The Dunny Comes in from the Cold

Adrian Humphris, Wellington City Council Archives & Geoff Mew, independent scholar

ABSTRACT: By the late nineteenth century, action was taken by local authorities in several major New Zealand cities and towns to instigate measures to improve sanitation to reduce or eliminate the spread of noxious diseases. Wellington led the way in 1898 by completing a citywide drainage system, to collect human waste from households and carry it to the sea at Moa Point on the south coast. The water closet was a necessary integral part of this system, with the attendant piping for odour dissemination. It was soon realised that the isolated external toilet or dunny situated well away from the main house, and a feature of the garden, was no longer necessary; instead, homeowners could have a special small room indoors to accommodate the toilet with its plumbing; hence the origin of "the smallest room in the house." An interim stage of house planning was to locate the toilet beneath a verandah overhang, possibly with an adjacent wash house or coal store. Or there might be a small add-on wing to the house with the same functions. Some toilets were in the same internal room as the bath, but this was generally uncommon.

In this paper we look briefly at key features of the Wellington sanitation scheme, then analyse the number and locations of internal toilets using building permit plans for new houses. The changeover to internal toilets took many years, even decades in some areas, as they were difficult and costly to retrofit in older villas and some bungalows which had only recently got used to having piped water. Thus, the night-cart system for collection and disposal of human waste from earth closets also had to continue - in some instances until the 1960s. Although the dunny was eventually replaced in towns and cities, it still lives on near huts in parks and reserves - but progress has generally led to better overall sanitation, and garden landscape design benefited accordingly.

AI Statement: AI was not used in any aspect of researching and writing this paper.

Introduction

The first decade of the twentieth century saw major improvements in human health, transport and electrical generation. All these led to or resulted from changes in interior house design and minor adjustments in garden or section design as well.

The growth of towns and cities in the mid to late 1800s frequently led to overcrowding with problems of rubbish accumulation and human waste disposal. Polluted air and water supplies were held responsible for widespread outbreaks of noxious diseases such as cholera and typhoid.[1] Councils were faced with the need to implement more efficient and innovative schemes particularly for rapid removal of human waste from houses. The best means devised overseas for cities such as London were found to be the construction of underground sewer systems into which effluent was discharged from in-house water-flushing toilets. The London sewage system built around 1865 was the work of an inspired engineer, Joseph Bazalgette, and still forms the basis of the system there.[2]

In New Zealand's main cities by the 1880s arbitrary disposal of night-soil from earth closets in outhouses in the garden or rear part of the section had been replaced by, usually weekly, collection of the material by contractors who then dumped it at designated sites selected by local authorities where it was supposed to be buried under a thin layer of soil. In the country the outhouse was usually a single-seater dunny sited over a deeply dug

[1] Yska *Wellington Biography of a City* p 55.

[2] Bryson *At Home* p 445.

hole, the long drop, and was merely moved to a new site when required. Sewage systems in towns were localised and rudimentary - they could not change until piped water became widely available.

References to the 1890s' Wellington sewage scheme are generally brief and uncommon in general histories of Wellington's development. Mulgan for example in *The City of the Strait* (1939) only refers to the 1890s comprehensive sewage scheme as leading to a decline in typhoid but goes into no detail.[3] Yska (2006) emphasises the problems caused by poor drainage but suggests the solutions resulted from earlier plans than those which were actually fully implemented.[4]

In this paper we have concentrated on analysing the extensive data within building and drainage permit applications for new dwellings in the Wellington City area between 1898 and 1909 to attempt to evaluate the uptake of water closets inside buildings over time. We have also considered when underground-sewage systems were constructed in some other urban areas around the country and if and how the dunny survived. Design changes in house room layouts as shown in some plan books and architectural reports are also briefly investigated.

