



## **“The Motion was then Put and Carried.” How Bendigo Council carried the can for nightsoil management**

Dr. Susan Walter, Archives Coordinator, Bendigo Regional Archives Centre, March 2022

Flushable toilets have been available for so long now, it is easy to take them for granted, except perhaps when the smell from a modern version of a long-drop in a national park reminds us how far we have come. Modern toilets evolved gradually, and along the way the structures, processes and consequences included poor management, poor facilities, cesspits, manure depots, sanitary cans, septic tanks, outdoor toilets, pull-chain and push-button cisterns, and indoors cisterns. While we would all know the manual collection systems required physical removal of material, we don't often stop to consider how it was removed, who did it and where it all went to.

We would all be aware that agriculture has relied upon animal manures for millennia, and it is once more growing in popularity as organic growers seek alternatives to chemical fertilizers. Human and animal wastes have both had other purposes prior to our “out of sight, out of mind” approach to managing them. The old occupations of “fuller” and a “pure finder” stem from using human urine for processing woollen cloth and collecting dog poo for softening and tanning leather. The big problems in managing excrement really began to occur as the human population grew and nature could no longer be relied upon to manage the resulting side effects. Thankfully, our understanding of water and soil-borne diseases also began to evolve.

These articles outline the establishment of modern sanitation in the City of Greater Bendigo and examine some of the processes, infrastructure and incidents that happened along the way, as told through records in the Bendigo Regional Archives Centre (BRAC) and elsewhere.

### **Manure Depots**

As an early means of managing excrement of various types, a ‘manure depot’ was often established within a specific council area. These depots were typically allotments of Crown land set aside or reserved from sale for the purposes of burying waste, including dead animals. Melbourne had such a depot by 1851.<sup>1</sup> Human waste tended to be referred to as ‘night-soil’ and by 1852 the Melbourne City Council was proposing legislation to limit the disposal of this material only to such depots, and to punish offenders.<sup>2</sup> A manure depot was located in North Melbourne by 1853 though by 1854 it was deemed a public nuisance in its own right.<sup>3</sup> Emerald Hill (South Melbourne), East Collingwood, Ballarat and Castlemaine Councils also had depots by 1856.<sup>4</sup> Sandhurst (Bendigo) Council also requested the Victorian Government provide a manure depot, outside the town boundary, in 1856.<sup>5</sup> By this time contractors were already established in the town to help keep the local streets clean of ‘night soil and other abominable refuse’ and James Townsend was appointed by the Council as Inspector of Nuisances in March 1856 to enforce compliance.<sup>6</sup>

The way these manure depots worked was by the digging of several trenches, and the extracted soil being reserved. The material collected was placed in the trench to a certain depth, partially backfilled by the reserved soil to control odours, then more layers of nightsoil and soil added, creating a layered effect, until the trench was full. By February 1857, Sandhurst's manure depot had been fully trenched.<sup>7</sup> Nightmen, as the collectors were referred to, also had to be licensed to operate within the relevant council.<sup>8</sup> In the case of Sandhurst Council, in May 1858 they also appointed a 'Keeper of Manure Depot' to ensure all deposits were orderly.<sup>9</sup> Michael Lawes, was the first person appointed to this position and he was paid 15 shillings per week for his efforts.<sup>10</sup> The position gave the Keeper the right to dispose of manure for his own benefit, which meant that he could sell it for profit.<sup>11</sup>

Henry Boyd, a 'new chum' to the town, was probably the first person to be prosecuted in Bendigo by the Inspector of Nuisances for 'depositing offensive matter' in the street.<sup>12</sup> Because he quickly cleaned up when a passer-by pointed out his wrong-doing, Boyd only received a warning.

The location of the early Bendigo manure depots can be hard to pinpoint. After initial discussions with the government surveyor in 1856, an application for one in Golden Square was made in December 1857.<sup>13</sup> This was reported in 1859 as being on Panton Street but was probably closer to present-day Stoneham Street (Figure 1).<sup>14</sup> A manure depot was also located at Back Creek and another one in Epsom adjoined the racecourse on the Sandhurst Municipal boundary in 1858.<sup>15</sup> An 'intolerable stench' was supposedly arising from the depot in Charleston Road in April 1860 however the Town Inspector said that the situation was not as bad as reported, and most of those protesting had erected their houses there since the depot was created.<sup>16</sup> The Council decided to take no action other than to write to the complainants to inform them there was no other possible location for the depot. This depot was situated adjoining the cattle markets on the same street, north of Lansell Street (Figure 2).<sup>17</sup> A further manure depot comprising two roods of land, adjoining what became the first portion of the Eaglehawk cemetery, was established in 1863.<sup>18</sup>

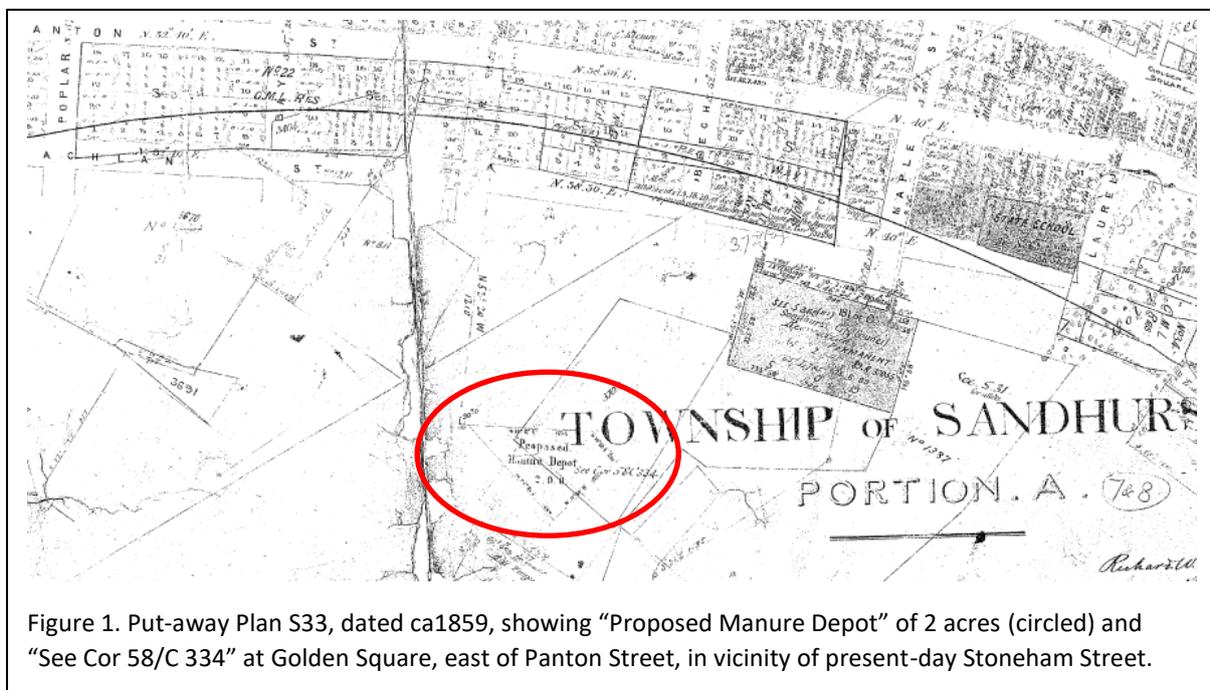


Figure 1. Put-away Plan S33, dated ca1859, showing "Proposed Manure Depot" of 2 acres (circled) and "See Cor 58/C 334" at Golden Square, east of Panton Street, in vicinity of present-day Stoneham Street.

The creation of manure depots and managers to supervise them did not automatically ensure that manure was being managed effectively. In October 1861 "A Sufferer" wrote to the *Bendigo Advertiser* complaining about the stench emanating from the depot near the cattle yards. According to his observations, 'pits have been dug into which the offal and filth of all kinds are thrown. The said pits

are now full, and every heavy rain causes them to overflow the consequence is that the channels on the lower side are deluged with a black slimy stream, the odour from which is horrible'.<sup>19</sup> A week later, "Amicus Populi" described the depot as the 'municipal poison manufactory' where 'noxious effluvia rising day and night from this plague spot of the municipality are so excessive as to affect deleteriously the atmosphere of the whole district, and render it destructive to health and life'.<sup>20</sup> The Town Surveyor reported at the November 1861 Council meeting that 'the only available site for removing the manure depot to was on the slope of the Slaughter House Hill (Mclvor Road).<sup>21</sup> The Council did, however, as an interim measure, call for tenders in November 1861 for forming pits to bury the manure in the hope of alleviating some of the stench until the Town Clerk could report on a new site for the depot.<sup>22</sup>

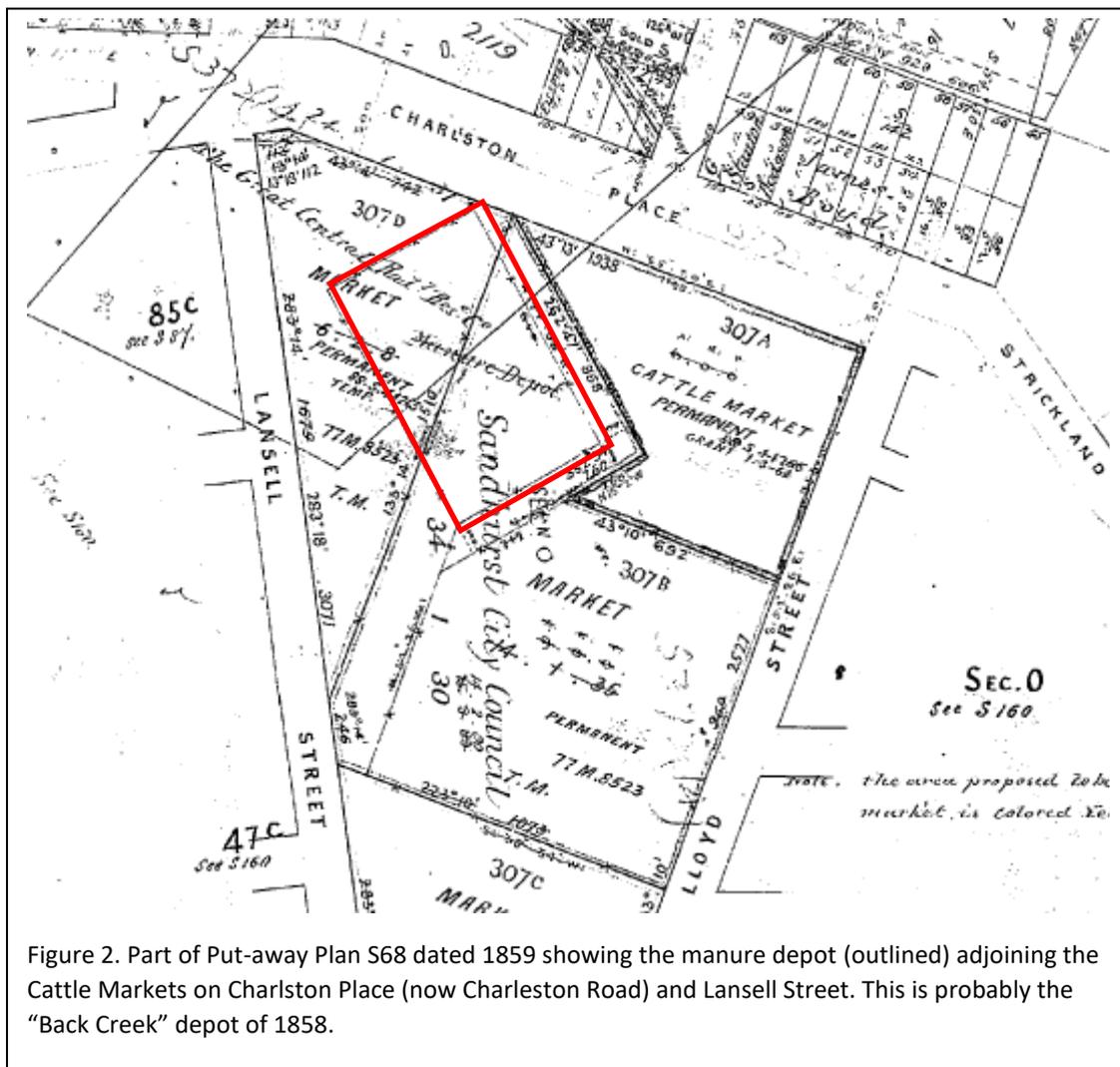


Figure 2. Part of Put-away Plan S68 dated 1859 showing the manure depot (outlined) adjoining the Cattle Markets on Charleston Place (now Charleston Road) and Lansell Street. This is probably the "Back Creek" depot of 1858.

