

## Lawnscape Perth: Water Supply, Gardens, and Scarcity, 1890-1925

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While Perth's climate has been getting drier for at least four decades, its citizens maintain an ongoing commitment to year-round green lawns and gardens (or "lawnscape"), and a resistance to water restrictions that is more pronounced than in other Australian state capital cities. This article demonstrates that these features of contemporary Perth emerged from, and continue to bear the imprint of, an earlier socio-natural system that brought together a town water supply, sprinkler technology, plants, and a multi-dimensional cultural desire for environmental modification. As important markers of civilization and prosperity, Perth's emergent lawnscape assuaged colonial anxieties about the settlement's status. Conspicuously shaped by collective understandings of imperial urban hierarchies, residents' lawnscape projects were also driven by their bodily experience of sand, heat and dust: they were in part a response to the challenge of keeping homes and families clean and cool in a city of hot summers and ubiquitous sand.

### Keywords

water supply, urban environment, lawns, gardens, reticulation, water scarcity, Perth, Australia

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Water usage in contemporary cities is influenced by temperature and rainfall patterns, but these alone do not explain variations in domestic water usage patterns.<sup>1</sup> This article provides one example of how subtle differences in urban water use patterns emerge and persist over time, by exploring the co-evolution of Perth people's extraordinary attachment to year-round green lawns and gardens (which I call "lawnsapes," and the water systems needed to maintain them. In the case of Perth, and likely many other settler-colonial cities, a focus on the early stages of urban reticulation can help to explain variations in urban lawnsaping cultures that have persisted into the present, as early anxieties feed into enduring cultural norms and associated behaviors, and are materialized in urban infrastructure. Taking an environmental historical approach that considers social formations, technical systems and environmental conditions together, this article highlights the way in which lawnsaping in late nineteenth- and early twentieth-century Perth was both a colonial and an environmental project.

Perth was established on the land of the native Noongar people in 1829, as the administrative center of the Swan River Colony. At the time, it was a remote outpost of the British Empire. Now the state capital of Western Australia, it is one of the most isolated cities in the world: the nearest city of more than 100,000 people is Adelaide, over 1600 miles away by road. Its climate is Mediterranean, with short, wet winters and long, cloudless summers in which hot easterly winds blow from the desert interior. February is the hottest month with a mean maximum of 86 degrees F, though the city usually experiences a heatwave with several consecutive days around 104 degrees F at least once every summer. Very little rain falls between the months of November and March and in January water evaporates at a rate of around 0.4 inches per day.<sup>2</sup> With a long-term average annual rainfall of approximately 33 inches Perth is not the driest city in Australia, though along with the entire south-west of the

state the city has experienced a significant drying trend since the mid-1970s: in the 20 years from 1996-2015 Perth's annual average rainfall was almost 28 inches, while the average from 2006-2015 was 26 inches, 22 per cent lower than the long-term average.<sup>3</sup>

Perth's population was just over 6000 people in 1884, but in 1892 gold discovered around 300 miles to the east precipitated a major rush. Initially a transit point for gold seekers, Perth soon attracted more permanent residents. Many came from the economically depressed eastern Australian colonies, which were also suffering through the long Federation drought (1895-1903) that barely touched Western Australia. In 1891 Perth had 1700 houses; only 10 years later there were 5126. This period also saw the beginning of the suburbanization of Perth: by 1911 there were 6538 houses in adjacent suburbs, only around 300 fewer than in the city itself.<sup>4</sup> The typical suburban dwelling during this period was a single-storey detached house surrounded by a garden, on a block of somewhere between an eighth and a quarter of an acre. While semi-detached homes on smaller lots were not uncommon, terrace houses were few. Gardens were, and are, ubiquitous, though sandy soils combine with the hot, dry summers to make them thirsty for around five months of the year. In spite of this, one of Perth's enduring features is its exceptional attachment to those gardens and the water required to sustain them.

The decline in average annual rainfall since the mid-1970s has placed the city's water supply systems under considerable pressure: annual streamflow into Perth's dams averaged 89 billion gallons from 1911-1974, 45.7 billion gallons from 1975-2000; 20 billion gallons from 2001-2010, and just 13 billion gallons from 2010-2014.<sup>5</sup> In the face of such dramatic decline, water managers turned to groundwater and desalination, even using these sources to top up dams in order to keep them operational. However, demand management has by Australian standards been minimal. In the early twenty-first century, Perth's Water Corporation consistently supplied the highest volumes of water per property of all the large

Australian urban utilities.<sup>6</sup> Indeed, water is so politically-sensitive that in 2005 the state government pledged that their water planning for Perth would reduce the risk of a total sprinkler ban from one year in 30 to one year in 200, though this target was later reviewed in response to concerns of the Western Australian Economic Regulation Authority.<sup>7</sup> Water restrictions in Australia have traditionally focused on gardens and in particular on sprinklers, as a technology enabling the use of large amounts of water with little effort. And indeed, it is a logical area of water use to target: from the mid-1940s to the mid-1970s, for example, gardens accounted for just over half of all water use in Perth, rising to around 70 per cent in summer.<sup>8</sup>

In 2006, as the first of Perth's two seawater desalination plants was being commissioned, Perth residents were subject to restrictions which permitted watering gardens (including lawns) with sprinklers on two days per week.<sup>9</sup> Watering with a hose was unrestricted. By contrast, at that time residents of Sydney and Melbourne had already for a year been subject to restrictions involving a total sprinkler ban at all times, with hand-held hosing and drip irrigation systems permitted only during restricted hours on two days per week. In Melbourne, lawns could not be watered at all.<sup>10</sup> Such tight water restrictions are historically unknown in Perth even though, in 2016, over 40 per cent of the city's potable water was desalinated seawater.<sup>11</sup> Perth people's abiding attachment to their lawns is such that more severe restrictions are seen as too politically damaging.

### **Valuing the Lawnscape**

Surprisingly little has been written on the history of lawn in Australian contexts, though scholars including George Seddon, and later Katie Holmes, Susan Martin, and Kylie Mirmohamadi, have portrayed it as a maladaptive English import that became a standard of suburban ideals of amenity and masculine respectability.<sup>12</sup> However, Perth people are by no

means the only ones to value lawns, and several authors have explored suburban Americans' conspicuous attachment to their lawns. Taking a broad view, Kenneth Jackson has shown how in the mid-nineteenth century lawns, as "aesthetic and moral nature," became a key component of the Anglo suburban ideal.<sup>13</sup> Others have produced more detailed origin stories of American lawn: Virginia Scott Jenkins has proposed that it is the product of cultural attitudes (including gender ideology and attitudes toward nature), made possible in a material sense by institutional alliances, for example between the US Department of Agriculture, the US Golf Association and a flourishing lawn care industry.<sup>14</sup> More recently, Ted Steinberg has traced the modern history of high-input turf to the building of Levittown in 1947, where it formed part of a project of "neighborhood stabilization" that would mirror the desired racial and moral homogeneity of the development.<sup>15</sup> Other scholars have examined the power relations implicit in American lawns: in his influential 1989 essay Michael Pollan sees lawns as both a symptom of and a metaphor for Americans' relationship with nature more generally, portraying them as "nature under totalitarian rule."<sup>16</sup> In contrast, taking a political ecology approach, Paul Robbins accounts for the creation of "lawn people" to serve political, economic and ecological imperatives, including those of the turf itself.

