles (Figure 7). Ironically, it was another owner-builder, John Hay, who was responsible for this addition, presumably also acquiring materials through his work. The date when the carved limestone post was incorporated into the foundations is not known, but it again represents the reuse of much older building material that was opportunistically acquired. The replacement of the original sash windows and door lights was typical of the mid-twentieth century, and a very similar treatment was seen at the villa at 29 Queen Street (Petchey & Brosnahan 2016).

Conclusions

Overall, 38 Richmond Street was an interesting example of a late nineteenth century working class cottage that had undergone a number of extensions and

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modifications. It exhibited a number of distinctive traits, including the basic return bay layout, the use of architectural details such as a front door with side and fan lights and sash windows, and the use of rusticated weatherboards; all of which were widely used for both cottages and villas of the period. Interior detailing was also typical for a cottage of this status and period, with scrim and sarking wall linings, board and batten ceilings, and four panelled doors. The house had retained its original form and bulk to the street although its footprint had been doubled since it was first built. The main changes to the street frontage over its life was the modernisation/simplification of the exterior, not uncommon on domestic structures in the mid twentieth century, as has recently been reported in an other Dunedin example (Petchey & Brosnahan 2016).

Of particular interest in the house was the use of recycled timbers in the original (1890s) section. As the house was built by a carpenter (William Dodds) it is likely that he recovered materials from old houses that were being demolished, which is significant, as it shows that by the 1890s Dunedin's early houses had begun to be replaced and renewed. Related to the use of recycled timbers is the somewhat crude construction of parts of the original house, especially the roof framing which was very lightweight and constructed entirely from second hand timbers. While the cottage conformed to standard Victorian design aesthetics externally, the internal structure was much rougher, despite being built by someone who claimed to be a professional. It proves that building quality was as variable in the 1890s as it always has been: the tension between sometimes poor construction standards and the importance of outward appearance is nothing new, and has found its most recent airing in New Zealand in the leaky buildings issue of the late twentieth century. Nevertheless, 38 Richmond Street did stand for some 120 years, which is not a bad innings considering its start in life.

Acknowledgements

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DCC Archives Records

DCC Archives, Building Plan - 1920 4905 Extend lean-to kitchen and make alterations to laundry, coal shed and toilet.

LINZ Records

Certificates of Title 18/140; 86/266; 91/252

Websites

<http://www.archsite.org.nz/>

<http://caversham.otago.ac.nz/resource/place/southern.html>