While the Town Clerk's initial recommendation that 'Slaughter House Hill' on the Mclvor Road might have been the only available site, the Council was constrained by the requirement that the manure depot must be within the municipal boundaries.<sup>23</sup> Further pits were needed at the depot in mid-1862, but the tenders submitted for digging them were deemed by the Council to be too high and further tenders were requested.<sup>24</sup> Dennis Foley had the pleasure of working amongst the stench after his tender for £33 was accepted in July 1862.<sup>25</sup> Mr Daniels was awarded a similar contract in November 1862 for the sum of only £26.<sup>26</sup> The pits did little to manage the stench, and in December "Amicus Populi" once more wrote to the *Bendigo Advertiser* calling for the 'plague pits' to be removed to

another site, well away from where 'where all the meat we eat is dressed and hung up to be saturated by the pestiferous gases of this municipal plague spot'.<sup>27</sup> In December 1864, in conjunction with the Mayor, the Town Clerk was once more asked to report on the best locality for the depot, but the problems of the council boundaries, and the requirement that the Victorian government had to formally grant land for that purpose, had not changed.<sup>28</sup> Perhaps it was in desperation that Richard Williamson of View Point offered five acres of his land 'on the opposite side of the ranges' for the creation of a depot for 12 months.<sup>29</sup> By April 1865 no action had been taken to move the depot, however the final recommendation came in September that it should be relocated 'about a quarter of a mile immediately in the rear of it'.<sup>30</sup> In the meantime, more new pits were required in the current depot due to existing ones being full.<sup>31</sup>

When the mining warden's office informed the Council in May 1866 that two mining lease applications included part of the Golden Square (Golden Gully) depot, the Town Surveyor reported that this depot had never been used.<sup>32</sup> With all the problems of the cattle yard depot this begs the question of why it was not being used, but the Surveyor also pointed out that whether or not the Council gave consent to mining on the site, 'within the next week all manure depots would be done away with by the new Act'. The Council was advised not to object to the mining lease.

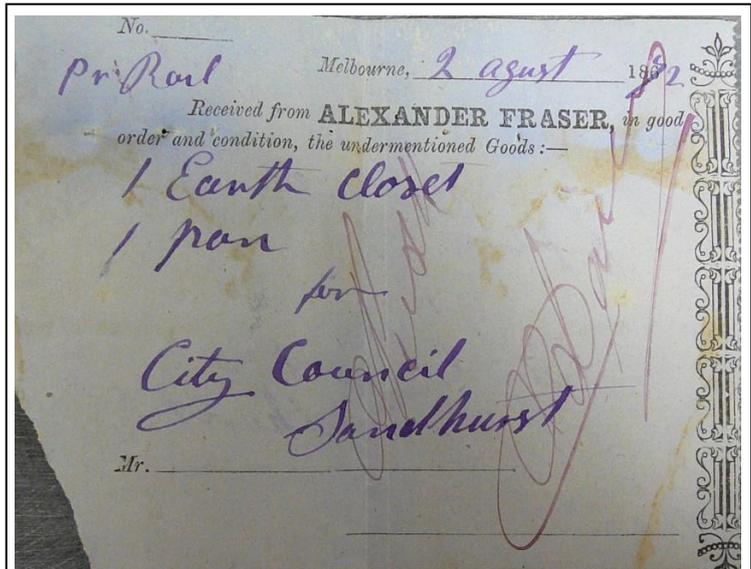
## Earth Closets

The new *Act* alluded to by the surveyor was the proposed *Public Health Amendment Act*, which did not actually come into effect until September 1867.<sup>33</sup> This amending *Act* gave the Sandhurst Borough Council, via the Local Health Board, the power to regulate the installation and maintenance of earth closets, in houses and other buildings within their boundaries.<sup>34</sup> The previous *Public Health Statute* 1865, which was replaced by the 1867 *Act*, already gave Councils the power to regulate the construction of water closets, and the erection of a water closet or privy attached to a new or rebuilt house had been mandated since 1854.<sup>35</sup> The new *Act* extended this to earth closets. Under the 1867 *Act*, an earth closet was defined as: 'a seat similar to the seat of a privy and having underneath a bucket or other receptacle for excrement, with convenient apparatus for the supply of as much dry powdered earth as will completely cover the excrement every time the closet is used by any person'.<sup>36</sup> Section 37 of the 1867 *Act* determined that 'no watercloset could be constructed within three feet from the boundary of any land or within five feet from any dwelling-house without the consent of the local board; and the contents of any watercloset privy or cesspool shall not be permitted to overflow or leak or soak therefrom'.<sup>37</sup> Offenders could be prosecuted by the local health board.<sup>38</sup> Councils could also install and maintain public toilets and defray the costs of doing so through the rates charged to the ratepayers.<sup>39</sup> In other words, Councils were now regulating the installation and maintenance of earth closets with the suggestion manure depots would become obsolete.

The 1867 *Act* appears to have triggered some action in Council with respect to solving the manure depot problem. In October 1865 the Council's health officer received a diagram of the new earth closets to permit some trials to take place and one apparent holder of a patented earth closet design quickly sought the patronage of the council.<sup>40</sup> Between 1864 and 1870 there were six applications in Victoria for patents for earth closets, those of Daniel Stoddart Campbell (1864), William, Thomas and Goodwin Draper (1866), Alexander Fraser (1866), David Brown (1866), Isaac Swan (1869) and Thomas Draper (1870).<sup>41</sup> By 1870, advertisements calling for tenders for the erection of earth closets began to appear in the *Bendigo Advertiser*, including those by Vahland and Getzschmann for the Sandhurst Industrial School and the Bendigo Benevolent Asylum.<sup>42</sup>

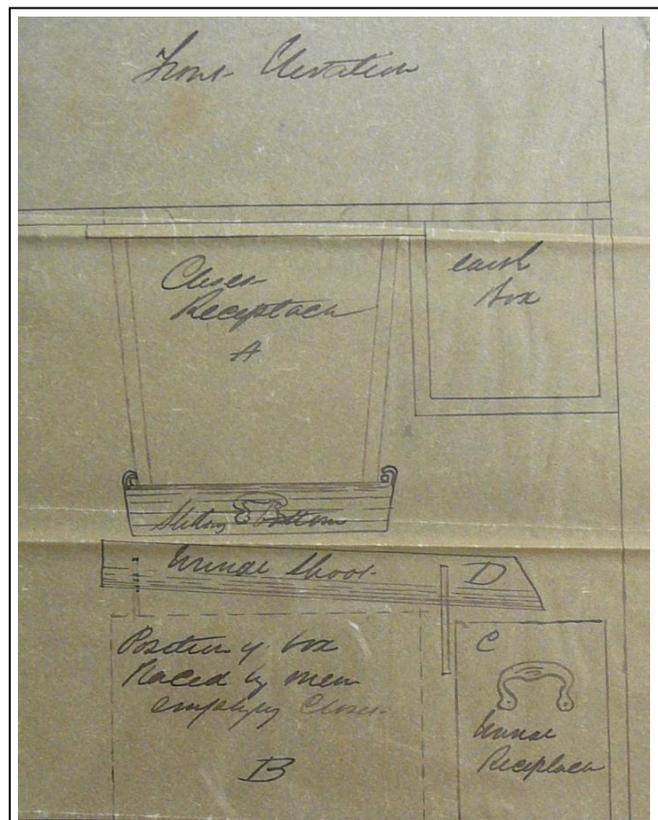
Under the 1867 Act, the Borough of Eaglehawk eventually published its new by-laws on the control of cesspools and earth closets in April 1871.<sup>43</sup> The Sandhurst Borough Council sometimes took a more contrary view to the management of cesspools, with Cr McIntyre suggesting in June 1871 that ‘the course proposed by the Board of Health was most tyrannical and arbitrary’ and ‘out in the suburbs it would cost as much to erect such a cesspool, as required by the act [sic Act], as to erect a house’.<sup>44</sup> At that meeting he moved ‘that the Board of Health be in-formed that the Council declined to carry out their instructions, and if they wished to take proceedings they might do so on their own responsibility’ and McIntyre’s motion was carried by the Council. Barely a month later, the Borough of Sandhurst was proclaimed to be a City and the Borough Council became the City Council.<sup>45</sup> This increase in status was probably seen by some as a sign of hope that the Council would also rise out of the often rotten and stagnant state of affairs with regards to the management of human waste. While some work continued in the background, there was still a long way to go.

In August 1872, Alexander Fraser forwarded one of his earth closets to the City Council (Figure 3) and in October that year they received a design from the above-mentioned Draper and Sons (Figure 4).<sup>46</sup> In January 1873, the Council received a letter from John Holdsworth acknowledging the adoption of the earth closet system in Bendigo, and asking what provision was being made for the cleaning of the pans and the supply of the earth that was required to control odours.<sup>47</sup> This appears to have followed a letter to the *Bendigo Advertiser* in December 1872 by “Ratepayer” suggesting the Council make arrangements for ‘the periodical removal of the nightsoil’ from the compulsory closets.<sup>48</sup> In March 1873 the Council received advice from



**Figure 3.** Delivery docket from Alexander Fraser, August 1872 for an earth closet and pan to Sandhurst City Council.

Source: PROV, VPRS 16936, Unit 8



**Figure 4.** Front elevation of Draper and Son’s earth closet design, sent to Sandhurst City Council in October 1872. Part “A”, fitted with a sloping bottom, received the waste, a chute “D” diverted the urine to the adjacent receiver “C”. An earth box is positioned adjoining the seat. The sliding base of A was removed to permit the waste and soil to drop down into B for collection.

Source: PROV, VPRS 16936, Unit 9, October 1872

solicitor J P Motteram with a draft notice to compel property owners to install an earth closet on their premises and in May 1873 William Hyndman asked the Council what arrangements were being made for removing the soil from the compulsory closets, suggesting this part of the Council's broader sanitation planning was still outstanding.<sup>49</sup> The response was for a Council subcommittee to recommend that 'tenders be called for six months to remove the night soil from earth closets between the hours of eight p.m. and seven a.m. in winter, and nine p.m. and 6 a.m. in summer'.<sup>50</sup> While the Council received a tender for the work in August, the price was deemed too high and it was not accepted.<sup>51</sup> The Town Surveyor was then instructed to find a means of removing 'the soil from the earth closets in the centre of the town, at a price not exceeding £26 per annum', despite some councillors arguing that the rate payers should pay for the service.<sup>52</sup> The Mayor thought otherwise, especially considering it was the council that had mandated the closets in the first place. Perhaps not surprisingly, some 16 occupiers of land in the vicinity of Mundy, Bull, Williamson and Mitchell Streets had not installed a closet by December 1873, and the Town Clerk was instructed to take action to remedy the situation.<sup>53</sup>

A primary goal of the Central Board of Health making earth closets compulsory was to permit the abolition of cesspools.<sup>54</sup> A Bill to amend the 1867 Act was being debated in the Victorian parliament in December 1875 when several members deemed the action 'arbitrary and unfair' because it had not been proven that underground cesspools (also known as cesspits) were a nuisance in the country areas of the State.<sup>55</sup> George Belcher MLC believed there would not be enough time to permit large towns like Sandhurst to erect enough earth closets before the abolition came into effect. While a proposed amendment suggested the time should be increased from three months to six months, the three-month period remained, however the Act did not come into effect until April 1876.<sup>56</sup> Meanwhile debate continued over whether the old underground cesspools were worse than the earth closets. In a letter to the *Bendigo Advertiser*, "B" asserted that being underground and away from the summer heat, the odours emanating from a cesspool were rare except for small quantities of 'carbonic acid and sulphuretted hydrogen gasses' (i.e., hydrogen sulphide or rotten egg gas).<sup>57</sup> Being dry, on the other hand, he asserted that Earth closets permitted the rapid growth of a 'species of mildew fungus' which released 'myriads of these disease-producing spores floating through the atmosphere' with minimal air disturbance and which 'set in action those diseases that persons so constituted may already be predisposed to receive'. The writer could not have known then that scarlet fever, measles, and diphtheria were not spread by bad odours or caused by fungal infections, but one of the reasons for banning cesspools was the rate at which they were poorly managed and overflowed when full.

By June 1876, the Eaglehawk Borough Council reported that there were 756 cesspools in the Borough and only 239 earth closets.<sup>58</sup> They also admitted they had been depositing the contents of those earth closets 'near that portion used as a cricket ground in Canterbury Park, and immediately covered up with loam, and consequently deodorised, without any ill effects whatsoever ... although cricket matches are constantly being played within a few yards of the spot'.<sup>59</sup> In October 1876 the City Council issued its new bye-law No. 1. This included control of the hours in which night soil could be carted, the vehicles used in the process, the nature of licenses issued for such vehicles, and the places where nightsoil could be deposited.<sup>60</sup> Not everybody was happy working under these laws, however.