Most of these illuminating works are focused on the second half of the twentieth century, a period that saw booming suburban expansion and then rapid growth of a globalized lawn care industry, responsible for the development and marketing of a proliferating range of chemical and mechanical aids to lawn perfection. While these studies acknowledge that from the mid-nineteenth century there were several prominent Americans advocating lawn as the ideal setting for suburban homes, only Jenkins gives sustained attention to the longer history of American lawn.<sup>17</sup> Attention to the infrastructure of lawns is focused firmly on the technology of mowing and the use of chemicals. Little consideration is given to water issues

prior to the late twentieth century, though watering has always been critical in south-western USA, as in Perth, for lawnscape maintenance over the summer months.

While urban historians investigating water have paid ample attention to systems and infrastructure, few have sought to trace the co-evolution of cultures, technologies and environments as they relate to water over time, particularly outside of the field of public health.<sup>18</sup> Some exceptions include Erik Swyngedouw, Matthew Gandy and Maria Kaïka, who have developed incisive analyses of the history of urban water regimes from political ecology perspectives.<sup>19</sup>

Kaïka uses water to examine the discursive construction of modern cities and homes as independent of natural and social processes while intricate socio-technical networks were established to materialize that vision of modernity.<sup>20</sup> London and Athens are used as case studies: the former a preeminent modern metropolis; the latter a palimpsest that becomes more like a plantation colony in its selective modernization. Many of the features of modernity identified by Kaïka are evident in the context of Perth, the pursuit of independence from natural processes being key among them.<sup>21</sup> Kaïka traces the nineteenth-century conflict between the use value and symbolic value of water in Athens: the former associated with sanitation and basic needs; the latter with eradication of dust by street watering, as well as the construction of a royal garden. Kaïka relates the prioritization of symbolic values to the modernization of Athens as a process of “Westernization,” involving efforts to eradicate traces of the orient from the city’s Ottoman past, and reclaim its ancient glory.

While Perth was much smaller and newer than Athens there are significant parallels between the two cities, with both sharing a Mediterranean climate; ongoing problems with dust; limited industrialization; and difficulty over a long period in securing a reliable water supply. However, Perth has long been a suburban city, and its anxieties over dust and gardens emerged and played out in a very different cultural setting.

The devotion of Perth's white residents to cultivating and watering lawnsapes arose and was sustained within a settler colonial context in which cultivated and irrigated gardens were understood as the antithesis of (and vastly superior to) indigenous landscapes and cultures. David Hamer has described the importance of frontier towns to settler colonialism, as key agents in the transfer of "civilization" into perceived "wilderness." Properly developed, towns could provide important evidence of civic progress and counteract the "barbarism" and "savagery" of the bush and its inhabitants.<sup>22</sup> In the American mid-west an urban-pastoral myth emerged that emphasized the balanced relationship between towns and their beautiful natural surroundings; as the towns became cities this "middle landscape" ideal was sometimes pursued through the creation of urban parks and gardens.<sup>23</sup> In Perth, however, the emphasis was on producing a contrast between the town and the surrounding "wilderness", an impetus that continued long beyond the "pioneering" period.

Whereas in the American west towns developed hierarchical relationships with one another,<sup>24</sup> in the Australian context, the inviting green lawns and lush gardens that were an important marker of urban "civilization" comprised one criterion by which imperial citizens assessed the position of colonial cities in an imperial urban hierarchy. Given their city's isolation and sluggish development prior to the discovery of gold, elite and middle-class residents of Perth were acutely aware of their "Cinderella" status in relation to other Australasian cities, as Athens was in relation to the capital cities in Western Europe. In this period Perth also shared some reasons for attachment to lawnsapes with other Australian cities, and indeed American ones: for example, they were valued as a remedy for the environmental - and thus social and moral - decay threatened by (projected) industrialization; and green and well-kept private gardens indicated a neighborhood's status within the broader urban context, as well as an individual gardener's capacity and status within the local economy.<sup>25</sup>

However, garden-making is not just an ideological or esthetic practice, but a material and environmental one. From an air-conditioned, dust-free twenty-first century perspective it is easy to forget how pervasively these elements must have shaped everyday experience in the late nineteenth century. Kaika perhaps underplays the extent to which the Athenian desire to control dust arose from a common bodily aversion to it. In Perth, residents sought to create lawnsapes not only for their symbolic value, but also their use value as places ameliorating the dust and heat of the summer. This was particularly important for a population with a considerable migrant component that was accustomed to greener, cooler conditions.<sup>26</sup>

Though sharing some similarities with North American and English cities, the postwar suburban lawnscape of Perth emerged from, and continued to bear the imprint of, an earlier socio-natural system. In Perth the key elements of this system were a town water supply, sprinkler technology, plants, and a multi-dimensional cultural desire for environmental modification. Conspicuously shaped by collective understandings of imperial urban hierarchies, this cultural desire was also informed by settlers' bodily experience of sand, heat and dust. Grass and other garden plants were allies in a war against the raw heat and dirt that perpetually invaded both settlers' homes and their dreams of creating a "civilized" city, and the alliance was forged and maintained with water.