General effects of improved sanitation on house and section design

The introduction of unified underground sewage disposal schemes connected to all buildings with piped water in various New Zealand cities and towns was a major feature of the first decade of the twentieth century. Design features aimed at greatly reducing the noxious odours formerly associated with earth closets meant that water closets could now be built as integral parts of houses without the risk of spreading disease. Wellington's drainage scheme led the way in 1898, followed by Dunedin in 1908, Christchurch in 1909,[5] and Auckland in 1914.[6]

Both architects and builders took some time to respond to the possibilities for locating the new smallest room inside the house. Its former position as a dunny had been either as an independent structure well away from the house on the section or as a part of an outhouse structure that may have incorporated a coal shed and/or a wash house.

The Wellington Sewage Scheme

Following the recommendations of a Drainage Commission set up in 1890,[7] the Wellington City Council contracted a Sydney-based drainage expert, Mr Richard Liron Mestayer, to design and supervise the construction of a sewage disposal scheme for Wellington City which at that stage excluded the surrounding boroughs. Mestayer had considerable experience with such schemes in Australia having designed one for Adelaide followed up by several for towns in New South Wales. He also had developed expertise with dam building and water supplies and had previously worked in the English Midlands.[8]

Construction work on the Wellington scheme commenced in 1893 after an intensive survey of levels and the basic system was in place and being tested by March 1898.[9] It should be emphasised however that the connection of all existing and new properties to the sewer

[3] Mulgan *The City of the Strait* p 213.
[4] Yska *Wellington Biography of a City* p 76.
[5] Although Christchurch had a rudimentary drainage system as early as 1882 it was not on the scale of that of Wellington.
[6] Dann "Sewage, water and waste" np.
[7] "Town and Country" p 20.
[8] "The Drainage Scheme" p 4.
[9] "Our Drainage System" p 6.

network was only beginning and was to last well into the early twentieth century.

Over the previous five years between 60 and 70 miles of pipes had been laid under city streets. Of these some 58 miles were stoneware and about eight were made of cast iron. The latter were designed to carry compressed air from the steam-driven compressors beside the rubbish destructor at Clyde Quay to 13 ejector stations (Shone ejectors) where sewage was raised from low-lying areas into the main sewer. This then travelled by gravity for discharge onwards into the sea at the outfall at Moa Point on Cook Strait.[10]

The Wellington sewage scheme was described in some detail in the *Evening Post* of 11 March 1898 when the pumps were switched on for the first time, although the initial network was not then quite complete.[11] Work on this and the connecting of existing and new homes to the sewer network continued through much of the early 1900s. However, this trial run confirmed the viability of the scheme and the success of Mestayer, its designer. His work for the Wellington City Council terminated in 1899 and he returned to private practice, getting consultancies in the wider Wellington area as well as Auckland, New Plymouth, Hawera and Nelson although not all of them were for drainage works.

Data Analysis

To get some idea of the numbers and locations of water closets that were being installed in new dwellings in the early 1900s in Wellington (and suburbs) we examined 2,022 building permit applications held by the Wellington City Council Archives. We also searched newspapers using PapersPast for reports on the numbers of new sewage connections, and other general reports on progress with the adoption of sewage disposal schemes in local boroughs and more widely in New Zealand. The period from 1900 to 1910 saw considerable change in Wellington with the commencement of electric tram services to outlying areas, amalgamation of local boroughs into the city, and population expansion with new building in the suburbs as well as urban renewal in the city centre. Many of these changes were discussed in our book *Ring Around the City* (2009), although we did not go into any detail on the implications of the sewage scheme at that time.

Newspaper articles about the Wellington drainage scheme were relatively frequent between 1895 and 1902, but only a few subsequently related to the progress made in connecting dwellings to the new sewer lines. Some idea of the number of properties that would require connections was given in an article noting work done by the Council to collect nightsoil following the contract for the work expiring and the Council taking over collection from 1 June 1902. During the first six nights of June the Council workmen visited 2,700 premises, their eight carts collecting 12,000 gallons of soil (an average of 4.5 gallons per property). The soil was transported to dumping grounds amongst the sandhills east of the city.[12]