In February 1882, Martin Ferrari announced that he had taken over the business of nightman Duncan Gilbert and warned the public that someone else was trading on his name and falsely stating they had purchased Gilbert's business.<sup>61</sup> Ferrari wrote to the City Council objecting to others being granted a nightsoil licence, when he was the Council contractor and had taken out two licences for his carts. He also complained that the competitor referred to in his advertisement, Giacomo Svanosio (sometimes Svanosi), was 'now advertising for same business without registering his name or abode and without

taking out a license'.<sup>62</sup> The response from the City inspector recorded on the original letter was that 'Giacomo has applied for a license but his cart is not ready. If sound he will be entitled to a license. Mr Ferrari must put up with competition'. The dispute between the two nightmen resulted in an exchange of words in May 1882 for which Svanosi charged Ferrari and his partner Robadetti with using insulting words, Ferrari supposedly calling 'him a thief, scoundrel and other names in Italian and also in English'.<sup>63</sup> Ferrari and Robadetti were both fined 20 shillings plus costs. Nevertheless, Ferrari continued to apply for, and win contracts from the city Council for the removal of night soil (Figure 5), perhaps bolstered by a lengthy advertising campaign in 1884<sup>64</sup> Ferrari and Svanosi were in agreeance, however, when they complained to the Council in May 1886 of 'having to cart nightsoil to Clough's ground, which was three times as far as Steane's'.<sup>65</sup> Steane had a contract with the Council to accept waste, including blood and nightsoil, between June 1883 and September 1884 at his land in 'Thanet Road' near Grassy Flat (probably in the vicinity of Glencoe Street and St Aiden's Road).<sup>66</sup> Complaints about the condition and odour of Steane's temporary depot began to arise in mid-1886, as did counter claims and a petition from nearby residents that no such problem existed.<sup>67</sup> At the same time Charles Clough had applied to the Strathfieldsaye Board of Health for permission to trench his land to dispose of nightsoil as per his contract with the City of Sandhurst.<sup>68</sup>

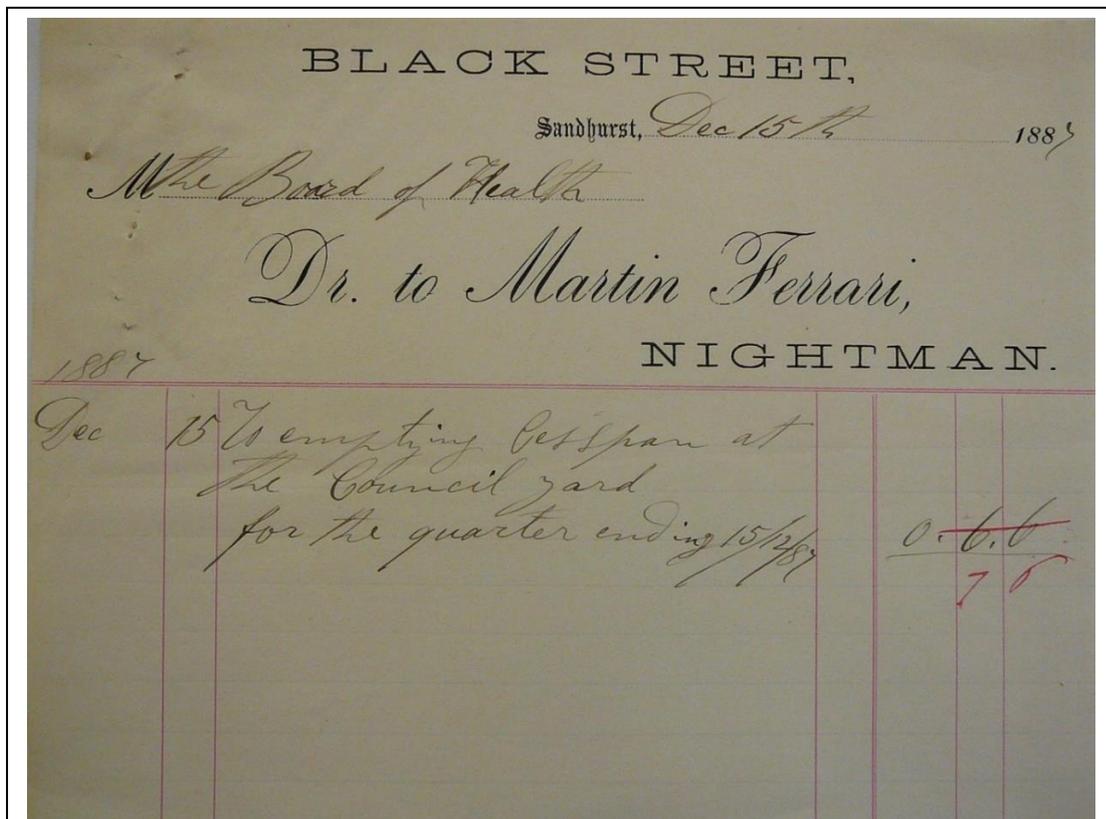


Figure 5. Invoice to Sandhurst Board of Health from Martin Ferrari, Nightman, dated 15 December 1887, for emptying cesspan at Council yard for quarter ended 15 December 1887. Source: PROV, VPRS 16936, Unit 52, Invoices from Various Local Businesses 1883-1888

In November 1883, the *Public Health Amendment Statute* came into effect.<sup>69</sup> Under this Act the definition of an earth closet was changed to include 'the supply of as much dry powdered earth or other deodorizing material as will completely cover the excrement', thus permitting materials other than soil to be used for deodorising purposes. All houses were to have an earth closet or privy attached, 'with proper doors and coverings' or the owner or occupier could be penalised at the rate of no more than five pounds per day.<sup>70</sup> Similarly, the owner or occupier of any land which had a

cesspool deemed by the Board to be a nuisance or injurious to health could be ordered to fill the cesspool with a month's notice, and no new cesspool 'for the reception of night-soil below the ground' could be constructed in any city, town or borough'.<sup>71</sup> Local health boards could provide places upon which nightsoil could be deposited, and cause such material to be transported to such sites, conditional upon the carts having springs and being covered to 'prevent the escape therefrom of any noxious or offensive effluvia'.<sup>72</sup>

The *Bendigo Advertiser* quickly foresaw that to enforce the new Act a 'little army of inspecting officials' would be needed.<sup>73</sup> In May 1884, Sergeant Fahey reported to the City Council that, following a complaint, he had inspected a site at Golden Square and determined the cause was not unclean earth closets, but the fact that most of the closets were cesspits that were not watertight, which contravened the new Act.<sup>74</sup> While he suggested they should be filled in, he also noted there was no 'resident nightman' to attend to earth closets despite the owners being willing to comply with the law.

It was not until December 1885, however that the City Council issued its own by-laws for the Local Board of Health to control earth closets and cesspools.<sup>75</sup> Under the new laws, any cesspool had to be emptied when the contents came within one foot of the top, but only within the hours of midnight and 5 a.m. and after the contents were mixed, and deodorised with, carbolic acid (or similar). Earth closets had to be cleaned at least weekly. Only a licensed nightman was permitted to remove and transport nightsoil within the boundaries of the City. Anyone depositing nightsoil in a site approved by the Council had to ensure it was covered with at least six inches of earth and any person who illegally deposited nightsoil faced prosecuted. No earth closets doors or trap were permitted to abut a street more than 10 feet in width. Considering that Hargreaves street, for example, was originally planned to be 99 feet (150 links) in width and Bailes Street 33 feet (50 links) wide, this rule meant that very few properties could have their earth closet doors opening onto a street. The by-laws also stated that any earth closet pan was required to be 'constructed of galvanised iron, properly riveted and soldered so as to be watertight, and with handles, thereto, and of a capacity not exceeding three cubic feet'.<sup>76</sup> Noting that this volume is equivalent to 85 litres, a closet pan of that size (size of a small washing machine) would have been very difficult to lift and carry.

The new system certainly did create some extra work for both the Sandhurst and Eaglehawk Council's inspectors of nuisances. One or two prosecutions occurred, such as those in March 1886 of J Martin and H Gundry of Eaglehawk, where Gundy said he preferred to go to jail than pay the fine for illegally disposing night soil in his garden.<sup>77</sup> The central portion of Bendigo was however mostly compliant by May 1886.<sup>78</sup> At that time the Inspector, Sergeant Patrick Fahey, advised that 'irregular disposal of night-soil' would probably continue until the Council took the responsibility from the residents and managed the 'cleansing of the city' themselves.<sup>79</sup> He suggested tenders be called for 'for each ward of the city separately, say for two or three years'.

It was not until 1888 that one of the city Councillors took this suggestion to a Council meeting. At the March 1888 meeting, Councillor Carolin moved 'that tenders be called for the removal of night-soil from all houses in each or all of the three wards for 1, 2, or 3 years', feeling that this was the only way to compel people to keep proper cess-pans.<sup>80</sup> After the Mayor pointed out there was an existing contract, Carolin then moved that 'the surveyor be requested to furnish the board with an estimate of the cost, and that the town clerk write to the various municipalities and ascertain what systems were in vogue'. In the words of the *Bendigo Advertiser*, 'Cr. Carolin's motion was carried', and one could only hope it was done so legally.

## Council Carries the Can

Back in 1881, Leopold Hesse, a manufacturing chemist of St Kilda applied for a patent for 'improvements in closets and closet pans, and in the process of and apparatus for deodorizing and converting offensive matters such as excreta, offal, &c., into a fertilizing material'.<sup>81</sup> In September 1888 he applied for a further patent, this time for 'a combination of closet pan and lid' and a further patent in March 1890 for 'Improvements in destructors for town and other refuse'.<sup>82</sup> Hesse was obviously on a mission to relieve Victorians of some of the consequences of a growing population. The main idea was to have a pan, with a close-fitting air-tight lid, that was removed as a whole unit from the earth closets by nightmen, and replaced by a clean empty one.<sup>83</sup> This avoided or reduced the inevitable malodorous contents from creating a stench throughout a neighbourhood. Various Councils throughout Victoria began to consider using Hesse's original patent system with St Kilda Council being an early user and advocate.<sup>84</sup> Other Councils believed they were too small to make that system work.<sup>85</sup>

The Eaglehawk Board of Health was informed in April 1888 by their assistant inspector and engineer that 'about two thirds of the closets are pans, the remainder "hole in the ground", and that 'the night soil depot is about a mile from the town. There is a licensed nightman, but he is not much employed'.<sup>86</sup> He went on to remark that 'the closet system and nightsoil collection are very unsatisfactory. ... Two-thirds of the people who have pans empty and bury the nightsoil in adjoining yard or garden' and 'only the other third employ the licensed nightman at all, and some of these not often enough'. He recommended that they put a stop to 'the dangerous practice of burying nightsoil in gardens or near dwelling houses' that 'all pans should be emptied at least once a week, and the contents taken to the nightsoil depot'. On the depot itself he reported that 'the night soil ... appears well covered, and there was no smell of any consequence', however it was prone to flooding on occasions, with the receding waters running into Eaglehawk Creek and on to Bendigo Creek.<sup>87</sup>

Similarly, in January 1888, the Sandhurst Board of Health revealed that 'out of 5,500 householders in the city, 905 only employ the night-carts, as they bury the offensive matter in their gardens or yards'.<sup>88</sup> The City Council contemplated the Hesse system, drawing some criticism from local residents, one of whom, "Old Ratepayer", who claimed, as a father of ten children, he had been burying his nightsoil in his back yard (measuring one-eighth of an acre in size) for 22 years and had never suffered illness as a consequence. He used sifted wood ashes to cover the excreta, insisted the hole in the garden must not be too deep, and that the addition of paper to the pan made it useless. He also challenged the Council or Board of Health to find, within five minutes of him disposing of night soil in this way, any signs of where he had done so.<sup>89</sup>

The City Council and Board of Health decided to trial the closed pan system and ordered some sample pans and disinfectant from the Hesse Sanitary Co in early 1889.<sup>90</sup> When the Council was informed that they would have to pay a royalty of 6 pence per pan, the Town Clerk insisted no such payment had been mentioned in the early negotiations. Determined to find an alternate manufacturer of the 'closed' pans, he was informed that the:

Hesse Company, however, are taking proceedings in the Supreme Court against a St. Kilda manufacturer to assert their rights to the patent india rubber ring affixed to the lids of the pans, and if this action is sustained, then it is quite probable that the pan of local [Bendigo] manufacture approved of by the board will be looked upon as an infringement of the patent.<sup>91</sup>

In this case Cr Hoskins moved that the Council agree to pay the royalty so long as the Hesse Company committed to erect a local factory (a desiccator capable of handling 1,000 pans daily) for the

manufacture of the 'poudrette' from the night soil.<sup>92</sup> Hoskin's motion was also carried. The final price offered by Hesse in September 1889 was 4 shillings and 8 pence per 100 pans which the Council seemed hesitant to accept.<sup>93</sup> They did however agree in September 1890 to purchase 5,000 pans and 1,000 lids (see Figure 6 for an illustrative example), and in the meantime 'the excreta will be buried at convenient depots. The cost of this service, it is believed, will not exceed the amount of a fourpenny rate'.<sup>94</sup>

The catalyst for this action probably stemmed from the July 1890 *Health Act*, Section 253 of which ruled that:

That the ordinary system of pans for night-soil be abolished;

That, instead thereof, every closet be furnished with a double-pan service;

That at least once a week, or so much more frequently as the council may from time to time direct, the pan in use be closed with a tight-fitting lid, and removed in the day time in a suitable cart, and that the council shall have power in lieu of making a rate for the removal of night-soil and rubbish to make a charge on each occupier for such service ... ;

That a pan cleansed by superheated steam, or some equally efficient means approved by the council, be left in its place;

That the use of a suitable disinfectant or deodorant be made compulsory;

That the night-soil removed be either rendered inoffensive or treated in a destructor desiccator or incinerator or be trenched or ploughed into land;

That failing the use of a destructor desiccator or incinerator the contractor be compelled to obtain a receipt from the occupier of the land whereon deposit is made or from the manager of some approved depot for night-soil for the number of pans there emptied or delivered;

That stringent supervision be exercised by the council over all such depots or places of deposit;

That individual householders shall not contract for the removal of either night-soil or any other refuse except in accordance with the by-laws and regulations of the council.<sup>95</sup>



Figure 6. Brochure for George Lance and Son's Cess-pans, 1891  
Source: PROV, VPRS 16936/P1, Unit 34, 1891, 2 - 14 Nov 1891, letter from G Lance & Son, Re his cess-pans