### **The Origins of Lawnsaping in Perth**

The center of the present-day city of Perth looks out over the *Derbal Yira-gan*, or Swan River estuary. The Indigenous Noongar people believe that this body of water, along with the rest of the river and all of the wetlands around it, was created by the *Waakal*, the ancestral Rainbow Serpent. Noongars continue to acknowledge the *Waakal* as the "giver of life" due to its role in creating and maintaining freshwater sources. At colonization water played a significant role in Noongar cultural and economic life: movement of people around their

territory was always connected to fresh water sources, particularly in the long, dry summers, and *Waakal* stories remain prominent in Noongar culture.<sup>27</sup>

Water was critical, too, for the British colonists: the first parcels of land stolen from the Noongar people were long and thin, stretching out sometimes for several miles from narrow river frontages. Though some early colonists remarked on the beauty of the river and its surrounding flora, many only lamented the sand and scrub. On briefly exploring the region in 1826 Captain James Stirling and botanist Charles Fraser had provided glowing descriptions of the region and its natural assets, which had fuelled a “mania” for the colony. On arrival, settlers were devastated to discover that areas of fertile alluvial soil were very limited, and they found the dominant vegetation types ugly and alienating. Most of all they despised the sand, which “blew everywhere” in the region’s frequent strong winds.<sup>28</sup> Samuel Taylor, visiting Perth in the spring of 1829, reported for Tasmanian readers that there was “Not a blade of grass to be seen—nothing but sand, scrub, shrubs and stunted trees, from the verge of the river to the tops of the hills.” Taylor described Perth’s port town, Fremantle, as “a perfect bed of sand”.<sup>29</sup>

As ill-prepared colonists struggled to eke out a living on the alien sand development was slow, and the colony eventually applied to receive convicts. Transportation took place from 1850 until Britain ceased the practice in the 1860s, well after transportation to the other Australian colonies had ended. Still, the settler economy and population of Western Australia grew but slowly until gold deposits discovered in 1892 and 1893 precipitated a major gold rush. This history gave rise to an anxiety, particularly among the elite and middle class, about the status of Western Australia, and its capital Perth, within the British Empire. Concerns revolved not only around the history of convictism and patchy economic development, but the ubiquitous sand. Almost ten years after the first colonists arrived on the beach to found the Swan River Colony, “poor Swan Riverites” were still being “twitted with their ‘sand

hole,' and the generally arid character of their soil";<sup>30</sup> by 1895, they had begun to self-identify as "sandgropers".<sup>31</sup>

Settler clearing of vegetation and building of roads had exacerbated the movement of sand and dust, and even before there was a piped water supply, considerable attention was given to the problem of sandy and dusty streets. By the 1880s several of Perth's roads were made of water-bound macadam, which required wetting in dry months in order to prevent the dust that formed part of the road surface from blowing away. A proposal for street watering was put to the City Council in 1880 and commenced soon afterwards, though complaints about dusty streets and the "ever present sand" continued well into the 1920s.<sup>32</sup>

In the young colony, water came largely from wells and tanks (in-ground, and later corrugated iron). Well water in particular was liable to contamination, and typhoid outbreaks were common. There was therefore considerable demand for a more pure, reticulated water supply and after a plebiscite in which the voters overwhelmingly favored a scheme to bring such a supply from the nearby hills, a Melbourne-based private syndicate was contracted to construct and operate it. This they did, and the water flowed from October 1891.<sup>33</sup>

In a system of water rates derived from British law, the *Waterworks Act 1889* (WA) established that the scheme would provide to residents, on payment of a water rate, "a constant supply of water for domestic purposes" once a mains pipe had been laid in their street. In recognition of the limitations of supply and distribution networks, the definition of water for domestic purposes included "a supply for one watercloset and one bath", but not "watering gardens or for fountains or for any ornamental purpose".<sup>34</sup> Those who wished to use water for this or other non-domestic purposes had to either rent or buy a meter so they could be charged for consumption over and above the 'domestic supply' that their water rates entitled them to.

Perth residents immediately began using the water to create and maintain gardens, both with and without meters. In 1893 several were successfully prosecuted by the Perth Waterworks Company for using water for other than domestic purposes, even though the Company had failed to supply a meter on request. The test case defendant previously had an agreement with the Company to pay 20 shillings per year to use water for garden purposes, but had used a sprinkler on his garden and lawn after the agreement had expired. While there was a formally articulated desire to protect the Company's financial interest, the gardeners' transgressions were, in practice, seen as trivial: the defendants were found guilty of a "technical offence" and fined 1 shilling plus costs.<sup>35</sup> This episode reflects an incipient recognition in Perth of the social desirability of green garden spaces, whether public or private, and the way in which this was implicitly valued over the rights of the water company.

Given the high value ascribed to green spaces, reticulating the Government Gardens was made a priority. In 1893 it was reported that the laying of pipes in the gardens would enhance the state of the gardens, as "an object of beauty and a refreshing pleasure to every appreciative citizen or visitor".<sup>36</sup> The reticulation was both space enhancing and labor saving: it would "enable the same men to keep the plants and greensward in much better condition [than] has been practicable by the old method of carrying water in buckets over long distances."<sup>37</sup> The infrastructure included approximately 30 taps for watering flower beds, but the crowning glory of the system was four lawn sprinklers, which would care for the lawn in a way that made up for the deficient climate, operating "like a gentle shower... for refreshing the grass."<sup>38</sup> The lawns, which demanded their own specialized technology, were an important garden feature.

The late nineteenth-century desire for lawn in Perth was by no means novel: grassed landscapes had long held appeal for English and continental European elites. It was

conventional for seventeenth-century continental gardens to include a “green,” and Francis Bacon in 1625 wrote that “nothing is more pleasant to the eye than green grass kept finely shorn.”<sup>39</sup> The process of enclosure in the eighteenth century provided land and labor for manor house gardens, of which lawn was an important part, and by the early nineteenth century sweeping lawns were widely associated with the popular English landscape garden style exemplified by Lancelot ‘Capability’ Brown.<sup>40</sup> Elites in America and elsewhere emulated this style, but its scaled-down translation to the suburbs was enabled only by the advent of piped water supplies, push mowers (in 1830) and sprinklers (in the 1870s). Even then, lawns took considerable time and effort to maintain. By the end of the nineteenth century in the USA they were found only in the grand gardens of wealthy households and the more modest plots of the small middle class that emulated them.<sup>41</sup>

In Tucson, where Bermuda grass was introduced in 1876, lawn formed part of a strategy to ameliorate the dust and heat of the settlement, as well as the pursuit of more eastern landscape styles.<sup>42</sup> Grasses played a similar role in less arid Perth, where the *Western Mail* advised in the winter of 1886 that “the forming of new lawns is important, seasonable work.”<sup>43</sup> Buffalo grass (*Stenotaphrum secundatum*, known elsewhere as St Augustine grass) was recommended where there was insufficient water for English grasses.<sup>44</sup> However, even this hardy grass needed supplementary water in Perth summers, so lawns were restricted to those with their own water supply (bores or tanks) or, after 1891, capacity to pay for piped water: public gardens, the colonial elite (who kept lawns for ornamentation, and as grounds for sports such as tennis), and in the more modest gardens of a few aspirational middle-class households.