By August 1898 more than 5,500 houses had been connected to the new system, with about 2,000 still to go, although the rate of progress was limited by the numbers of plumbers and drainlayers available. It was also noted that 1,500 new houses had been built between 1893-98, delaying the work of connecting and re-draining old houses.[13]

[10] "Our Drainage System" p 6.
[11] "Our Drainage System" p 6.
[12] "[untitled]" p 2.
[13] Wellington Main Drainage

	Wellington City						Outlying suburbs		
	1893	**1896**	**1899**	**1903**	**1906**	**1909**	**1903**	**1906**	**1909**
Number of new dwellings permitted	206	325	282	334	319	72	190	474	303
Sample size available from total number	75.2%	51.7%	75.5%	92.2%	92.2%	95.8%	43.2%	93.9%	91.7%
New dwellings with only one toilet	100.0%	90.6%	87.4%	87.2%	89.0%	77.9%	96.2%	99.2%	96.0%
New dwellings with more than one toilet	0.0%	9.4%	12.6%	12.8%	11.0%	22.1%	3.8%	0.8%	4.0%
New dwellings with an inside toilet	7.8%	20.8%	36.6%	39.7%	42.5%	47.1%	1.2%	3.6%	6.2%
New dwellings where toilet is outside or accessed externally	92.2%	79.2%	63.4%	60.3%	57.5%	52.9%	98.8%	96.4%	93.8%
New dwellings where toilet is completely separate from the dwelling	-	-	-	13.8%	6.8%	4.4%	78.0%	81.9%	79.3%

Table 1: Locations and number of toilets for new dwellings, Wellington City and Outlying Suburbs, 1893-1909 (Source: Building permit records held at Wellington City Council Archives, years identified, multiple different series. Note: Wellington City is the area administered by the Wellington City Council, and largely covers the original 1,100 Town Acres. Outlying suburbs are the areas formerly the boroughs of Onslow, Melrose and Karori).

Once the completed system began operating in 1898, property owners became legally responsible for connecting their premises to them, but a widespread shortage of capable plumbers meant that progress with connections was very slow. In August 1900 the *Evening Post* reported that "no less than 1,200 dwellings are still unconnected with the main drains."[14]

In some instances it appears that householders were actually reluctant to become part of the system as evidenced by reports of prosecution by the council - for example a description of such a case in the *Evening Post* of 20 November 1901.[15] The problems of rates of connections were compounded by the increasing numbers of new dwellings being built, particularly in neighbouring boroughs and developing suburbs which were outside the Wellington City boundary so not part of the drainage scheme. The data from building permits shows earth closets persisting in some of these areas even after decisions had been taken to join them to the city to link with existing or new sewers. This may relate to the delay in these areas being connected to the drainage system. By 1909, however, just under half of all new dwellings built in Wellington City had inside WCs (47.1%), an increase on the 36.6% being built with inside toilets in 1899. In marked contrast, the number of new houses built in 1909 in the suburban areas outside of Wellington City was just 6.2%, which included some allowances for WCs that could be used once the drainage system was extended to these areas.

Progress with Wellington Drainage to 1910

The major changes that affected the rates of abolition of dunnies from the Wellington scene in the early 1900s were population growth and the amalgamation of surrounding

[14] "The Impotent Corporation" p 4.

[15] "Sanitation of Island Bay" p 2.