The subject of the collection of night soil in Bendigo may have been resolved for the time being, but the burning question of where it could be deposited remained. In September 1889 Herbert Keck offered to the City Council to receive night soil and city refuse at a rate of £3 per month for a period of six months, and this was accepted.<sup>96</sup> This 'convenient depot' was adjoining Retreat Road at One Tree Hill in the Shire of Strathfieldsaye, where Keck had an orchard.<sup>97</sup> By June 1891 Keck's depot was causing concern and Strathfieldsaye Council resolved to take legal action against Keck for illegally disposing the City's excrement, an action which was said to be destroying 'one of the best picnic sites in the district'.<sup>98</sup> Keck was fined £2 plus costs.<sup>99</sup> Closing his gates to the nightmen to prevent further prosecution, Keck put the City Council in the position where they had to cease the collection of nightsoil until they could resolve the matter with the Shire Council or find a more suitable site within the boundary of the City.<sup>100</sup> In the words of "Disgusted" (a householder) who had written to the *Bendigo Advertiser* in February 1890 when the Hesse system was initially rejected (and before the 1890 Health Act was enacted):

I am altogether dependent upon a quasi contract made between myself and a private individual for the removal of the contents of closet pan. He removes it when it suits him, not when it should be removed. I have no power to compel him to remove it oftener. True, I may agree with him for a weekly removal, but I must pay him 1s 6d a week, which, as I am not rolling in riches, is prohibitive. The result is that occasionally I have to dig a hole in my garden and empty the pan into it. This is, of course, against the law, but what is to be done? If I so empty it, I offend; if I let the pan overflow, I offend. So I choose the lesser of two evils. Now, what I would like to know, in common with other householders, is why cannot the council arrange for a weekly removal of nightsoil and refuse at a reasonable rate.<sup>101</sup>

Without a major solution to the nightsoil problem, anyone or everyone could become a law breaker. The City Council also sought legal advice in mid-1891 as to whether any ratepayer who had not paid, or refused to, the additional sanitation service charge by 10 June 1891, could be excluded from the 1891 Council voting roll, since ratepayers were not usually entitled to vote if rates were unpaid.<sup>102</sup> Two answers came back, one from Dr Quick and one from Barkly Hyett, each with a different opinion.<sup>103</sup> Quick's opinion, that the Council could refuse the right to vote to grant anyone who had not paid the sanitation rate, appears to have been accepted.<sup>104</sup>



A 221-acre extension, adjoining the original site, was approved and gazetted in 1894.<sup>109</sup> The City Council requested in 1897 that the site be permanently reserved but an objection by the Shire of Strathfieldsaye appears to have prevented this from taking place.<sup>110</sup>

With a large, and legal site for the deposition of night soil secured, the City Council began to issue long-term contracts for a city-wide pan collection, emptying and cleaning service. William Bennett of Williamstown, Leopold Hesse of St Kilda, Mr Knowles, Michael Ferrari, Messrs Boldt and Svanosio were among those who showed an interest for the annual contract in May 1895, with the latter being awarded the contract, albeit under a small degree of controversy.<sup>111</sup> In July 1898 Henry Carr of North Brighton was awarded a five-year contract for 'the removal, cartage and washing of cesspans and trenching in of night-soil' for the total sum of £12,895, the Council recording that since the last contract had been issued, the number of pans requiring collection has increased from 13,915 to 15,323.<sup>112</sup> Carr was an experienced sanitary contractor, having already been in the business for 18 years and servicing the 'Cities of Prahran, Sth Melbourne, Fitzroy & Ballarat & the towns of Brighton & Essendon.'<sup>113</sup> As part of his contract he had to provide all 'horses, harnesses, lights, oil etc, drivers and additional labour that may be required ... also stabling sheds and other necessary accommodation'. The Council provided the cesspans, rubber rings, disinfectant, water, vans and carts but Carr had to keep them in good order.<sup>114</sup> Carr's specification is an 11-page document, some of the conditions being:

Instructions for emptying pans. To continue to empty until the can or cart is full and then drive to the depot at Wellsford and there unload and empty the pans into the trench prepared, empty pans with lids then to be taken to the washing shed. Supply of pans to be managed to there is enough pans at the sheds for continuous washing. Van or Cart to be thoroughly washed before loading with clean pans.

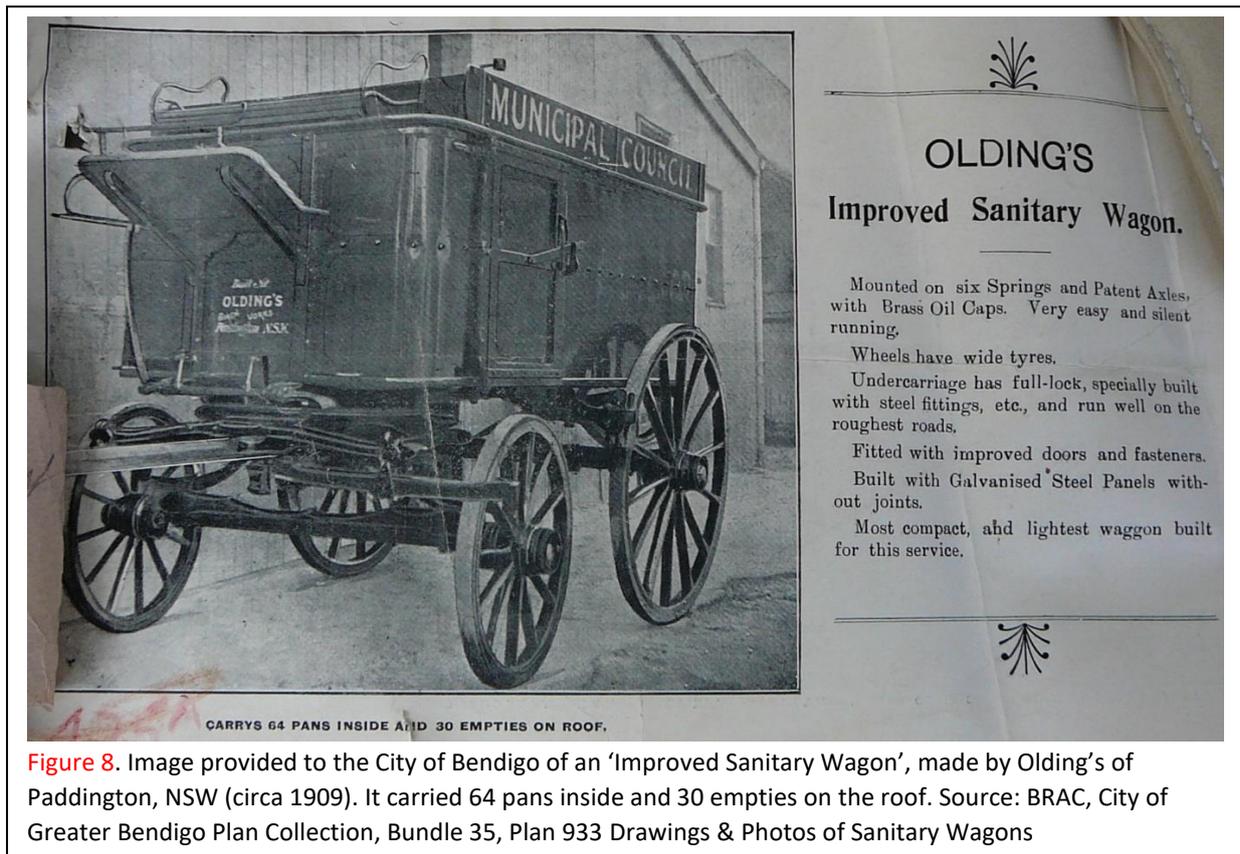
Maintain a civil and respectful demeanour to all ratepayers and others they come into contact with.

A register to be kept at the Town Hall of the names and addresses of all persons or establishments to whom the pans are supplied.

Drivers employed by the Contractor must be active able bodied men and no assistant under 18 years of age to be employed.<sup>115</sup>

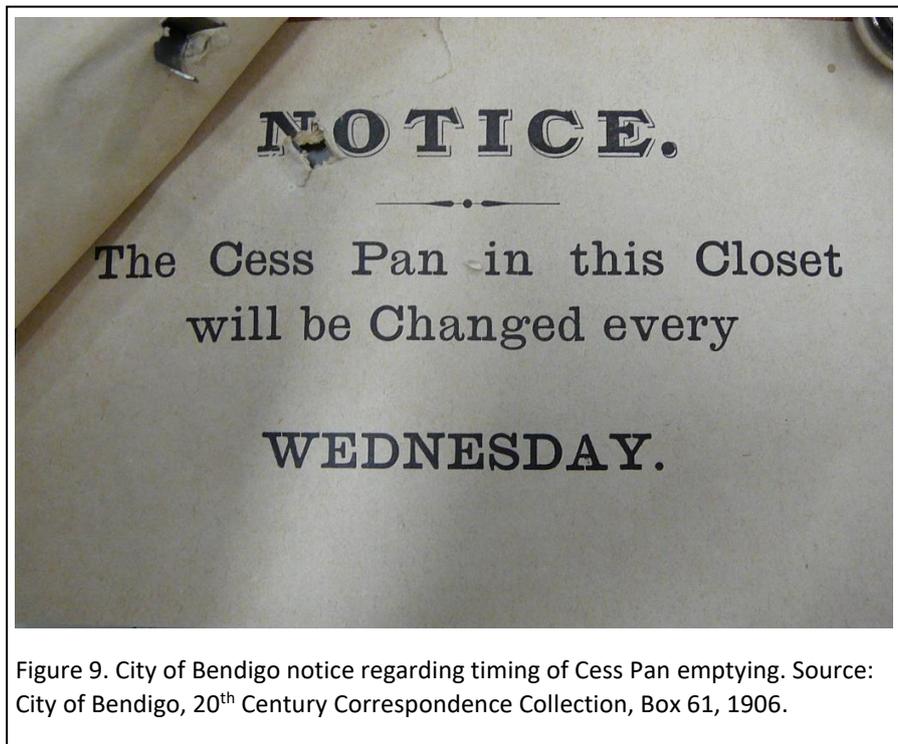
There were also fines for non-compliance or any loss or damage in consequence of gates, doors etc being left open, including a 2 shilling and 6 pence fine for neglect to report leaky or damaged pans, or 5 shillings for neglecting to wash vans and carts every trip. The vehicles provided by the Council were 11 vans carrying 60 pans, 1 van carrying 32 pans and 1 spring cart carrying 12 pans (see Figure 8 for a ca1909 example of a sanitary wagon).<sup>116</sup>

When the Council wanted to vary Carr's contract in 1900, at an additional cost of £3,985 per annum, it caused some discontent amongst the Council and the public.<sup>117</sup> According to legal advice sought in April 1900, the variations exceeded the £100 limit above which any contract had to be 'submitted for public competition'. In addition to this, by adding new clauses to the specification a new contract was being made.<sup>118</sup> Fresh tenders were called in July 1900 and Henry Carr was once more awarded the contract, this time at a cost of £26,495, for a period of seven years.<sup>119</sup> The key difference was that 'hitherto the contractors' obligations extended only to the removal of the cesspans, but under the new contract it is obligatory on the part of the contractor to supply not only labor, but all material'.<sup>120</sup>



**Figure 8.** Image provided to the City of Bendigo of an 'Improved Sanitary Wagon', made by Olding's of Paddington, NSW (circa 1909). It carried 64 pans inside and 30 empties on the roof. Source: BRAC, City of Greater Bendigo Plan Collection, Bundle 35, Plan 933 Drawings & Photos of Sanitary Wagons

With the growing cost of 'carrying the can' to provide a clean and hygienic landscape for its ratepayers (Figure 9), the City Council eventually began to consider other means by which the same result could be achieved. This took the Council down the eventual path of a sewerage scheme, but some other significant changes to the Bendigo landscape also had to take place to enable this to happen.



**Figure 9.** City of Bendigo notice regarding timing of Cess Pan emptying. Source: City of Bendigo, 20<sup>th</sup> Century Correspondence Collection, Box 61, 1906.

## The Cesspool that was not a Cesspool: The introduction of Septic Tanks

The potential of introducing a system based on septic tanks was being considered by council in 1904.<sup>121</sup> Septic tanks, which are still present in large parts of rural and regional Victoria, rely upon the natural digestion or decomposition by microbes of human waste in an enclosed underground tank, with the resulting effluent water being relatively clean.<sup>122</sup> Some of the earliest proposed uses of septic tanks in the Bendigo district were by the Shire of Huntly in Elmore township drainage works and the Saint Aiden's Orphanage of Grassy Flat, both in 1905.<sup>123</sup> Floods in September 1906 and August 1909 washed away part of the Elmore septic tank system, submerging the pumps, damaging fences and silting up the gravel beds.<sup>124</sup>

Still trying to navigate the ever-changing legal minefield of managing human excrement, in September 1906 the City Council sought legal advice on whether they could 'permit the erection of septic tanks in the city.'<sup>125</sup> This was because, by definition, under Sections 3 and 265 of the *Health Act 1890*, a septic tank was deemed to be a cesspool, which of course were prohibited from being constructed.<sup>126</sup> The general consensus was that so long as the Council regulated the approval and installation of the tanks, and they were maintained, then the Council had the power to permit their construction.<sup>127</sup> The City surveyor presented proposed regulations for the control of septic tanks to a meeting of committee of the City Council in January 1907. Upon the motion of Councillor Andrew, and seconding by Councillor Dunstan, the report was recommended for acceptance by the Council.<sup>128</sup>

It was not long before these developments in managing nightsoil created new opportunities for local people and industries. By January 1909 a septic tank had been installed at Nankervis's ham and bacon factory in Golden Square which, it was hoped would 'remove all causes for complaint'.<sup>129</sup> In March 1911 it was reported in the *Bendigo Advertiser* that 'Messrs. A. Langley and Co. recently opened a factory in Wattle-street, and besides general tinsmithing works make ... septic tank sewerage systems' (Figure 10).<sup>130</sup> The new Consumptive Sanatorium planned for Spring Gully in 1911 was aiming to use the treated water from the proposed septic tanks to grow vegetables and thus prevent effluent from leaving the property and prevent it from entering the water supply race.<sup>131</sup> The Council had initially objected to the Sanatorium proposal due to concerns over potential pollution of the local water supply, however they were satisfied that the septic tank system would avoid this problem, and the site was approved and reserved in April 1913.<sup>132</sup> The occasional contemporary mention of proposals to use the treated septic tank outflow



**A. LANGLEY & CO.,**  
THE LEADING  
**SANITARY PLUMBERS.**  
(Certif. M.M.E.W.)  
Septic Tank Installations.  
Domestic Hot Water Supply.  
Lighting Plants.  
Bathroom and Kitchen Equipment.  
Cylinders and Boilers.  
THE TRADE SUPPLIED.  
The Firm That Does the Work,  
And Has the Reputation.  
172-174 MUNDY-STREET.  
(OPPOSITE HAYMARKET.)