### **Democratizing the Lawnscape**

As Perth became a service center for the booming goldfields over 300 miles to the east, the settler population increased from 16,000 in 1891 to 61,000 in 1901.<sup>45</sup> Many of the new arrivals hailed from Melbourne, where the booming city's clamor and stench had in the 1880s fostered among its residents a "legendary affection for privacy, good order and weekend pottering," materially expressed in the lawnsapes that characterized the better-off suburbs.<sup>46</sup> In Perth, their attachment to suburban lawnsapes took root amid the sand and shared anxieties about the status of their adopted home.

In the face of such rapid population growth the supply of water failed to keep up with demand. The hills source was polluted due to lack of adequate catchment protection and typhoid reached epidemic proportions. In 1896 the government took control of the water scheme, just in time for a particularly hot summer that precipitated the first water crisis since the scheme was established. As consumption rose some suburbs were left without any water for days, because the pipe connecting the dam to the reservoir atop Mt Eliza, from which the water was distributed throughout the town, was too small. As the newly-established Metropolitan Water Board carted water to parched areas, sprinklers and unattended hoses were banned, and the secretary of the Board warned that "a very careful watch would be kept" for illicit uses.<sup>47</sup>

In one 24-hour period in January 1897, the top 8 per cent of consumers used around 27 per cent of the entire water supply. The largest two consumers were state institutions: the Perth Locomotive Department, which used 33,385 gallons; and the Perth public gardens (including those reticulated in 1893), which used 7,000 gallons. Then came several wealthy residents, each using between 1100 and 5600 gallons. Even in the context of a well-publicized water shortage most of these were using garden sprinklers. Such profligate water use enraged the Chairman of the Water Board, who said that the Board had given the largest consumers "notice not to use the water for gardens other than by hose in hand, and we have

decided we will make an example of two or three of them and then cut the water off.”<sup>48</sup> At this time the wealthy householders had the greatest interest in, and capacity for, creating extensive lawn and garden areas. However, the state of the infrastructure was such that this kind of private lawnscape production could not yet be encouraged.

In autumn the weather cooled, demand eased, and the Board replaced the problematic pipe with one of larger diameter. However, in the context of very rapid population growth it was anticipated that even with the addition of artesian bores, the capacity of the hills reservoir would soon prove insufficient. In 1897, advocating the construction of a new reservoir on the Canning Dam, the *Western Mail* looked forward to the day when private gardens,

with sufficient moisture assured ... should become one of the bright features of Perth, helping to beautify it in no ordinary degree. Every other natural condition is favourable. The sand, so arid and forbidding when untended, with water and cultivation loses all its ugliness. And there can be no doubt that when once the water supply of the city is made abundant for all purposes, many gardens to which at present the summer spells desolation will put on their bravest finery, giving pleasure to their owners and adding materially to the beauty of the city.<sup>49</sup>

In the meantime, the burden of residents’ anxieties about the status and appearance of their city fell to a large extent on public gardens. For example, one 1898 newspaper article noted that a visitor had once described the Perth Botanical Gardens to his friends in Melbourne as “slightly cultivated bush,” but now thanks to “modern ideas,” the establishment of a water supply and “public-spirited men,” the public gardens of Perth could be compared favorably with those in any Australian city.<sup>50</sup> Inviting green lawns and lush gardens were clearly an important marker of urban “civilization” and as such one criterion by which

imperial citizens assessed the position of colonial cities in an imperial urban hierarchy. Hamer has noted that frontier towns were commonly judged according to their appearance, and their ability to present a “picturesque” aspect was often regarded “as an indicator of a moral harmony and beauty within.”<sup>51</sup> In Perth this tendency continued to the late nineteenth century and beyond: an 1899 newspaper article reporting on the state of reserves proposed that not only were the Government and people judged by the standard of their garden reserves, but these places also underpinned “the health and happiness of the residents.”<sup>52</sup>

By the early twentieth century private garden cultivation was also becoming significant. Advertisements for couch grass (or Bermuda grass, *Cynodon dactylon*) and buffalo grass appeared regularly in Perth newspapers,<sup>53</sup> and gardening columns – with copy often provided by a horticultural supply business - provided advice on lawn establishment and maintenance.<sup>54</sup> Lawnsapes were also increasingly recognized as an asset that boosted the value of real estate: beginning around 1905, lawns and gardens were mentioned in real estate advertising with increasing frequency.<sup>55</sup> Adding materially to the value of a property, lawnsapes had become part of Perth’s bourgeois and respectable working class capital accumulation.

Lawnsapes also had a very practical element. They were culturally familiar environments that helped to control the sand, impeding its movement into the house. They could also act as a kind of evaporative cooler for the air around the house. On hot summer afternoons they helped create pleasant outdoor spaces in which adults could work or talk and children could play when the heat indoors was stifling.<sup>56</sup> Lawnsapes were especially valued as soft surfaces for babies and young children to play on and convenient drying grounds for laundry; however as women’s domestic concerns in a patriarchal society, such uses are poorly documented and rarely described in public sources.<sup>57</sup>

Part of the appeal of lawns was visual. As “Cornstalk,” writing for the *Western Mail* in 1906, put it: “There is nothing that adds so much to the appearance of a home as a nice green lawn,” even if it be “only a few feet square to cover the sand in a back-yard.”<sup>58</sup> As an esthetically-pleasing backdrop, lawns feature prominently in domestic photography of this period. While these are generally posed rather than casual scenes and may well have been taken outside rather than inside due to the superior light, photographs nevertheless provide evidence of a range of different activities that people wished to record in those spaces. The Brockway family home “Sandhurst,” in Claremont, had a substantial yard, much of which was sandy. However the baby photographed there in 1904 was placed on a rug on the lawn.<sup>59</sup> Some photographs taken between 1905 and 1925 at a range of homes record friends and families taking tea and even more formal dining in suburban lawns (Figure 1).<sup>60</sup> In others, the lawn is a place for children to share treats, and men and women to read, relax in a hammock or sit among pets (Figure 2).<sup>61</sup>

<Figure 1 and Figure 2 around here>

The tenuous and partial hold of grass over sand in some gardens at this time is also revealed in contemporary photographs (Figure 2). In a bid to keep their lawns alive over the summer, many residents were routinely using more water than the “domestic supply” to which they were entitled, while a few resorted to tampering with or bypassing meters to illegally acquire a free supply.<sup>62</sup> In 1905, the Minister for Works described his wish to extend the water supply network and add another service reservoir, but complained that the Board was losing revenue due to the lack of meters which would show how much water was being consumed.<sup>63</sup> It was also claimed that around this time, the Board was only paid for half of the water drawn from the reservoir.<sup>64</sup>

Many hoped, however, that this level of consumption would be normalized across social classes and urban districts, in support of the vision of a lawnscape city. In a 1907 parliamentary debate over how the expense of providing water meters should be covered, the Member for Subiaco, a skilled working-class suburb, remarked that:

We want to encourage the beautifying of homes by the establishment of gardens and their maintenance during the summer season. It is in the interests of the community generally that as many of these little beauty spots shall be provided around the metropolitan area during the summer as possible, therefore we should make the charge on those less able to pay for water as low as possible.<sup>65</sup>

In line with the emerging (white) community consensus on the desirability of year-round green gardens, reducing charges for water was seen as a progressive measure that would enable more residents to join the lawnscape project.