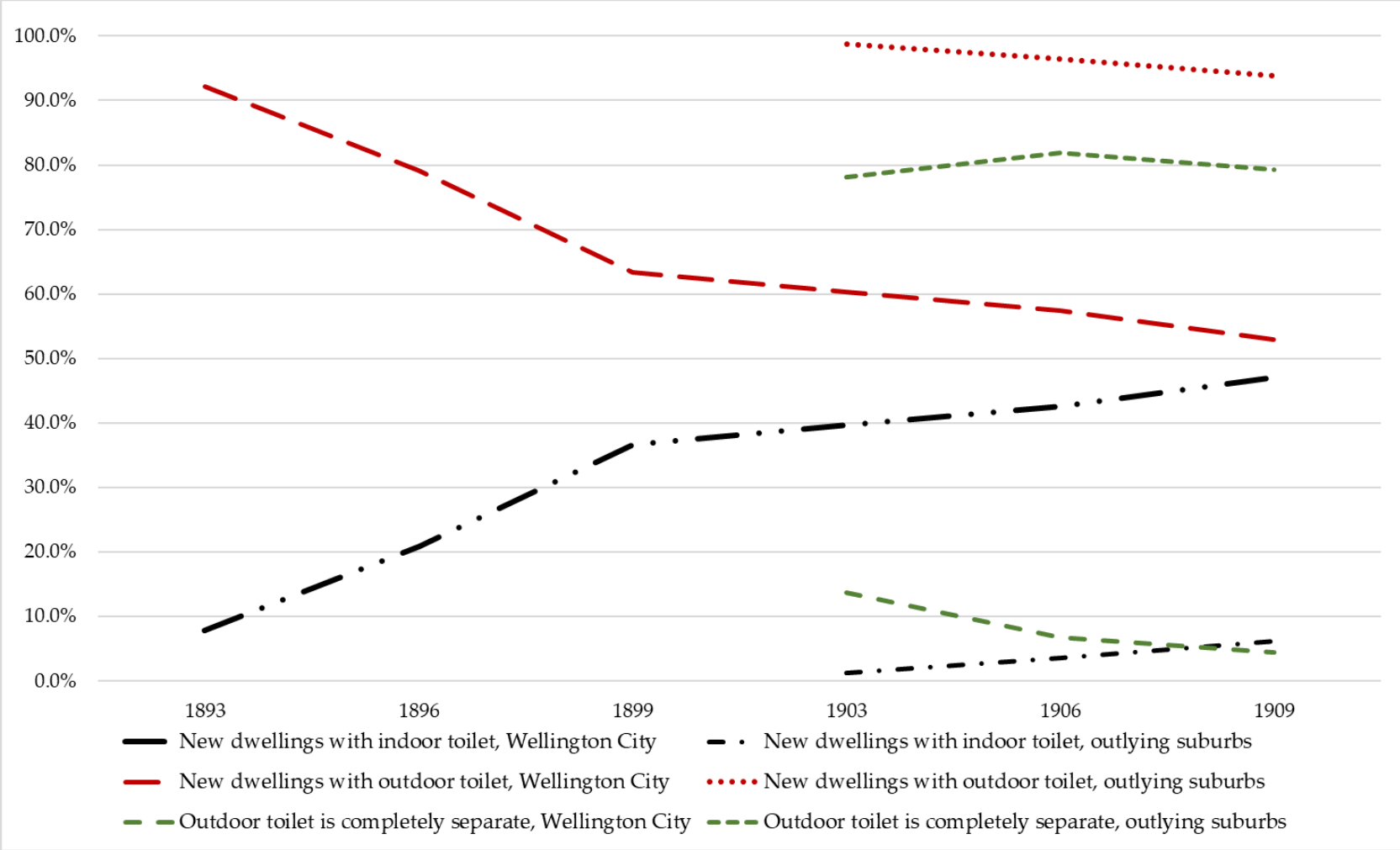

Figure 1: Percentages of new dwellings with indoor or outdoor toilets, Wellington City and outlying suburbs (Source: Building permit records held at Wellington City Council Archives, years identified, multiple different series. Note: Wellington City is the area administered by the Wellington City Council, and largely covers the original 1,100 Town Acres. Outlying suburbs are the areas formerly the boroughs of Onslow, Melrose and Karori.)

Borough areas with the Wellington City Council. The City of Wellington Yearbook for 1908-9 gives the dates of amalgamation. Melrose joined Wellington on 1 April 1903, the Wadestown District of Onslow Borough on 1 April 1907, and the Northland District of

Karori Borough on 2 April 1908.[16] Drainage in these areas was limited, and earth closets were predominantly used. There was demand from residents to extend Wellington's drainage system to these outlying districts.