Figure 10. Langley & Co. offer Septic Tank Installations in 1917. Source: *Bendigo Advertiser*, 20 October 1917: 8

water for human drinking purposes does suggest the benefits of septic tanks may have been overstated.<sup>133</sup>

Clearly the septic tank was eventually widely accepted amongst the rate payers of the Bendigo district. The Borough of Eaglehawk Council Minutes between 1960 and 1973 include lists of Eaglehawk ratepayers from which the Borough had abandoned an attempt to recover the sanitary charge, the major reason being the properties had been connected to the sewerage. Over those 14 years at least 550 properties were sewered, resulting in the Borough's septic tanks and their pan collection service becoming obsolete.<sup>134</sup> Bendigo was taking the next big step to responsible management of its nightsoil: sewers.

## Managing Smells: Local Sewerage Systems

Investigations made by the City Council in 1877 suggested there was insufficient fall (gradient) through the Bendigo valley to facilitate the drainage required for a sewerage system, leaving the earth closets as the best option at that time.<sup>135</sup> In late 1901 the City Council's Town Clerk wrote to the Melbourne Metropolitan Board of Works seeking information and advice on the application of sewage to land and subsequent use of land for cultivation, based on the Board's experience at the sewage farm at Werribee.<sup>136</sup> Sewers adjoining Wade and Booth Streets and Trotters Lane were built in 1901 and there was a rudimentary sewer in Hargreaves Street near Williamson and Mundy Streets by 1903.<sup>137</sup> Foul gases were emanating from it that year, and the town surveyor recommended three ventilators be added to 'minimise the evil'. Doctor Norris of the Public Health Department reported in January 1905 that 'premises on the western side of High-street should be drained by an underground system of sewerage'.<sup>138</sup> A decision on the matter was deferred, more advice on the subject of sewerage was sought and in February 1905 it was recommended that the pipes and culverts in Mitchell, Williamson, and Bull Streets be reconstructed to take drainage directly to the Bendigo Creek, with the aim of removing the incidence of sewer gas.<sup>139</sup> A report commissioned in 1905 from Mr Thwaites, chief engineer of the Metropolitan Board of Works, ultimately recommended the construction of an extended sewerage system for the City, estimated to cost £320,600.<sup>140</sup> Figure 11 shows the portion of Bendigo City proposed to be covered under the scheme.<sup>141</sup>

In 1908 the Council were still debating whether to spend more on a broader sewerage system, or to manage human effluent via private septic tanks at a lower cost to the Council. A proposal for the septic tank system was heard in January 1908 and, once more, a motion was carried to refer the matter to a committee of the whole council for further consideration.<sup>142</sup> This took place in April 1908 and the idea was generally approved.<sup>143</sup> By 1909 the focus was on managing the whole drainage network, taking into consideration both sewerage and water supply, including large parts of the Coliban Water scheme.<sup>144</sup> Depicted by the *Bendigo Advertiser* as 'City Council Again Takes Action', in February 1910 Mayor Andrew moved that a sub-committee be formed to consider and report on the question of taking the first steps towards the introduction of a scheme of sewerage for the City of Bendigo'. This time the motion 'was carried without discussion'.<sup>145</sup> The scheme was reported in August 1910 to be 'immediately prepared' but by January 1911 it had stalled once more.<sup>146</sup>



Figure 11. Plan showing the extent of Thwaites's proposed sewerage scheme for Bendigo, 1906  
 Source: "Sewering Bendigo." *Bendigo Advertiser*, 23 December 1905: 5

In April 1912, "A Visitor" to Bendigo commented on his surprise when he 'saw a hideous filthy sight' [in Wills Street] and 'felt the air suddenly polluted'. It was a sanitary cart working in broad daylight that he described as being 'a menace to public health' and a 'disgusting arrangement'.<sup>147</sup> While this could have prodded the Council into some action on the matter of sewerage, the next big proposal was the 1912 push to merge the City of Bendigo with the Borough of Eaglehawk, Huntly Shire and Kangaroo Flat (part of Marong Shire), referred to in 1910 as the 'Greater Bendigo' scheme.<sup>148</sup> This should have enabled more efficient delivery of services, management of resources such as water, and the introduction of public utilities. Thankfully the residents didn't have to wait until 1994 when this proposed merger of municipal areas eventuated, to finally get a sewerage system.<sup>149</sup>

A detailed description of how a Bendigo sewerage system might be established was published in the *Bendigo Advertiser* in November 1912.<sup>150</sup> It included reference to toilets being inside ratepayers' homes which were flushed clean with water, and odours were prevented from entering the house

through the use of a water-filled “U bend”. The supply of water for this flushing was proposed to be cisterns fed directly from the reticulated water supply, or a header tank that would fill when the water pressure permitted (Figure 12). Terminology such as ‘water closet’ or W.C. crept further into our language with the advent of these new toileting arrangements.

What we would today regard as a Bendigo sewage treatment works was, in 1912, planned to be a series of large septic tanks (100 feet long, 25 feet wide and 7 feet deep) in which the sewage degraded anaerobically. This was to deal with the calculated 180 tons of night soil that was being removed weekly from the whole of Bendigo city in 1912. There was even the idea of using the resulting gases to ‘illuminate the [sewerage] works at night’.<sup>151</sup> The whole scheme was estimated to cost £300,000 and, with the program proposed to be paid for over a 60-year period, one commentator, George Crawford believed that meant a further £600,000 in interest, making a total of £900,000.<sup>152</sup>

While some were concerned about the cost of taking action, Dr T. E. Green explained to a rally of the Australian Women’s National League in the Temperance Hall in November 1912, that inaction was a greater problem. He believed ‘the greatest municipal sin that Bendigo had committed was the absence of a proper system of sewerage. They were paying for that in every year in diseases which was brought about owing to the absence of proper sewerage’.<sup>153</sup> Green cited the rate of cases and deaths from typhoid in Melbourne before and after the introduction of the sewerage system to demonstrate the need for a proper system in Bendigo. A loan for the public works at Bendigo was floated in June 1914 and was over-subscribed, providing over £100,000.<sup>154</sup> Back in January 1913, however, Councillor Andrew expressed concerns that the current water mains would need enlarging and water pressure increased in the elevated parts of the City if it was to supply enough water for a sewerage system.<sup>155</sup>

In 1916, an application was made for Bendigo City to be proclaimed to be a ‘sewerage district’ under *Sewerage District Act 1915*.<sup>156</sup> This led to the proclamation of the sewerage district and formation of the Bendigo Sewerage Authority in November 1916, which was also immediately given the power to borrow £5,000.<sup>157</sup> For the interim period the Councillors of the City of Bendigo constituted the members of the authority. A loan of £120,000 with the Commonwealth Bank was ratified and tenders were called for the Bendigo Sewerage Works in September 1921.<sup>158</sup> Three areas were to be targeted for the initial stages of the scheme, Central Bendigo, Quarry Hill, and Golden Square. By January 1923

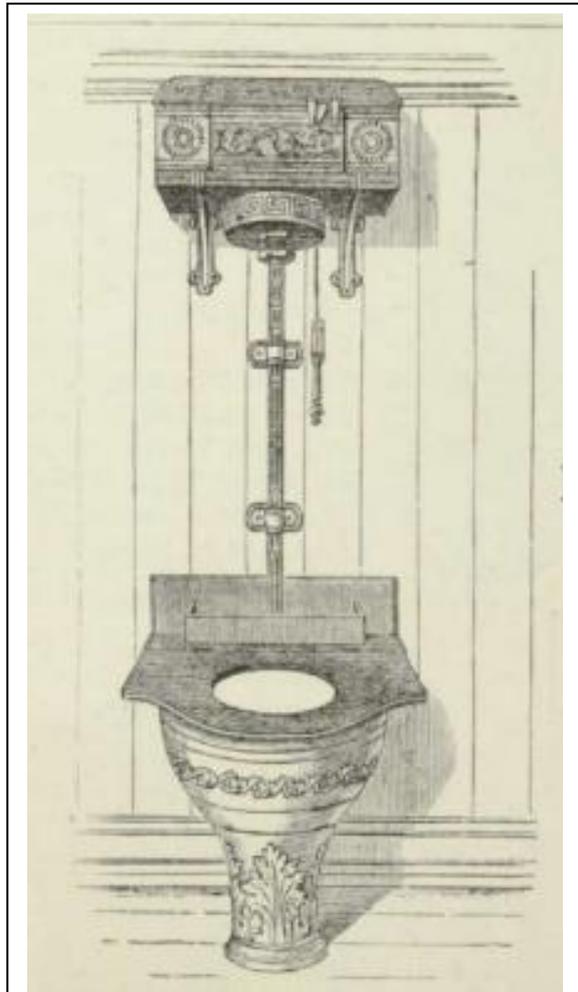


Figure 12. Old-style flushable toilet with gravity-fed cistern above the bowl.

Source: Bruce, John L & Kendall, Theodore Mailler. *The Australian sanitary inspector's text book*. William Brooks: Sydney, 1901: Advertisement (viewed 15 March 2022) <http://nla.gov.au/nla.obj-2832839792>

four miles of Bendigo sewer mains had been completed and shortly afterwards 400 buildings were awaiting connection.<sup>159</sup> In June of that year 'Area 6' of the first section of the scheme was proclaimed to be 'sewered' and by February 1924 305 houses had been connected.<sup>160</sup> In April 1924 Areas 8, 9 and 10 of the first section and Areas 12, 16 17 and 18 of the second section were also proclaimed to be sewered and the sewerage area was further extended in July.<sup>161</sup> Bendigo's sewerage scheme finally appeared to be well underway when a bad smell, not created by nightsoil, began to emanate from the Sewerage Authority.

Controversy hit the Authority in late 1924. In September 1924, allegations were made by local sewerage contractors against officers of the Authority and 'their work in dealing with contracts for house connections'.<sup>162</sup> The Authority immediately referred themselves to the city solicitor and a Royal Commission commenced in May 1925 to examine the allegations.<sup>163</sup> The complaints levied against the employees of the Authority, contractors and tradesmen and merchants included 'improper practices, detrimental to the interests of taxpayers and property owners in the sewerage area' relevant to 'house connection contracts', the sharing of confidential information by the Authority with contractors and that 'the conditions existing at the Sewerage Works, Epsom, are insanitary and offensive and that this is directly due to the inadequate system installed there'.<sup>164</sup> The Royal Commission found that improper practices were used by the Sewerage Contractors' Association in tendering for house connections, and that the Authority's assistant secretary was equally guilty of the same behaviour.<sup>165</sup> Some suppliers of materials used in sewerage works were subject to pressure to unfairly deny some contractors access to supplies in Bendigo to prevent natural competition and four employees of the Authority showed differential treatment to contractors and that secret information was improperly shared.<sup>166</sup>

Other allegations were unproven, but the complaints that the sewerage works were insanitary were upheld. The commissioner found that effluent from the works was impure and its discharge into the Eaglehawk Creek (for 10 weeks) would cause a nuisance, further the effluent discharged onto land formerly used for alluvial mining was 'insanitary and offensive' but this did not apply to the discharge onto cultivated land. The treatment plant itself 'did not produce a purified effluent' and the translating chambers installed for this purpose were useless.<sup>167</sup> Seven individual failures in the operation of the sewerage works were identified, the system used to test pottery pipes used to connect houses to the sewerage was deemed unsatisfactory, resulting in defective pipes being used, and the Authority rejected pans which had been officially tested in Melbourne and Sydney. This was all a damning indictment for the Bendigo Sewerage Authority, but action was taken in 1926 towards correcting the faulty treatment system.<sup>168</sup>

The introduction of sewerage systems also triggered cultural changes with respect to toilets and toilet usage. With flushable toilets came the manufacturing and use of toilet paper. The cut-up squares of newspaper tied with a string and hung on a nail in the outdoors non-flushable 'dunny' were not suitable for the modern sewerage networks. In 1951, a global shortage of paper created a shortage of toilet paper in Australia.<sup>169</sup> With manufactured toilet paper came toilet roll holders as interior fittings to houses. With the incorporation of U-bends into toilet bowl designs, toilets also began to move indoors.<sup>170</sup> Indoor toilets had been a feature of some large buildings, such as hospitals, prior to 1900, however the installation of toilets within houses was very much a function of the spread of proper sewerage works and the gradual improvements of urban environments. Outdoors flushable toilets were still a feature of some older houses in suburban Melbourne in the 1990s (Figure 13).<sup>171</sup> A more recent problem has been the introduction of so-called 'flushable wipes' which may indeed be flushable but do not disintegrate in the way toilet paper does and subsequently create sewerage blockages.