Private gardens did not just form part of the esthetic commons, but also played an important role in mitigating the dust menace, which continued to plague Perth during the four to five months of “summer” weather. Street watering also played an important role here, but having become dependent on the public water supply, it, too, was subject to municipal council budgetary constraints and periodic restrictions due to water scarcity. Dissatisfaction with street watering regimes was often expressed in terms of how Perth measured up to a standard of “civilization” in the nation and beyond. In 1908, for example, one correspondent to the *West Australian* noted that “Street watering is considered an absolute necessity in all civilised countries. Then why should Western Australia be the exception?”<sup>66</sup> And in 1922: “In any other capital of the Commonwealth—not on dusty days alone, but always during the summer time—the streets are continually sprinkled with water.”<sup>67</sup> It was suggested that the city engineer visit Brisbane to see how it should be done.

Such sentiments acknowledged Perth's potential as a "civilized" state capital, contingent upon the adequate and appropriate deployment of water. This perspective is also evident in *The Australian Household Guide* (1916) by Deborah Buller Murphy, a member of Perth's elite.<sup>68</sup> Comparing Perth's dry summer favorably with the frozen winters experienced in many parts of Europe and America, Buller Murphy points out that with water from the public supply or raised with a windmill, even during the summer many plants "will thrive in the open beds in a way that would incite the envy of gardeners in Adelaide and Melbourne, and in other countries."<sup>69</sup> Such comparisons subtly reflected the ongoing anxiety over Perth's "sandhole" reputation within and beyond the nation, and the role of water technologies in overcoming it.

By 1921, people in North Perth were seen watering their lawns after 11pm, being one of the only times when a sufficient water supply was available to do so.<sup>70</sup> At this point demand had once again exceeded the supply of water and some areas were without any water at all for days. Still Perth's lawnsapes were vigorously defended. In a 1922 debate over the annual budget for the Metropolitan Water Supply, Sewerage and Drainage Department, when the Minister for Works proposed that too much water was used on gardens, the Member for working-class South Fremantle defended home gardeners as "trying to improve their surroundings and make the city attractive, to build up a metropolitan area approaching those elsewhere in the Commonwealth."<sup>71</sup> There are resonances here with the much drier city of Phoenix, where in 1926 a "Let's Do Away With the Desert" campaign encouraged residents to produce a more eastern landscape esthetic by planting roses and trees.<sup>72</sup> Here, as in Perth, a clear landscape hierarchy was in operation.

In Perth those hierarchies also carried racial inflections. The Member for South Fremantle also argued that "the public should be supplied [with water] according to the advances which civilisation has made," instead of being "allowed to live on the level of the

aborigines who were here half a century ago.’<sup>73</sup> He maintained that a garden was a necessity, not a luxury, and to suggest otherwise was “a poor lookout for our standard of civilisation.”<sup>74</sup> This language reveals the durability of the colonial anxieties that tied a particular form of landscape modification to racial and imperial hierarchies. Where the Noongar people value water for its life-giving properties, enabling the interdependent flourishing of human and non-human, the lawnscape as a settler creation dependent on appropriation and redistribution of water was understood by Perth’s white residents as the antithesis of, and vastly superior to, indigenous landscapes and cultures.

Hoses and sprinklers played a significant role in enabling this environmental transformation. In one remarkable photograph taken in 1919, the hose that has enabled creation of an exemplary lawnscape is given pride of place (Figure 3). While both garden beds and lawns could be watered by hand, sprinklers were seen as particularly desirable for lawn, as they could – at least in theory - provide finer and more even coverage than was possible with a hose. Furthermore, in this settler colonial context, there was no abundance of cheap local labor to do the gardening. Wealthy householders (and public institutions such as the Government Gardens) hired gardeners, but sought to make the most of this labor by mechanization where possible. Middle class and respectable working class families might delegate watering to children,<sup>75</sup> but also enthusiastically enrolled this modern labor-saving technology in their quest for a lawnscape with minimal labor.

<Figure 3 around here>

In the early years of the twentieth century advertisements described sprinklers as “up-to-date and necessary summer requisites;”<sup>76</sup> emphasising that their use was becoming ubiquitous for gardens and lawns due to their “extreme cheapness, strength of construction,

and effectiveness.”<sup>77</sup> In 1914, the *Western Mail* reported that an exhibition of new sprinkler designs by a local inventor, held at the Government Gardens, attracted a large audience which “made a more or less critical examination of them under various conditions.” A photograph demonstrated the ability of this design to produce the desired fine spray.<sup>78</sup> Another local design, the ‘Boomerang’ sprinkler, appropriated Aboriginal culture as it evoked the technological power of “civilization”, being promoted as “an excellent substitute for rain.”<sup>79</sup> Together, a piped water supply, hoses and sprinklers were key elements in the colonial project of lawnscape Perth upward in the imperial urban hierarchy, as well as the everyday efforts of the settler population of Perth to make their homes and city more physically comfortable in a culturally familiar way.

### **The Global Lawnscape Era**

The water shortages of the 1920s were resolved with the construction of further dams in the hills in 1925. The completion of another major dam in 1940 enabled Perth residents to consolidate their lawnscape without threat of further significant water restrictions for three decades. It was at this time that Perth’s local lawnscape cultures and materialities were rapidly drawn into the global capitalist turf economy so ably analysed by Robbins, Steinberg, Jenkins and others. This trend was apparent across Australia: in 1920, the 19<sup>th</sup> edition of Brunnings’ (Melbourne-based) seminal gardening guide *The Australian Gardener* noted that “a Lawn well made, sown with the right seed, and carefully tended, is always a pleasure to look upon, and apart from enhancing the beauty of the surrounding garden or the house, increases the value of the property.”<sup>80</sup> By 1949, the 30<sup>th</sup> edition of the same book declared that “Where space is available, a lawn is an essential in any garden... It is the ambition of every home gardener to possess a perfect lawn.”<sup>81</sup>

In the wake of high population growth following a mining boom in the 1960s, and drought conditions at the start of a long-term pattern of rainfall decline, water restrictions were again imposed on Perth residents in the 1970s. Responses included the development and promotion of a range of landscaping alternatives, from woodchips and pebbles to an increasing variety of hard landscaping materials. These, along with greater affordability of other forms of climate modification—namely, air-conditioning—eased the way for some households to give up their lawns. <sup>82</sup> As historian Ruth Morgan masterfully demonstrates, however, lawns were so entrenched both culturally and materially that neither the restrictions of the 1970s, nor the introduction of a user-pays rating system in 1978, produced substantial and lasting reductions in Perth households’ garden water consumption. <sup>83</sup> Furthermore, in the twenty-first century, colonial associations between lawn and “civilization” persisted: one Perth resident interviewed by researchers from Murdoch University in 2003 claimed that he had little choice but to plant his verge to lawn because, as he put it, “If I left it looking like nature it would look like an Aboriginals’ camp wouldn’t it.” <sup>84</sup> While lawns played an important role in suburban accumulation of cultural capital across all major Australian cities, <sup>85</sup> traces of their differential beginnings remain.