Demand increased as a result of the extension of the electric tram system to the outlying areas leading to a building boom as land was subdivided and rapidly built on.[17] In fact, being connected to the drainage system became a selling point for real estate agents and was used in their advertising. JH Bethune & Co for example advertised in the *Evening Post*:

> Hataitai (5 minutes from tram) - Land 50ft x 131ft, and new one-storey Residence of 5 rooms, e.l, h and c water, gas stove, enamel bath, city drainage, verandah, bay window, lovely view of Straits. Price £900; £50 deposit.[18]

The appointment of a new City Engineer was crucial for managing the widespread changes that were affecting Wellington city in this decade. William Hobbard Morton, an Australian, was given the job in February 1904 and arrived on the 24th, aged 38. He had been assistant chief engineer to the Melbourne Corporation and had experience with sanitation and water supply amongst other municipal matters.[19]

In December 1906 the Wellington City Council Engineer was tasked with reporting upon a drainage scheme for the areas that were previously part of Melrose Borough. He reported back with a proposed scheme in June 1907, and subsequently a loan was raised for the work to commence. The Wellington City Empowering Act 1908 was also passed, allowing the system to also be extended to the parts of Onslow and Karori Boroughs that had recently amalgamated.[20] Where possible he linked new suburbs to the main sewers designed by Mestayer, but in areas where the topography made this impossible he had large septic tanks constructed to receive the effluent. One example of this was in Island Bay.[21]

Construction and connection proceeded slowly. A progress summary was published in the *New Zealand Times* of 26 June 1909. It reported that sewers had been built in Kelburn, Roseneath, Island Bay and Berhampore, but work could not commence in Northland and Wadestown as those areas were not yet on the water mains.[22] It would not be until the early 1910s that work was completed.

Indirect Effect of Drainage Connections on House Design

Connecting houses to underground drainage systems meant it was no longer necessary to have a separate dunny somewhere outside on the property. As flushing lavatory systems had built-in features, like water-filled S bends, the escape of noxious gases was minimised and ceramic toilet bowls were easily cleaned. All these features meant that it became possible to move the toilet indoors, but the question was where to place it? Both builders and architects appear to have taken quite some time to resolve this question. We investigated this by analysing building plans for new dwellings in Wellington and its suburbs from the late 1890s to 1909 and looking at the few architects' plan books extant for that time period.

[16] WCC Year Book, 1908-1909
[17] Humphris & Mew *Ring Around the Suburbs* p 95.
[18] J H Bethune & Co "Special Properties [advertisement]" p 10.
[19] "The New City Engineer" p 6.
[20] Notice of Motion, drainage scheme for outlying districts, Melrose
[21] "Draining the Suburbs" p 9.
[22] "Suburban Drainage" p 5.

Permission to build or make alterations was required from the Wellington City Council as early as 1883, but from 1892 a set of plans and specifications for the work had to be submitted for the Council to retain. Registers of all applications were kept and many, but not all of the actual documents approved by the Building Inspector remain within Wellington City Council Archives.

The standards of plans varied according to the skills of individual draftsmen, as did the writing of the accompanying documents, although construction details usually followed a standard order. They usually provide a basic site plan, but focus on the dwelling itself, not showing the surrounding property. Given these limitations we have had to make some assumptions in our data collection. If no toilet (earth closet (EC) or water closet (WC)) was shown on the plan within the house itself, we assumed it was most likely a dunny in the garden. The position becomes slightly clearer from 1903 to 1909 when outside toilets labelled WCs were still being built in boroughs only recently attached to Wellington City in the hope of soon having sewer connections to the expanded drainage scheme. (See Table 1). It may be that the term "WC" became synonymous with the term "Lavatory" some time before they really meant mains-water flushed toilets connected to integrated sewage systems.

The main trends were that in the first few years of the twentieth century builders were apparently reluctant to move the toilet completely indoors but usually placed it under the verandah alongside a type of washhouse or coal storage area. When a few years later they located it within the house itself, it generally became a small room on its own or the toilet bowl and flushing mechanism were located within the bathroom. The small room could be located near the kitchen or scullery or near the bedrooms. It was only later that it eventually settled either alongside the bathroom or within it.