In 1927 the Authority sought a loan of £36,000 to extend the system to Quarry Hill, and sewerage works at Kennington and Golden Square were progressing. Having voted in March 1927 to install an Imhoff Tank System as part of the treatment plant, in November a majority of the authority voted to decline the tenders for the new system. Instead the Public Health Commission permitted the Authority to undertake an eight-month trial of an irrigation scheme, which, if it failed, would require the Authority to commence with the upgraded treatment works as originally planned.<sup>172</sup> The trial appears to have been successful, as demonstrated by a report in August 1928 that native grasses had grown to an unprecedented height of 18 inches at the disposal farm in the mid-winter months. This was marred by a report that in May of that year 'the engineer, under instruction from the chairman, had released the effluent from May's Swamp at the sewerage farm into the Bendigo Creek'. This was 'deemed to be a dastardly act' which was 'severely criticised by Huntly Shire Council, and Bendigo Creek Trust said it was a grave breach of faith'.<sup>173</sup>

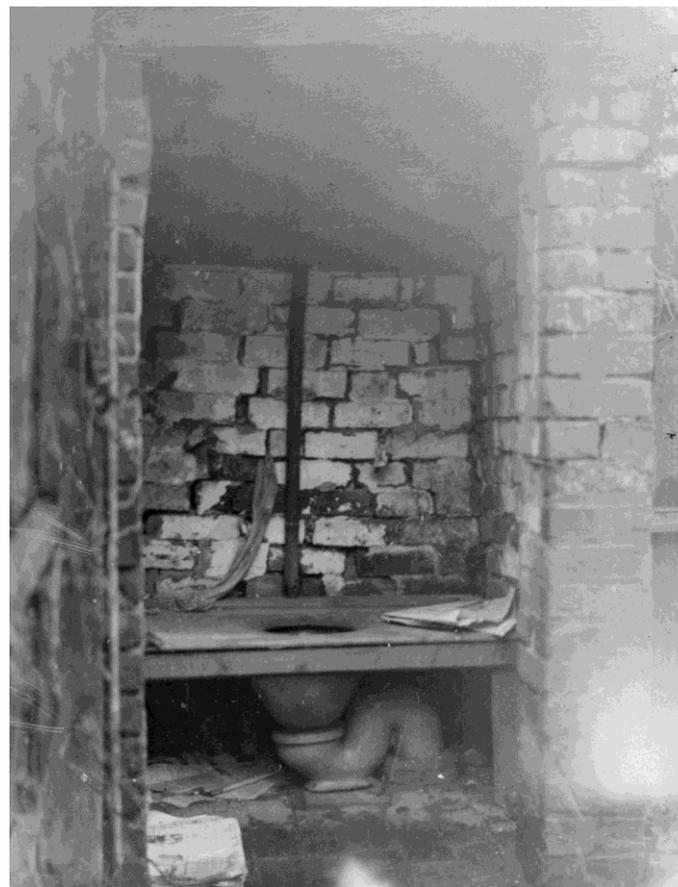


Figure 13. An early brick 'outhouse' or outdoors water closet which housed a cistern-style toilet.

Source: Barnett, F. O., & Victoria. *Housing Investigation Slum Abolition Board*. (1932). Carlton. Lavatory, 48 Palmerston Street. State Library of Victoria.

<http://handle.slv.vic.gov.au/10381/270627>

Land within Sewerage Areas 38, 39 and 40 was declared to be sewered in 1928 and in September of the same year the plans for Reticulation Area 3 at Golden Square were made public.<sup>174</sup> A month later the boundaries of the Bendigo Sewerage District were redefined as the entire City of Bendigo, with certain portions excised from it and in 1929 Ironbark was approved to be included in the scheme and estimates were prepared for sewerage of the area.<sup>175</sup> The concerns raised in 1913 regarding the capacity of the water supply system to cope with the sewerage of Bendigo were demonstrated in 1930 to be genuine when a shortage of water supply forced some parts of the scheme to be inoperative. The Authority reached out to the Minister for Water to provide a remedy for the situation.<sup>176</sup>

Keeping in mind that the primary purpose of all the actions of the Bendigo Council to manage human excrement was to provide public health benefits to a growing population, in 1937 the Authority reported that typhoid fever has been almost eliminated due to the sewerage scheme. Case numbers in 1923 were reported to be 353 with '58 deaths but in the succeeding 10 years to 1933 there had been only 29 cases and eight deaths' in total.<sup>177</sup> With that level of success it is no wonder that parts of Strathfieldsaye Shire were added to the scheme in 1949.<sup>178</sup> The *Annals of Bendigo* record that the 'sewerage rate in the Bendigo Sewerage District in 1955 was set down at £4 for properties with a building and £2 for properties without'.<sup>179</sup> Considering the annual cost of emptying cesspans nearly

40 years earlier in 1918 was 18 shillings (nearly a pound) at the ordinary rate and 6 pounds, 6 shillings and sixpence for large establishments, the increased personal cost to rate payers, and the health benefits gained as a result, was quite reasonable.<sup>180</sup>

The Sewerage District was once more expanded in 1956 to include 'the township of Kangaroo Flat, portions of Strathfieldsaye, St Just's Point, Spring Gully, Flora Hill and Eaglehawk. It was reported that there were still 1,700 houses in the Bendigo sewered area that relied upon pan-collection'.<sup>181</sup> By February 1961, a further '41,498 lineal feet of sewerage covering areas in West Bendigo, Denham Gully, Eaglehawk, Comet Hill, Strathfieldsaye and Kangaroo Flat' had been added to the system in the previous twelve months and a further extension of the Scheme to the Grassy Flat area was sought in 1962.<sup>182</sup> This is all quite an achievement for an inland rural city in Victoria. One figure quoted suggests that 'in 1965, 45 per cent of Australians lived in homes which were not connected to a sewerage systems (sic), and most of them were in ... outer suburbs'.<sup>183</sup>

The ultimate fate of the Wellsford Sewerage Works was hinted at in 1955 when the 'local branch of the RACV [Royal Automobile Club of Victoria] requested the City Council to ask the BSA to set aside 132 acres at Wellsford for an aerodrome'.<sup>184</sup> The Authority were experiencing problems in 1974 and requested the sewerage treatment works be moved, but this was rejected by the Minister for Water Supply and Forests due to the anticipated cost.<sup>185</sup> Modern equipment was the alternative offered to solve the problems. But the need for a new site was finally recognised and the first stage of the Authority's '\$500,000 improvement programme was completed on December 31 when a new aeration complex and settling pond at Meadow Farm, Epsom were used for the first time'.<sup>186</sup> A laboratory and control room were added to the new facility at a cost of \$101,000 and this was officially opened in 1984, the same year the Authority changed its name to the Bendigo Water Board.<sup>187</sup> The new works in Howard Street were officially opened in July 1991 and in 2021 was receiving and treating sewage from about '110,00 people in the Bendigo Region' which equates to 47,000 connections, in addition to receiving septic tank waste from rural areas.<sup>188</sup> In 1992 the Bendigo Water Board became part of what is now known as Coliban Water (Coliban Region Water Corporation).<sup>189</sup> The old Wellsford plant is now the Bendigo airport.

The Bendigo City Council had ceased to carry the can for local sanitation services many decades earlier, but they are ultimately responsible for the district reaching the goal of good health through good sanitation, albeit via a rather tortuous and often odorous path. We now have a good sanitation system, and the lease we can do is to take care of it so that we don't have to return to the bad old days of poorly managed manure depots in our own back yards.

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- <sup>1</sup> "City Council." *Argus* (Melbourne), 28 March 1851: 2.
- <sup>2</sup> "City Council." *Argus* (Melbourne), 27 September 1852: 6.
- <sup>3</sup> "New Advertisements." *Argus* (Melbourne) 18 November 1853: 1; "City Council." *Argus* (Melbourne) 12 September 1854: 5.
- <sup>4</sup> "Municipal Council of Emerald Hill." *Victoria Government Gazette*, 25 January 1856: 160; "Municipality of East Collingwood." *Victoria Government Gazette*, 12 August 1856: 1325; "Municipality of Ballaarat." *Victoria Government Gazette*, 19 August 1856: 1374; "Castlemaine Town Council." *Mount Alexander Mail*, 4 July 1856: 4.
- <sup>5</sup> "Municipal Council." *Bendigo Advertiser*, 7 May 1856: 2; PROV, VPRS 16341/P1, Unit 2, Sandhurst Council, Outward letter Book, letter dated 2 May 1856 (page 30).
- <sup>6</sup> "A Manure Deport for Sandhurst." *Bendigo Advertiser*, 12 June 1856: 3; "Municipal Council." *Bendigo Advertiser*, 14 February 1856: 2; PROV, VPRS 16341/P1, Unit 1, letters dated 5 March 1856 and 15 March 1856.
- <sup>7</sup> "Municipality of Sandhurst." *Victoria Government Gazette*, 10 February 1857: 277.
- <sup>8</sup> "Municipality of Emerald Hill." *Victoria Government Gazette*, 14 May 1858: 947.
- <sup>9</sup> "Sandhurst Municipality." *Victoria Government Gazette*, 13 August 1858: 1556; "Sandhurst Municipality." *Victoria Government Gazette*, 1 February 1859: 269.
- <sup>10</sup> "Municipal Council." *Bendigo Advertiser*, 5 May 1858: 3.
- <sup>11</sup> "Notices." *Bendigo Advertiser*, 25 February 1860: 1.
- <sup>12</sup> "Municipal Police Court." *Bendigo Advertiser*, 28 August 1857: 3.
- <sup>13</sup> "Municipal Council." *Bendigo Advertiser*, 9 July 1856: 2; "Municipal Council." *Bendigo Advertiser*, 16 December 1857: 2.
- <sup>14</sup> "Mr. Kennedy's Meeting at Golden Square." *Bendigo Advertiser*, 11 June 1859: 2; PROV, VPRS 227, Unit 2, 1858, Register C, Page 33, Registered Item 334, Dated 20 January 1858; Put-away plan S33, Sandhurst Parish, dated ca 1859, Central Plan Office, Landata Website, landata.vic.gov.au (accessed December 2021).
- <sup>15</sup> "Municipal Council." *Bendigo Advertiser*, 27 January 1858: 2; "Municipal Council." *Bendigo Advertiser*, 22 September 1858: 2.
- <sup>16</sup> "Municipal Council." *Bendigo Advertiser*, 18 April 1860: 2; "Municipal Council." *Bendigo Advertiser*, 21 April 1860: 2 (reported as Charlston Road). This is probably the site often referred to as the "Back Creek" depot near the Cattle Yards; see "Sandhurst Borough Council Election." *Bendigo Advertiser*, 9 August 1865: 2.
- <sup>17</sup> "Building Allotments in the Township of Sandhurst." Put-away plan S71, Sandhurst Parish, 3 March 1859, Central Plan Office, Landata Website, landata.vic.gov.au (accessed December 2021); "Sandhurst Cattle Market." *Victoria Government Gazette*, 28 August 1860: 1602.
- <sup>18</sup> "Lands Temporarily Reserved." *Victoria Government Gazette*, 31 July 1863: 1679; "Lands Temporarily Reserved." *Victoria Government Gazette*, 13 October 1863: 2296; "Sale of Crownlands in Fee Simple." *Victoria Government Gazette*, 27 November 1866: 2603; "Lands Reserved, Etc." *Victoria Government Gazette*, 1 October 1867: 1862; Put-Away Plan S368R of Eaglehawk, part of Section N, parish of Sandhurst dated 19 March 1885; Central Plan Office, Landata Website, landata.vic.gov.au (accessed December 2021).
- <sup>19</sup> "The Manure Depot." *Bendigo Advertiser*, 19 October 1861: 2.
- <sup>20</sup> "The Manure Depot." *Bendigo Advertiser*, 29 October 1861: 2.
- <sup>21</sup> "Municipal Council." *Bendigo Advertiser*, 27 November 1861: 2.
- <sup>22</sup> *Bendigo Advertiser*, 18 November 1861: 4; "Municipal Council." *Bendigo Advertiser*, 20 November 1861: 2.
- <sup>23</sup> "Municipal Council." *Bendigo Advertiser*, 27 November 1861: 2; "Municipal Council." *Bendigo Advertiser*, 21 December 1861: 2.
- <sup>24</sup> "Municipal Council." *Bendigo Advertiser*, 12 July 1862: 2; *Bendigo Advertiser*, 14 July 1862: 1.
- <sup>25</sup> "Municipal Council." *Bendigo Advertiser*, 19 July 1862: 2; see also Bendigo Rates index for Dennis Foley of Bernal Street.
- <sup>26</sup> *Bendigo Advertiser*, 17 November 1862: 1; "Municipal Council." *Bendigo Advertiser*, 29 November 1862: 2.
- <sup>27</sup> "Remove the Plague." *Bendigo Advertiser*, 1 December 1862: 1.
- <sup>28</sup> "Sandhurst Borough Council." *Bendigo Advertiser*, 10 December 1864: 2; "Sandhurst Borough Council." *Bendigo Advertiser*, 24 December 1864: 3.
- <sup>29</sup> "Sandhurst Borough Council." *Bendigo Advertiser*, 24 December 1864: 3.
- <sup>30</sup> "Sandhurst Borough Council." *Bendigo Advertiser*, 8 April 1865: 2; Sandhurst Borough Council." *Bendigo Advertiser*, 23 September 1865: 2.
- <sup>31</sup> "Sandhurst Borough Council." *Bendigo Advertiser*, 5 August 1865: 1.
- <sup>32</sup> "Sandhurst Borough Council." *Bendigo Advertiser*, 19 May 1866: 2.
- <sup>33</sup> *Public Health Amendment Act*, 1867, 31 Vict., No. 310.