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Figure 1: Taking tea with guests in suburban Crawley, c.1925.

T.F. Mackay, “Mackay Family and Guests in the Garden,” c.1925. Photograph, 230258PD,  
State Library of Western Australia,

[https://encore.slwa.wa.gov.au/iii/encore/record/C\\_Rb2475941](https://encore.slwa.wa.gov.au/iii/encore/record/C_Rb2475941).

Courtesy of State Library of Western Australia.



State Library of Western Australia

Figure 2: Even a partially grassed yard provides an appropriate backdrop for this professional photograph of a woman with pets. The fan and clothing suggest summer, when the grass struggles to maintain its hold over the sand.

Illustrations Ltd., “Woman with Fan and her Cat Seated in the Garden,” c.1900. Photograph,  
State Library of Western Australia,

[https://encore.slwa.wa.gov.au/iii/encore/record/C\\_Rb1921457](https://encore.slwa.wa.gov.au/iii/encore/record/C_Rb1921457).

Courtesy of State Library of Western Australia.



Figure 3: The triumphant hose.

E.L Mitchell, “George Hayman and Family in the Front Garden of their Home Chinti, 49 Clotilde Street, Mt Lawley,” 1919. Photograph, BA533/151, State Library of Western Australia, [https://encore.slwa.wa.gov.au/iii/encore/record/C\\_\\_Rb1923309](https://encore.slwa.wa.gov.au/iii/encore/record/C__Rb1923309).

Courtesy of State Library of Western Australia.

## Notes

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- <sup>1</sup> L. E. Askew and P. M. McGuirk, “Watering the Suburbs: Distinction, Conformity and the Suburban Garden,” *Australian Geographer* 35, no. 1 (2004): 17.
- <sup>2</sup> Monthly Climate Statistics, Perth Airport and Perth Regional Office, Bureau of Meteorology, [http://www.bom.gov.au/climate/averages/tables/cw\\_009021\\_All.shtml](http://www.bom.gov.au/climate/averages/tables/cw_009021_All.shtml), [http://www.bom.gov.au/climate/averages/tables/cw\\_009034.shtml](http://www.bom.gov.au/climate/averages/tables/cw_009034.shtml), accessed December 2, 2015.
- <sup>3</sup> “Monthly Rainfall: Perth Metro”, Bureau of Meteorology, [http://www.bom.gov.au/jsp/ncc/cdio/weatherData/av?p\\_nccObsCode=139&p\\_display\\_type=dataFile&p\\_startYear=&p\\_c=&p\\_stn\\_num=009225](http://www.bom.gov.au/jsp/ncc/cdio/weatherData/av?p_nccObsCode=139&p_display_type=dataFile&p_startYear=&p_c=&p_stn_num=009225), accessed 1 August, 2016.
- <sup>4</sup> Tom Stannage, *The People of Perth* (Perth: Perth City Council, 1979) 240-1.
- <sup>5</sup> “Streamflow Historical”, Water Corporation, accessed August 1, 2016, <http://www.watercorporation.com.au/water-supply-and-services/rainfall-and-dams/streamflow/streamflowhistorical>.
- <sup>6</sup> National Water Commission, *National Performance Report 2012–13: Urban Water Utilities* (Canberra: National Water Commission, 2014) 36-7.
- <sup>7</sup> Water Corporation, *Source Development Plan 2005-2050: An Overview* (Leederville: Water Corporation, 2005), 3; J. Chong et al., *Review of Water Restrictions: Final Report for National Water Commission*, vol. 2, *Appendices* (Sydney: Institute for Sustainable Futures, University of Technology Sydney, 2009), 28.
- <sup>8</sup> D. R. Williamson, “Statistics of Water Use,” in *Proceedings of Seminar H2O - Domestic Extravagance* (Perth: University of Western Australia, 1975).
- <sup>9</sup> These restrictions have subsequently been made permanent, along with a total winter sprinkler ban, declared in 2010.
- <sup>10</sup> J. Chong et al., *Review of Water Restrictions*.

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<sup>11</sup> “Desalination,” Water Corporation, accessed June 2, 2015,

<http://www.watercorporation.com.au/water-supply-and-services/solutions-to-perths-water-supply/desalination>.

<sup>12</sup> Katie Holmes, Susan K. Martin and Kylie Mirmohamadi, *Reading the Garden: The Settlement of Australia* (Melbourne: Melbourne University Publishing, 2008), 181-6; George Seddon, “The Garden as Paradise,” *Australian Garden History* 8 (1997): 8-12. Scholarly writing on lawn outside of the USA is rare, though there are substantial works oriented at a more popular readership that trace changing relationships between people and lawn in Britain and the Anglo world: Tom Fort, *The Grass is Greener: Our Love Affair with the Lawn* (London: Harper Collins, 2000); Peter Macinnis, *The Lawn: A Social History* (Millers Point: Pier 9, 2000).

<sup>13</sup> Kenneth Jackson, *Crabgrass Frontier: The Suburbanization of the United States* (New York: Oxford University Press, 1985), 54-60.

<sup>14</sup> Virginia Scott Jenkins, *The Lawn: A History of an American Obsession* (Washington D.C.: Smithsonian Institution Press, 1994).

<sup>15</sup> Theodore Steinberg, *American Green: The Obsessive Quest for the Perfect Lawn* (New York: W.W. Norton, 2006) 18-24.

<sup>16</sup> Michael Pollan, “Why Mow? The Case Against Lawns,” *The New York Times Magazine*, May 28, 1989, accessed June 2, 2015, <http://www.nytimes.com/1989/05/28/magazine/why-mow-the-case-against-lawns.html>.

<sup>17</sup> For example Andrew Jackson Downing, Frederick Law Olmstead, Frank J. Scott and others; see Robbins, *Lawn People*, 25-29; Pollan, “Why Mow?,” 63-4; Jenkins, *Lawn*, 9-62.