In the Wellington suburbs the situation is different, given the delay in the citywide drainage system being extended to those areas. From the building permit records we were able to analyse, it does appear that some new houses in the outlying suburbs had internal WCs before the sewer connections were in place. In some cases, the plans clearly note these are for future use once the drainage system was in place.

A brief study of how government-employed architects dealt with toilet locations follows the introduction of the Workers' Dwellings Act of 1905 and some of the dwellings built subsequently. Seven designs by different architects were built on what became known as the Heretaunga Settlement in Petone and were completed in November 1906. As the Petone drainage scheme had then not reached the area, all but one of the designs had detached toilets located outside on the sections. The exception was Design No.3 by S. Hurst Seager and Cecil Wood of Christchurch where an earth closet and fuel box were located under the back verandah. Despite being equipped with a vent, it was felt that smells would be offensive so the toilet was removed to the rear of the section.[23]

Further workers' dwellings were built in the Coromandel Street - Seddon Place Settlement in Newtown, Wellington, in 1907. Plans for these single and two-storey houses show a water closet as an integral part of the house but only accessible from an outside door from the asphalted yard at the rear.[24] By 1907

[23] Fill *Seddon's State Houses* p 39.

[24] 2-8 Seddon Terrace were two-storey semi-detached dwellings, 1-7 Seddon Terrace were single storey detached dwellings. 2, 4, 6 and 8 Seddon Terrace, four

Newtown was serviced by the citywide drainage system, but there was clearly some reluctance to bring the toilet inside near the bathroom. These houses were designed by the Department of Labour architect Woburn Temple, who went on to produce plans for state houses in Island Bay and Highbury.

In the wider context of New Zealand architects taking on the idea of locating the toilet inside the house, we examined the plan books of George William Phillips of Christchurch as being those closest to our period of study. These were published in three parts; >70 plans of houses with three and four rooms; houses with five rooms, and houses with six rooms. In these we noted all the designs shown as having WCs, mostly inside.[25]

In only a single instance was a toilet located with a separate door from outside the house, although it was part of the building under the verandah next door to a coal shed. The indoor toilets varied in location being either next to bedrooms, bathrooms or kitchens without apparent preference. The houses were generally designed to be built anywhere in the country. The uptake of these designs does not seem to have been critically assessed, but they appeared at a time when most major city drainage schemes were either complete or well underway, whereas small towns and country areas had yet to experience the benefits of improved drainage. The implication of the relatively low percentages of plans showing internal WCs is that the idea was only in the process of development.

Plan Book	Total number of plans	Plans showing internal WCs	Percentage with WCs
1	75	10	13.3%
2	67	20	29.9%
3	58	8	13.8%

Table 2: Proportions of plans in George Phillips plan books with internal WCs (Source: Phillips *New Zealand Homes and Bungalows*).

WC vs. Dunny

The WC had existed in some New Zealand towns (usually in well-to-do houses) for some time before piped water and underground drainage systems were developed in the late 1800s/early 1900s. However it had been dependent on a plentiful supply of water either from large storage tanks or piped from local streams. Waste disposal remained problematic - either into open drains, streams or sumps, as septic tanks were not invented overseas until 1860, patented by Mouras in 1881.[26]

The dunny remained the most practical form of toilet in the countryside long after it disappeared from towns and cities as mains water supplies remained a luxury. Although insanitary, it was less of a problem away from crowded main buildings and with plenty of surrounding fresh air. Also, as septic tanks and sewage farms became more sophisticated over time, these enhanced sanitary conditions, as did the development of chemical toilets. Dunnies remain today in certain national parks and reserves as well as on isolated farms and stations. There is even a firm based in Carterton in Wairarapa constructing traditional-shaped dunnies, although the working parts are sophisticated composting disposal units.[27]

dwellings, WCC Archives and 1, 3, 5, and 7 Seddon Terrace, four dwellings, WCC Archives

[25] Phillips *New Zealand Homes and Bungalows.*

[26] "The History of Septic Tanks: From Invention to Modern Systems" np.