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- <sup>34</sup> *Public Health Amendment Act, 1867, 31 Vict., No. 310, s. 31.*
- <sup>35</sup> *Public Health Amendment Act, 1867, 31 Vict., No. 310, s. 40; "The Patent Earth Closets." Bendigo Advertiser, 14 May 1866: 2.*
- <sup>36</sup> *Public Health Amendment Act, 1867, 31 Vict., No. 310, s. 11.*
- <sup>37</sup> *Public Health Amendment Act, 1867, 31 Vict., No. 310, s. 37.*
- <sup>38</sup> *Public Health Amendment Act, 1867, 31 Vict., No. 310, s. 37.*
- <sup>39</sup> *Public Health Amendment Act, 1867, 31 Vict., No. 310, s. 41.*
- <sup>40</sup> "Sanitary Condition of the Town and Suburbs." *Bendigo Advertiser*, 13 October 1865; 2; "Sandhurst Borough Council." *Bendigo Advertiser*, 14 October 1865: 1, reported as Edward O'Cutter of Richmond but likely to be Edward Oakley Cutler, contractor of Richmond. Not obvious patent registered in his name has been located, which might suggest he purchased Campbell's 1864 patent.
- <sup>41</sup> "Private Advertisements." *Victoria Government Gazette*, 5 August 1864: 1720; "Private Advertisements." *Victoria Government Gazette*, 6 March 1866: 553; "Applications for Patents for Inventions." *Victoria Government Gazette*, 8 June 1866: 1215; "Applications for Patents for Inventions." *Victoria Government Gazette*, 26 November 1869: 1888; "Private Advertisements." *Victoria Government Gazette*, 2 September 1870: 1817.
- <sup>42</sup> *Bendigo Advertiser*, 18 January 1870: 3.
- <sup>43</sup> "Notices." *Bendigo Advertiser*, 15 April 1871: 4.
- <sup>44</sup> "Sandhurst Borough Council." *Bendigo Advertiser*, 24 June 1871: 3.
- <sup>45</sup> "The City of Sandhurst." *Victoria Government Gazette*, 21 July 1871: 1149.
- <sup>46</sup> PROV, VPRS 16936, Unit 8, Correspondence dated 2 August 1872; PROV, VPRS 16936, Unit 9, Correspondence dated 11 October 1872.
- <sup>47</sup> PROV, VPRS 16936, Unit 10, Correspondence dated 31 January 1873; "City Council." *Bendigo Advertiser*, 1 February 1873: 2.
- <sup>48</sup> "Earth Closets." *Bendigo Advertiser*, 9 December 1872: 3.
- <sup>49</sup> PROV, VPRS 16936, Unit 10, Correspondence dated 14 March 1873; PROV, VPRS 16936, Unit 11, Correspondence dated 7 May 1873.
- <sup>50</sup> "City Council." *Bendigo Advertiser*, 14 June 1873: 2.
- <sup>51</sup> "City Council." *Bendigo Advertiser*, 16 August 1873: 2.
- <sup>52</sup> "City Council." *Bendigo Advertiser*, 23 August 1873: 2.
- <sup>53</sup> "City Council." *Bendigo Advertiser*, 20 December 1873: 2.
- <sup>54</sup> "News of the Day." *Age* (Melbourne), 26 October 1875: 2.
- <sup>55</sup> "Melbourne." *Bendigo Advertiser*, 23 December 1875: 2; *Public Health Amendment Act, 1876, 39 Vict. 524, S. 20-21.*
- <sup>56</sup> *Public Health Amendment Act, 1876, 39 Vict. 524, S. 20-21.*
- <sup>57</sup> *Bendigo Advertiser*, 12 June 1876: 2.
- <sup>58</sup> "Eaglehawk Borough Council." *Bendigo Advertiser*, 14 June 1876: 3.
- <sup>59</sup> "A Central Manure Depot." *Bendigo Advertiser*, 26 January 1877: 3.
- <sup>60</sup> "The City of Sandhurst." *Victoria Government Gazette*, 20 October 1876: 1944-1958.
- <sup>61</sup> *Bendigo Advertiser*, 2 February 1882: 3. Gilbert had been operating as a nightman since at least 1865; See advertisement in *Bendigo Advertiser*, 28 August 1865: 3.
- <sup>62</sup> "Notices." *Bendigo Advertiser*, 9 May 1882: 3; PROV, VPRS 16936, Unit 18, Correspondence dated 1 to 10 February 1882, letter dated 1 February 1882 from M Ferrari.
- <sup>63</sup> "Insulting Words." *Bendigo Advertiser*, 23 May 1882: 3
- <sup>64</sup> "City Council." *Bendigo Advertiser*, 2 September 1882: 2; *Bendigo Advertiser*, 3 April 1884: 4 (this advert continued until July 1884); "City Council." *Bendigo Advertiser*, 27 September 1884: 2; "City Council." *Bendigo Advertiser*, 12 September 1885: 2; "Local Board of Health." *Bendigo Advertiser*, 11 September 1886: 2; "Acceptance of Tenders." *Bendigo Advertiser*, 30 July 1889: 2
- <sup>65</sup> PROV, VPRS 16936, Unit 24, Bundle dated 1 to 10 July 1886, Correspondence re H W Steane; "City Council." *Bendigo Advertiser*, 8 May 1886: 2
- <sup>66</sup> PROV, VPRS 16936, Unit 24, Bundle dated 1 to 10 July 1886, Correspondence, contract and petition; "Sudden Deaths." *Bendigo Advertiser*, 11 January 1887: 2 states Steane died at his residence in Grassy Flat and his funeral left his late residence in Thanet Road. Lansell's Thanet mining claim is described at various times as being opposite the Back Creek cricket ground, on Flora Reef, south of the North Flora Company
- <sup>67</sup> "City Council." *Bendigo Advertiser*, 8 May 1886: 2; "Strathfieldsaye Local Board of Health." *Bendigo Advertiser*, 18 June 1886: 4
- <sup>68</sup> "Strathfieldsaye Local Board of Health." *Bendigo Advertiser*, 18 June 1886: 4

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- <sup>69</sup> *Public Health Amendment Statute* 1883, 47 Vict. 782.
- <sup>70</sup> *Public Health Amendment Statute* 1883, 47 Vict. 782, s.120.
- <sup>71</sup> *Public Health Amendment Statute* 1883, 47 Vict. 782, s.124-125.
- <sup>72</sup> *Public Health Amendment Statute* 1883, 47 Vict. 782, s.135.
- <sup>73</sup> "The Public Health Act." *Bendigo Advertiser*, 19 December 1883: 2.
- <sup>74</sup> "City Council." *Bendigo Advertiser*, 3 May 1884: 2.
- <sup>75</sup> "The Local Board of Health." *Bendigo Advertiser*, 5 January 1886: 2; "Private Advertisements." *Victoria Government Gazette*, 31 December 1885: 3626.
- <sup>76</sup> "Private Advertisements." *Victoria Government Gazette*, 31 December 1885: 3626.
- <sup>77</sup> "Eaglehawk Police Court." *Bendigo Advertiser*, 15 March 1886: 2
- <sup>78</sup> "City Council." *Bendigo Advertiser*, 22 May 1886: 2.
- <sup>79</sup> PROV, VPRS 16936, P1, Unit 23, Item 4-12 May 1886, Report on night soil dated 12 May 1886.
- <sup>80</sup> "City Council." *Bendigo Advertiser*, 17 March 1888: 3
- <sup>81</sup> "Private Advertisement." *Victoria Government Gazette*, 22 July 1881: 2153.
- <sup>82</sup> "Private Advertisements." *Victoria Government Gazette*, 3 September 1886: 2590; "Private Advertisements." *Victoria Government Gazette*, 28 March 1890: 1225.
- <sup>83</sup> *Bacchus March Express*, 7 July 1888: 3.
- <sup>84</sup> "Municipal." *Telegraph, St Kilda, Prahran and South Yarra Guardian*, 24 October 1885: 6; "Local News." *Telegraph, St Kilda, Prahran and South Yarra Guardian*, 23 April 1887: 4; *Bacchus March Express*, 7 July 1888: 3; "Public Health – Shire of Glenelg." *Victoria Government Gazette*, 13 June 1890: 2446
- <sup>85</sup> "Wangaratta Borough Council." *Ovens and Murray Advertiser*, 4 June 1887: 1.
- <sup>86</sup> "Borough Council." *Bendigo Advertiser*, 18 April 1888: 1.
- <sup>87</sup> "Borough Council." *Bendigo Advertiser*, 18 April 1888: 1.
- <sup>88</sup> "City Nuisances." *Bendigo Advertiser*, 7 January 1888: 4.
- <sup>89</sup> "Sanitation, Pure and Simple." *Bendigo Advertiser*, 27 February 1889: 3.
- <sup>90</sup> PROV, VPRS 16936/P1, Unit 28 1889 11 - 28 Feb 1889.
- <sup>91</sup> PROV, VPRS 16936/P1, Unit 28 1889 16-30 Apr 1889; "City Council." *Bendigo Advertiser*, 27 April 1889: 5.
- <sup>92</sup> "City Council." *Bendigo Advertiser*, 27 April 1889: 5; Poudrette is defined as a fertilizer made from dried night soil mixed with other substances, as gypsum and charcoal.
- <sup>93</sup> "Local Board of Health." *Bendigo Advertiser*, 28 September 1889: 4; "The Night Soil Question." *Bendigo Advertiser*, 18 February 1890: 3.
- <sup>94</sup> "The Sanitation of Sandhurst." *Bendigo Advertiser*, 23 September 1890: 2
- <sup>95</sup> *Health Act* 1890, 54 Vic. No. 1098, s 253.
- <sup>96</sup> "Local Board of Health." *Bendigo Advertiser*, 28 September 1889: 4; PROV, VPRS 16936/P1, Unit 29, Letters dated 13 September 1889
- <sup>97</sup> See Sandhurst Parish Plan S371, Sheet 4A and PROV Catalogue entries for Herbert Keck for allotments 280G, 280K, and 40B, parish of Sandhurst. The only address for Keck in the City of Sandhurst is a Duncan Street, Quarry Hill which was an urban allotment (see PROV, VPRS 16267/P1, Unit 33, 1889 City of Sandhurst Rate Book, page 73, Rate number 2894)
- <sup>98</sup> "The City Sanitary Question." *Bendigo Advertiser*, 19 June 1891: 3
- <sup>99</sup> "The Nightsoil Question." *Bendigo Advertiser*, 30 June 1891: 3
- <sup>100</sup> "The Sanitation Question." *Bendigo Advertiser*, 2 July 1891: 2
- <sup>101</sup> "The Night Soil Question." *Bendigo Advertiser*, 18 February 1890: 3.
- <sup>102</sup> "City Council." *Bendigo Advertiser*, 30 May 1891: 3.
- <sup>103</sup> BRAC, Uncatalogued Collection, City of Sandhurst, Sanitary Contracts File, letter dated 1 June 1891.
- <sup>104</sup> "Payment of the City Rates." *Bendigo Advertiser*, 2 June 1891: 3
- <sup>105</sup> BRAC, Uncatalogued Collection, City of Sandhurst, Sanitary Contracts File, letters and reports dated between 7 August and 12 October 1891.
- <sup>106</sup> BRAC, Uncatalogued Collection, City of Sandhurst, Sanitary Contracts File, letter from Lands Department dated 28 November 1891.
- <sup>107</sup> BRAC, Uncatalogued Collection, City of Sandhurst, Sanitary Contracts File, letter dated 21 December 1891.
- <sup>108</sup> BRAC, Uncatalogued Collection, City of Sandhurst, Sanitary Contracts File; "Lands Temporarily Reserved from Sale." *Victoria Government Gazette*, 4 March 1892: 1134. Note: the City of Sandhurst became the City of Bendigo in May 1891
- <sup>109</sup> "Lands Temporarily Reserved from Sale." *Victoria Government Gazette*, 22 March 1894: 1346; BRAC, City of Greater Bendigo uncatalogued plans collection, Bundle 35, Plan 937 Sanitary Depot Plan c 1894.
- <sup>110</sup> BRAC, Uncatalogued Collection, City of Sandhurst, Sanitary Contracts File, letter dated 8 November 1897.