<sup>18</sup> For a recent example, see the account of proceedings at a special session of the 2007 International Water History Association conference, at T. S. Katko, P. S. Juuti, J. Tempelhoff, “Water and the City,” *Environment and History* 16 (2010): 213-234.

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<sup>19</sup> See for example Erik Swyngedouw, *Social Power and the Urbanisation of Water: Flows of Power* (Oxford: Oxford University Press, 2004); Matthew Gandy, *The Fabric of Space: Water, Modernity and the Urban Imagination* (Cambridge, Mass.: The MIT Press, 2014); Maria Kaïka, *City of Flows: Modernity, Nature and the City* (London: Routledge, 2005).

<sup>20</sup> Kaïka, *City of Flows*, 4.

<sup>21</sup> Discussed further in Andrea Gaynor, *Harvest of the Suburbs: An Environmental History of Growing Food in Australian Cities 1880-2000* (Crawley: University of Western Australia Press, 2006).

<sup>22</sup> David Hamer, *New Towns in the New World: Images and Perceptions of the Nineteenth-Century Urban Frontier* (New York: Columbia University Press, 1990), 206-219.

<sup>23</sup> Hamer, *New Towns in the New World*, 191-3.

<sup>24</sup> Hamer, *New Towns in the New World*, 37.

<sup>25</sup> Holmes, Martin, and Mirmohamadi, *Reading the Garden*; Graeme Davison, *The Rise and Fall of Marvellous Melbourne*, 2nd ed. (Melbourne: Melbourne University Press, 2004), 175-6; Askew and McGurk, "Watering the Suburbs"; Jenkins, *The Lawn*; Steinberg *American Green*; Robbins, *Lawn People*.

<sup>26</sup> At the 1911 census, 25 per cent of the population of Perth and suburbs were born outside Australia, the vast majority in England, Scotland and Ireland: *Census of the Commonwealth of Australia taken for the night between the 2nd and 3rd April, 1911*, (Melbourne: Commonwealth Bureau of Census and Statistics, 1914-1917), vol. 2, 271, 421. Many had also arrived from Melbourne, where temperatures are lower and rainfall is quite evenly distributed throughout the year.

<sup>27</sup> Len Collard, "The Cosmology: The Creator of the Trilogy Waakal or Nyungar Rainbow Serpent," in *Water: Histories, Cultures, Ecologies*, ed. M. Leybourne and A. Gaynor (Crawley: UWA Press, 2006), 121-130.

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<sup>28</sup> Reginald Appleyard and Toby Mandford, *The Beginning: European Discovery and Early Settlement of Swan River, Western Australia* (Nedlands: University of Western Australia Press for the Education Committee of the 150th Anniversary Celebrations, 1979), 149.

<sup>29</sup> Samuel Taylor, "Swan River," *Colonial Times*, 12 February, 1830, 4.

Perth was established as a separate administrative capital because Fremantle could not be readily defended, nor was there fertile farming land in its sandy hinterland; the latter requirement saw a third settlement established at Guildford, upstream from Perth on the Swan River, as the gateway to agricultural country: Geoffrey Bolton, "Perth, A Foundling City," in *The Origins of Australia's Capital Cities*, ed. Pamela Statham (Melbourne: Cambridge University Press, 1989), 142-3.

<sup>30</sup> Jacques, "Sketch of Swan River and King George's Sound," *South Australian Register*, December 30, 1848, 4.

<sup>31</sup> "A trip to the Murchison goldfield – No.VII," *Adelaide Observer*, March 9, 1895, 41.

<sup>32</sup> "City Council," *West Australian*, December 7, 1880, 2; "Annual Meeting of Ratepayers," *West Australian*, November 18, 1881, 3; James Walters, "Street Watering: To the Editor," *West Australian*, April 4, 1896, 3.

<sup>33</sup> S. J. Hunt, and G. Bolton, "Cleansing the Dunghill: Water Supply and sanitation in Perth 1878-1912," *Studies in Western Australian History* 2 (1978): 1-17

<sup>34</sup> *Waterworks Act 1889* (WA) s.19 and 20.

<sup>35</sup> "Water for Other Than Domestic Purposes," *West Australian*, December 12, 1893, 2-3.

<sup>36</sup> "Watering the Government Gardens," *Daily News*, January 17, 1893, 2.

<sup>37</sup> Ibid

<sup>38</sup> Ibid.

<sup>39</sup> Francis Bacon, "Of Gardens," in *The Essays* (c.1625; eBooks@Adelaide, 2014),

<https://ebooks.adelaide.edu.au/b/bacon/francis/b12e/essay46.html>.

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<sup>40</sup> Robbins, *Lawn People*, 21.

<sup>41</sup> Jenkins, *The Lawn*, 13-33.

<sup>42</sup> E. Gregory McPherson and Renee A. Haip, "Emerging Desert landscape in Tucson," in *A Sense of the American West: An Anthology of Environmental History*, ed. James Earl Sherow (Albuquerque: University of New Mexico Press, 1998), 118-9.

<sup>43</sup> "The Shrubbery and Flower Garden," *Western Mail*, July 3, 1886, 29.

<sup>44</sup> Ibid.

<sup>45</sup> Lionel Frost, *Australian Cities in Comparative View* (Melbourne: McPhee Gribble, 1990), 54.

<sup>46</sup> Davison, *Rise and Fall of Marvellous Melbourne*, 145.

<sup>47</sup> "The Water Supply," *Daily News*, January 14, 1897, 4.

<sup>48</sup> "The Water Supply Question," *West Australian*, January 14, 1897, 5.

<sup>49</sup> "Perth Water Supply," *Western Mail*, October 22, 1897, 8.

<sup>50</sup> "Perth Parks and Gardens: A Visitor's Impressions," *West Australian*, November 24, 1898, 5.

<sup>51</sup> Hamer, *New Towns in the New World*, 189.

<sup>52</sup> "Our Parks and Gardens," *West Australian*, January 14, 1899, 11.

<sup>53</sup> See for example *West Australian*, May 4, 1900, 8; *West Australian*, June 11, 1902, 8.

<sup>54</sup> See for example J. Maddocks (of Rossiter and Co. of Hay St in Perth), *Western Mail*, January 12, 1901, 9.

<sup>55</sup> See for example "Sale of Suburban Property," *Daily News*, May 26, 1905, 6; *West Australian*, June 16, 1905, 3.

<sup>56</sup> Fred Schroeder notes that these were significant uses of front yards in southern states of the USA prior to the widespread availability of airconditioning: Fred E.H. Schroeder, *Front Yard*

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*America: The Evolution and Meanings of a Vernacular Domestic Landscape* (Bowling Green OH: Bowling Green State University Popular Press, 1993), 134-6.