[27] "Hire & Rental Services" np.

REFERENCES

Individual building permits to construct new dwellings for the years 1903, 1906 and 1909 were viewed digitally via archivesonline.wcc.govt.nz, from the archival series listed below. Given several hundred were checked, a complete list of individual items is not included here.

00042, WCC, Building Permit Applications, Melrose Borough, Wellington City Council Archives.

00043, WCC, Building Permit Applications, Melrose District. Wellington City Council Archives.

00047, WCC, Building Permit Applications, Karori District, Wellington City Council Archives.

00048, WCC, Building Permit Applications, Wadestown District, Wellington City Council Archives.

00050, WCC, Building Permit Applications, Onslow District, Wellington City Council Archives.

00051, WCC, Building Permit Applications, Northland District, Wellington City Council Archives.

00053, WCC, Building Permit Applications, Wellington City Council Archives.

1, 3, 5, and 7 Seddon Terrace, four dwellings, 00053-7842, Wellington City Council (WCC) Archives

2, 4, 6 and 8 Seddon Terrace, four dwellings, 00053-7773, Wellington City Council (WCC) Archives

Bryson, Bill *At Home, A Short History of Private Life* London: Transworld Publishers, 2013.

Dann, Christine "Sewage, water and waste: Stinking cities" *Te Ara - the Encyclopedia of New Zealand* https://teara.govt.nz/en/sewage-water-and-waste/page-3

"The Drainage Scheme: Appointment of Engineer" *Evening Post* (31 January 1893): 4.

"Draining the Suburbs: Progress of the Work" *Dominion* (30 June 1909): 9.

Fill, Barbara *Seddon's State Houses: The Workers' Dwellings Act 1905 & the Heretaunga Settlement, Monograph Number 1* Wellington: Wellington Regional Committee, New Zealand Historic Places Trust, 1984.

"Hire & Rental Services" *Little Green Dunny* https://www.littlegreendunny.co.nz/products-services

"The History of Septic Tanks: From Invention to Modern Systems" (3 January 2025) *Econocycle* https://econocycle.com.au/the-history-of-septic-tanks-from-invention-to-modern-systems/

Humphris, Adrian and Mew, Geoff *Ring Around the City: Wellingtons New Suburbs 1900-1930* Wellington: Steele Roberts Publishers, 2009

"The Impotent Corporation" *Evening Post* (15 August 1900): 4.

J H Bethune & Co "Special Properties [advertisement]" *Evening Post* (22 November 1910): 10.

Mulgan, Alan *The City of the Strait. Wellington and its Province: a Centennial History* Wellington: A H and A W Reed Publishers, 1939.

"The New City Engineer: Mr W H Morton" *New Zealand Mail* (17 February 1904): 6.

Notice of Motion, drainage scheme for outlying districts, Melrose - Councillor Ballinger, 00233-1906/1984, Wellington City Council Archives

"Our Drainage System: Successful Starting of the Works" *Evening Post* (11 March 1898): 6.

Phillips, G W *New Zealand Homes and Bungalows* Christchurch: Marriner Brothers, 1909.

"Sanitation of Island Bay: To the Editor" *Evening Post* (20 November 1901): 2.

"Suburban Drainage: How the Work Stands, Kelburne and Roseneath Connected" *New Zealand Times* (26 June 1909): 5.

"Town and Country: The Drainage Commission" *New Zealand Mail* (25 April 1890): 20.

"[untitled]" *Evening Post* (10 May 1892): 2.

Wellington City Council (WCC) Year Book, 1908-1909, 00087-7, Wellington City Council Archives

Wellington Main Drainage, History of the Scheme, 00018-2, Wellington City Council Archives

Yska, Redmer *Wellington. Biography of a City* Auckland: Reed Publishing (NZ) Ltd, 2006.