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- <sup>111</sup> PROV, VPRS 16936/P1, Unit 41, Bundle 1 - 18 May 1895, Letters dated 4 and 13 May 1895; "The Sanitary Contract." *Bendigo Advertiser*, 31 May 1895: 2; "The Sanitary Contract." *Bendigo Advertiser*, 8 June 1895: 4
- <sup>112</sup> "The Sanitary Service." *Bendigo Advertiser*, 2 July 1898: 5.
- <sup>113</sup> BRAC, Uncatalogued Collection, City of Sandhurst, Sanitary Contracts File, tender and memorandum dated July 1898.
- <sup>114</sup> BRAC, Uncatalogued Collection, City of Sandhurst, Sanitary Contracts File, Specification dated circa 30 July 1898.
- <sup>115</sup> BRAC, Uncatalogued Collection, City of Sandhurst, Sanitary Contracts File, Specification dated circa 30 July 1898.
- <sup>116</sup> See "Our Local Parliament." *Western Herald* (Bourke, NSW), 3 February 1909: 2
- <sup>117</sup> "The Sanitary Contract." *Bendigo Advertiser*, 27 July 1900: 2; and Report of Sanitary Committee dated 15 June 1900.
- <sup>118</sup> BRAC, Uncatalogued Collection, City of Sandhurst, Sanitary Contracts File, correspondence dated 27 April 1900.
- <sup>119</sup> BRAC, Uncatalogued Collection, City of Sandhurst, Sanitary Contracts File; "The Sanitary Service." *Bendigo Advertiser*, 14 July 1900: 4.
- <sup>120</sup> "The Sanitary Service." *Bendigo Advertiser*, 14 July 1900: 4; BRAC, Uncatalogued Collection, City of Sandhurst, Sanitary Contracts File, specification dated circa 1 August 1900
- <sup>121</sup> BRAC, Uncatalogued Collection, City of Sandhurst, Sanitary Contracts File, letter from Henry Carr dated 23 September 1904.
- <sup>122</sup> "Sewering Bendigo." *Bendigo Advertiser*, 2 March 1901: 3
- <sup>123</sup> *Bendigo Advertiser*, 28 November 1904: 8; "Grassy Flat Orphanage." *Bendigo Advertiser*, 12 January 1905: 3; "Elmore Drainage Works." *Bendigo Advertiser*, 17 May 1905: 6
- <sup>124</sup> "At Elmore." *Bendigo Advertiser*, 10 September 1906: 5; "At Elmore." *Bendigo Advertiser*, 23 August 1909: 7
- <sup>125</sup> "City Council." *Bendigo Advertiser*, 8 September 1906: 4
- <sup>126</sup> "Ordinary Meeting." *Bendigo Advertiser*, 8 December 1906: 3; *Health Act* 1890, 54 Vic. No. 1098, s 3 (definitions) and 265.
- <sup>127</sup> "Private Septic Tanks." *Bendigo Advertiser*, 29 September 1906: 3
- <sup>128</sup> "Septic Tanks." *Bendigo Advertiser*, 12 January 1907: 3
- <sup>129</sup> "City Council." *Bendigo Advertiser*, 30 January 1909: 11
- <sup>130</sup> "Advance Bendigo." *Bendigo Advertiser*, 9 March 1911: 3
- <sup>131</sup> "Consumptive Sanatorium." *Bendigo Advertiser*, 20 May 1911: 10
- <sup>132</sup> "Consumptive Sanatorium." *Bendigo Advertiser*, 14 September 1912: 7; "Lands Temporarily Reserved from Sale." *Victoria Government Gazette*, 23 April 1913: 1872
- <sup>133</sup> "Proposed Sewerage Scheme." *Bendigo Advertiser*, 30 September 1912: 5; "The Sewerage Question." *Bendigo Advertiser*, 5 October 1912
- <sup>134</sup> PROV, VPRS 16262/P1, Units 20, 21, 22 and 23, minutes dated in 27 October 1960, 9 November 1961, 20 November 1962, 5 December 1963, 5 November 1964, 4 November 1965, 3 November 1966, 5 October 1967, 19 September 1968, 18 September 1969, 17 September 1970, 16 September 1971, 5 October 1972 and 4 October 1973.
- <sup>135</sup> "The Drainage of the City." *Bendigo Advertiser*, 27 August 1877: 3.
- <sup>136</sup> BRAC, Uncatalogued Collection, City of Sandhurst, Sanitary Contracts File, Correspondence dated 12 December 1901.
- <sup>137</sup> BRAC, Uncatalogued Collection, City of Bendigo Annual Financial Statement for year ending 30 September 1901; "Sewerage Ventilation." *Bendigo Advertiser*, 21 February 1903: 4
- <sup>138</sup> "Sewerage Scheme." *Bendigo Advertiser*, 24 January 1905: 4
- <sup>139</sup> "Sewering Bendigo." *Bendigo Advertiser*, 8 February 1905: 5; "Bendigo Sewerage System." *Bendigo Advertiser*, 25 February 1905: 3
- <sup>140</sup> "Sewerage of Bendigo." *Bendigo Advertiser*, 30 September 1905: 5; "Proposed Sewering of Bendigo." *Bendigo Advertiser*, 23 December 1905: 5; "Sewering Bendigo." *Bendigo Advertiser*, 5 January 1906: 2
- <sup>141</sup> "Sewering the City." *Bendigo Advertiser*, 6 August 1910: 10 defines the boundary in more detail.
- <sup>142</sup> "Sewering of Bendigo." *Bendigo Advertiser*, 4 January 1908: 10.
- <sup>143</sup> "Sewering the City." *Bendigo Advertiser*, 25 April 1908: 7
- <sup>144</sup> "Bendigo Water Supply." *Bendigo Advertiser*, 17 July 1909: 2
- <sup>145</sup> "Sewering Bendigo." *Bendigo Advertiser*, 12 February 1910: 10
- <sup>146</sup> "Sewering the City." *Bendigo Advertiser*, 6 August 1910: 10; "Sewerage Scheme." *Bendigo Advertiser*, 14 January 1911: 8

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- <sup>147</sup> "Bendigo's Sanitary System." *Bendigo Advertiser*, 13 April 1912: 4
- <sup>148</sup> "Greater Bendigo Scheme." *Bendigo Advertiser*, 27 July 1912: 9; "Municipal Elections." *Bendigo Advertiser*, 16 August 1910: 4; Arnall and Jackson, *Victorian Municipal Directory and Gazetteer*. Melbourne: Arnall and Jackson, 1910: 504.
- <sup>149</sup> Wikipedia contributors, "City of Bendigo," *Wikipedia, The Free Encyclopedia*, [https://en.wikipedia.org/w/index.php?title=City\\_of\\_Bendigo&oldid=1036190285](https://en.wikipedia.org/w/index.php?title=City_of_Bendigo&oldid=1036190285) (accessed February 16, 2022).
- <sup>150</sup> "Bendigo Sewerage Scheme." *Bendigo Advertiser*, 9 November 1912: 9.
- <sup>151</sup> "Bendigo Sewerage Scheme." *Bendigo Advertiser*, 9 November 1912: 9.
- <sup>152</sup> "Sewerage – Its Estimated Cost – The Actual Cost." *Bendigo Advertiser*, 15 November 1912: 8.
- <sup>153</sup> "Meeting in Temperance Hall." *Bendigo Advertiser*, 20 November 1912: 5.
- <sup>154</sup> "Bendigo City Loan." *Bendigo Advertiser*, 27 June 1914: 10.
- <sup>155</sup> "City Water Mains." *Bendigo Advertiser*, 11 January 1913: 9
- <sup>156</sup> "Private Advertisements." *Victoria Government Gazette*, 5 April 1916: 1527; *Sewerage Districts Act 1915*, 6 George V. No. 2761
- <sup>157</sup> "Bendigo Sewerage Authority." *Victoria Government Gazette*, 29 November 1916: 4971-2
- <sup>158</sup> G. V. Lansell and W. J. Stephens (eds.) *Annals of Bendigo: The Fifth Section: years 1921 to 1935*. Bendigo, Cambridge Press Print, 1938: 8
- <sup>159</sup> G. V. Lansell and W. J. Stephens (eds.) *Annals of Bendigo: The Fifth Section: years 1921 to 1935*. Bendigo, Cambridge Press Print, 1938: 32
- <sup>160</sup> "Private Advertisements." *Victoria Government Gazette*, 13 June 1923: 1576; G. V. Lansell and W. J. Stephens (eds.) *Annals of Bendigo: The Fifth Section: years 1921 to 1935*. Bendigo, Cambridge Press Print, 1938: 44
- <sup>161</sup> "Bendigo Sewerage Authority." *Victoria Government Gazette*, 2 April 1924: 1536; "Bendigo Sewerage Authority." *Victoria Government Gazette*, 23 July 1924: 2499
- <sup>162</sup> G. V. Lansell and W. J. Stephens (eds.) *Annals of Bendigo: The Fifth Section: years 1921 to 1935*. Bendigo, Cambridge Press Print, 1938: 44
- <sup>163</sup> G. V. Lansell and W. J. Stephens (eds.) *Annals of Bendigo: The Fifth Section: years 1921 to 1935*. Bendigo, Cambridge Press Print, 1938: 44 53-55; Parliament of Victoria. *Report of the Royal Commission Respecting the Bendigo Sewerage Authority*. Parliament of Victoria, Melbourne, 1925; *Victoria Government Gazette*, 29 April 1925: 1277.
- <sup>164</sup> Parliament of Victoria. *Report of the Royal Commission Respecting the Bendigo Sewerage Authority*. Parliament of Victoria, Melbourne, 1925: 4
- <sup>165</sup> Parliament of Victoria. *Report of the Royal Commission Respecting the Bendigo Sewerage Authority*. Parliament of Victoria, Melbourne, 1925: 6, 7
- <sup>166</sup> Parliament of Victoria. *Report of the Royal Commission Respecting the Bendigo Sewerage Authority*. Parliament of Victoria, Melbourne, 1925: 8, 11
- <sup>167</sup> Parliament of Victoria. *Report of the Royal Commission Respecting the Bendigo Sewerage Authority*. Parliament of Victoria, Melbourne, 1925: 12, 13, 14, 15
- <sup>168</sup> G. V. Lansell and W. J. Stephens (eds.) *Annals of Bendigo: The Fifth Section: years 1921 to 1935*. Bendigo, Cambridge Press Print, 1938: 61, 69
- <sup>169</sup> "So you're short of all these things – here's the reason why." *Argus* (Melbourne), 3 April 1951: 5
- <sup>170</sup> The "U-bend" holds water. It can be seen as an "S-trap" where the outlet pipe goes through the floor, or a "P-trap" where it goes through the wall at the rear. **Figure 13** shows an "S-trap"
- <sup>171</sup> The author lived in one such house in Prahran between early 1989 and mid-1990.
- <sup>172</sup> G. V. Lansell and W. J. Stephens (eds.) *Annals of Bendigo: The Fifth Section: years 1921 to 1935*. Bendigo, Cambridge Press Print, 1938: 81.
- <sup>173</sup> G. V. Lansell and W. J. Stephens (eds.) *Annals of Bendigo: The Fifth Section: years 1921 to 1935*. Bendigo, Cambridge Press Print, 1938: 90-91, 93.
- <sup>174</sup> "Bendigo Sewerage Authority." *Victoria Government Gazette*, 5 September 1928: 2426; "Bendigo Sewerage Authority." *Victoria Government Gazette*, 14 November 1928: 3038; "Private Advertisements." *Victoria Government Gazette*, 19 September 1928: 2542.
- <sup>175</sup> "Bendigo Sewerage Authority." *Victoria Government Gazette*, 31 October 1928: 2888; G. V. Lansell and W. J. Stephens (eds.) *Annals of Bendigo: The Fifth Section: years 1921 to 1935*. Bendigo, Cambridge Press Print, 1938: 113
- <sup>176</sup> G. V. Lansell and W. J. Stephens (eds.) *Annals of Bendigo: The Fifth Section: years 1921 to 1935*. Bendigo, Cambridge Press Print, 1938: 133

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- <sup>177</sup> Douglas Lockwood (ed.) *Annals of Bendigo: The Sixth Section, 1936 to 1950*. Maryborough: Hayes and Bell, 1981: 15.
- <sup>178</sup> Douglas Lockwood (ed.) *Annals of Bendigo: The Sixth Section, 1936 to 1950*. Maryborough: Hayes and Bell, 1981: 128.
- <sup>179</sup> Frank Cusack (ed.). *Annals of Bendigo: Volume 7, 1951-1970*. Bendigo: Cambridge Press, 1988: 48.
- <sup>180</sup> "Sanitary System." *Bendigo Advertiser*, 4 December 1917: 4
- <sup>181</sup> Frank Cusack (ed.). *Annals of Bendigo: Volume 7, 1951-1970*. Bendigo: Cambridge Press, 1988: 63
- <sup>182</sup> Frank Cusack (ed.). *Annals of Bendigo: Volume 7, 1951-1970*. Bendigo: Cambridge Press, 1988: 117; Frank Cusack (ed.). *Annals of Bendigo: Volume 7, 1951-1970*. Bendigo: Cambridge Press, 1988: 127
- <sup>183</sup> News.com.au. Gough Whitlam's first major achievement was indoor plumbing. <https://www.news.com.au/national/gough-whitlams-first-major-achievement-was-indoor-plumbing/news-story/3fdbb9a5256c665d26ce8d5dc5156748>, 21 October 2014 (accessed 8 March 2022)
- <sup>184</sup> Frank Cusack (ed.). *Annals of Bendigo: Volume 7, 1951-1970*. Bendigo: Cambridge Press, 1988: 56
- <sup>185</sup> Frank Cusack (ed.). *Annals of Bendigo: Volume 8, 1971-1987*. Bendigo: Cambridge Press, 1988: 248
- <sup>186</sup> Frank Cusack (ed.). *Annals of Bendigo: Volume 8, 1971-1987*. Bendigo: Cambridge Press, 1988: 267
- <sup>187</sup> Frank Cusack (ed.). *Annals of Bendigo: Volume 8, 1971-1987*. Bendigo: Cambridge Press, 1988: 351-2
- <sup>188</sup> Coliban Water. "Bendigo's Water Reclamation Plant marks 30 years." <https://coliban.com.au/bendigos-water-reclamation-plant-marks-30-years>, 27 July 2021 (accessed 3 March 2022)
- <sup>189</sup> Coliban Water. "Our Region and History." <https://coliban.com.au/about-us/our-region-and-history> 2019 (accessed 3 March 2022)