<sup>57</sup> For one exception see Deborah Buller Murphy, *The Australian Household Guide* (Perth: E.S. Wigg, 1916), 185.

<sup>58</sup> Cornstalk, "Lawn Making, Hints To Gardeners," *Western Mail*, December 8, 1906, 13.

<sup>59</sup> Walter Brockway, "Baby in the Garden of the Brockway Family Home 'Sandhurst', Claremont," photograph, 1904, State Library of Western Australia, [https://encore.slwa.wa.gov.au/iii/encore/record/C\\_Rb3878243](https://encore.slwa.wa.gov.au/iii/encore/record/C_Rb3878243). Contrast this photograph with another taken around the same time of a house with a front yard comprising only sand, in which a woman stands holding a baby not in the yard but on the verandah: Edward Stephen Hart, "Home of Edward Stephen Hart, York St Subiaco," photograph, c.1905, State Library of Western Australia, [https://encore.slwa.wa.gov.au/iii/encore/record/C\\_Rb3793134](https://encore.slwa.wa.gov.au/iii/encore/record/C_Rb3793134).

<sup>60</sup> See also for example T.F. Mackay, "Mackay Family Having Lunch in the Garden" photograph, c.1925, State Library of Western Australia, [https://encore.slwa.wa.gov.au/iii/encore/record/C\\_Rb2477649](https://encore.slwa.wa.gov.au/iii/encore/record/C_Rb2477649); "The Tea Party in the Garden", photograph, c.1905, State Library of Western Australia, [https://encore.slwa.wa.gov.au/iii/encore/record/C\\_Rb1990964](https://encore.slwa.wa.gov.au/iii/encore/record/C_Rb1990964).

<sup>61</sup> See also for example T.F. Mackay, "Hammock in the Garden," photograph, c.1925, State Library of Western Australia, [https://encore.slwa.wa.gov.au/iii/encore/record/C\\_Rb1990964](https://encore.slwa.wa.gov.au/iii/encore/record/C_Rb1990964). Illustrations Ltd., "A Woman Reads a Book in the Garden", photograph, c.1910s, State Library of Western Australia, [https://encore.slwa.wa.gov.au/iii/encore/record/C\\_Rb1921470](https://encore.slwa.wa.gov.au/iii/encore/record/C_Rb1921470).

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<sup>62</sup> See for example “Police Courts,” *West Australian*, March 16, 1906, 3; “Police Courts,” *West Australian*, January 22, 1903, 2; “News and Notes,” *West Australian*, June 11, 1907, 4. Prosecutions were not uncommon, but many were dismissed due to lack of sufficient evidence.

<sup>63</sup> *Western Australian Parliamentary Debates (WAPD)*, December 22, 1905, 904.

<sup>64</sup> *WAPD*, August 21, 1907, 971.

<sup>65</sup> *WAPD*, August 21, 1907, 962.

<sup>66</sup> C.H. Braddock, “Street Watering: To the Editor,” *West Australian*, December 9, 1908, 5; see also Ratepayer, “Street Watering: To the Editor,” *West Australian*, December 18, 1908, 3.

<sup>67</sup> Aye Aye, “The Dust Nuisance: To the Editor,” *West Australian*, November 4, 1922, 10.

<sup>68</sup> Deborah Buller Murphy, *The Australian Household Guide* (Perth: E.S. Wigg, 1916). Buller Murphy was the daughter of Surveyor General F.S. Drake-Brockman and his wife Grace Bussell; both from long-established, elite Western Australian families. She married Sir Winthrop Hackett, Member of the Legislative Council and editor of the *West Australian Newspaper*. She was twice widowed before marrying barrister Basil Buller Murphy.

<sup>69</sup> Buller Murphy, *Australian Household Guide*, 191.

<sup>70</sup> *WAPD*, November 20, 1921, 2008.

<sup>71</sup> *WAPD*, December 12, 1922, 2161.

<sup>72</sup> Carl Abbott, *How Cities Won the West: Four Centuries of Urban Change in Western North America* (Albuquerque: University of New Mexico Press, 2010), 123.

<sup>73</sup> *WAPD*, December 12, 1922, 2161.

<sup>74</sup> *Ibid.*

<sup>75</sup> See for example “Joseph Montagu Nicholas Watering the Garden at 50 Leonard Street, Victoria Park,” photograph, 1914, State Library of Western Australia,

[https://encore.slwa.wa.gov.au/iii/encore/record/C\\_Rb2786260](https://encore.slwa.wa.gov.au/iii/encore/record/C_Rb2786260).

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<sup>76</sup> “Business announcements,” *West Australian*, September 29, 1903, 5.

<sup>77</sup> *Daily News*, October 7, 1902, 1.

<sup>78</sup> “The Marsh Patent Sprinkler,” *Western Mail*, June 5, 1914, 9, 31.

<sup>79</sup> “The ‘Boomerang’ Lawn Sprinkler,” *Daily News*, December 8, 1915, 9.

<sup>80</sup> Leslie H. Brunning, *The 19<sup>th</sup> Edition Australian Gardener: A Complete and Practical Guide to the Growing of Flowers and Vegetables by the Home Gardener* (Melbourne: F.H. Brunning, 1920), 153.

<sup>81</sup> Leslie H. Brunning, *The Australian Gardener 30<sup>th</sup> Edition: A Complete and Practical Guide Dealing with the Growing of Fruit, Flowers and Vegetables* (Melbourne: Robertson & Mullens, 1949), 98.

<sup>82</sup> Metropolitan Water Authority, *Domestic Water Use in Perth, Western Australia*, (Leederville: Metropolitan Water Centre, 1985) 65; Schroeder similarly notes the way in which the widespread availability of air conditioning killed front yard culture in the southern USA: Schroeder, *Front Yard America*, 136.

<sup>83</sup> Ruth Morgan, *Running Out? Water in Western Australia* (Perth: UWA Publishing, 2015), 120-122, 178-9.

<sup>84</sup> Tim Kurz, Kgaie Donaghue, Mark Rapley and Iain Walker, “The Ways That People Talk About Natural Resources: Discursive Strategies as Barriers to Environmentally Sustainable Practices,” *British Journal of Social Psychology* 44 (2005): 609.

<sup>85</sup> Askew and McGurk, “Watering the Suburbs”.

### **Author Biography**

Andrea Gaynor is an associate professor at The University of Western Australia. Primarily an environmental historian, she is currently working on water histories of Australian cities, an environmental history of the mallee lands of southern Australia, and nature and modernity in

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