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The Re-Creation of Bottle Lake: From Site of Discard to Environmental Playground?

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ABSTRACT

In order to understand the workings of ecological imperialism at the local level, this essay traces the haphazard environmental history of an area of land at the north-eastern border of Christchurch. It analyses the changing environmental qualities of place over time as a chain of discourses that have formed, re-formed, cross-fertilised – each influencing a new land-use or perception of the area as wasteland, playground, wetland, and site of rehabilitation and recreation. An examination of the collision of discourses from elsewhere with local pragmatism reveals the limits and contradictions of theories of ecological imperialism at a local scale.

KEY WORDS

Ecological imperialism, forestry, health, recreation, refuse disposal, wetlands

INTRODUCTION

As Pawson and Brooking conclude in their introduction to *Environmental Histories of New Zealand*, context is all-important in a ‘vulnerable and violent land’, where the ‘unexpected has always happened’.¹ Yet work in environmental history and historical geography has often mimicked the visions of colonisers, seeking stable patterns of colonisation. Indeed, work by historical geographers has made the intention of colonising powers to transform the environment a readily identifiable mentality.² In particular, Eric Pawson has written about the presence of such ideology in the Christchurch area, with the Canterbury Plains’

potential waiting to be tapped.³ Noting the importance of everyday circumstances, Graeme Wynn has written of the tenacity of New Zealand's nineteenth century conservationists, arguing that New Zealand was 'a society born of tension, the product of competing orientations towards overseas influences and local circumstances'.⁴ Meanwhile, providing a useful theoretical context, historian Tom Griffiths writes of Europeans' perception of wilderness as remoteness and absence,⁵ and Giselle Byrnes focuses 'on the processes of colonisation, seen through the work of individual surveyors', in taming wilderness and re-mapping boundaries.⁶

Following on from these ideas, this essay demonstrates the haphazard 'nature' of environmental history when discourses from elsewhere collide with local pragmatism. To do so, it explores the history of an area where an identity as 'wasteland' has been an enduring feature. Rather than a neat progression from one land use or perception to another, the history of Bottle Lake reveals that 'environmental transformation is a social process',⁷ and that the mixing of local need with imperial ideologies has made for a complex and oft-times contradictory chain of discourses for the area.

To Pakeha colonisers, with a mind-set of transforming the environment along progressive lines, the landscape of Bottle Lake was 'empty' and 'waste'. But rather than attempt to transform the environment in accordance with romantic and arcadian visions,⁸ Bottle Lake remained perceived as marginal land, in a location marginal to Christchurch.

READING THE LANDSCAPE

The landscape known today as Bottle Lake Forest Park is located on the Canterbury Plains on the north east edge of Christchurch (see Figure 1). To its north is the Waimakariri River, to the east, the Pacific Ocean, to the south the far reaches of the suburbs of Christchurch, Burwood Hospital and the Travis Wetlands,⁹ and to the west the fertile Marshlands market gardens. Over time the name 'Bottle Lake' has been given to various features in the landscape, including a lake, forest, street and hospital. An 1888 survey map records a three hectare lake shaped like a bottle. In the 1990s, however, there was little public awareness of the body of water. A 2001 article in Christchurch's *Press* explained that seeking to establish farming on the land, mid-nineteenth century colonisers had found that cattle got lost in the water, and so had drained it, 'reducing the lake to a mere puddle'.¹⁰ Figure 2 is a typical view of the area, the indigenous flora choked by a wild mixture of exotic plants and trees.

During the 1990s the indigenous past of the area began to be resuscitated. The Maori name for the area is Waitikiri, meaning lagoon, muddy water or water

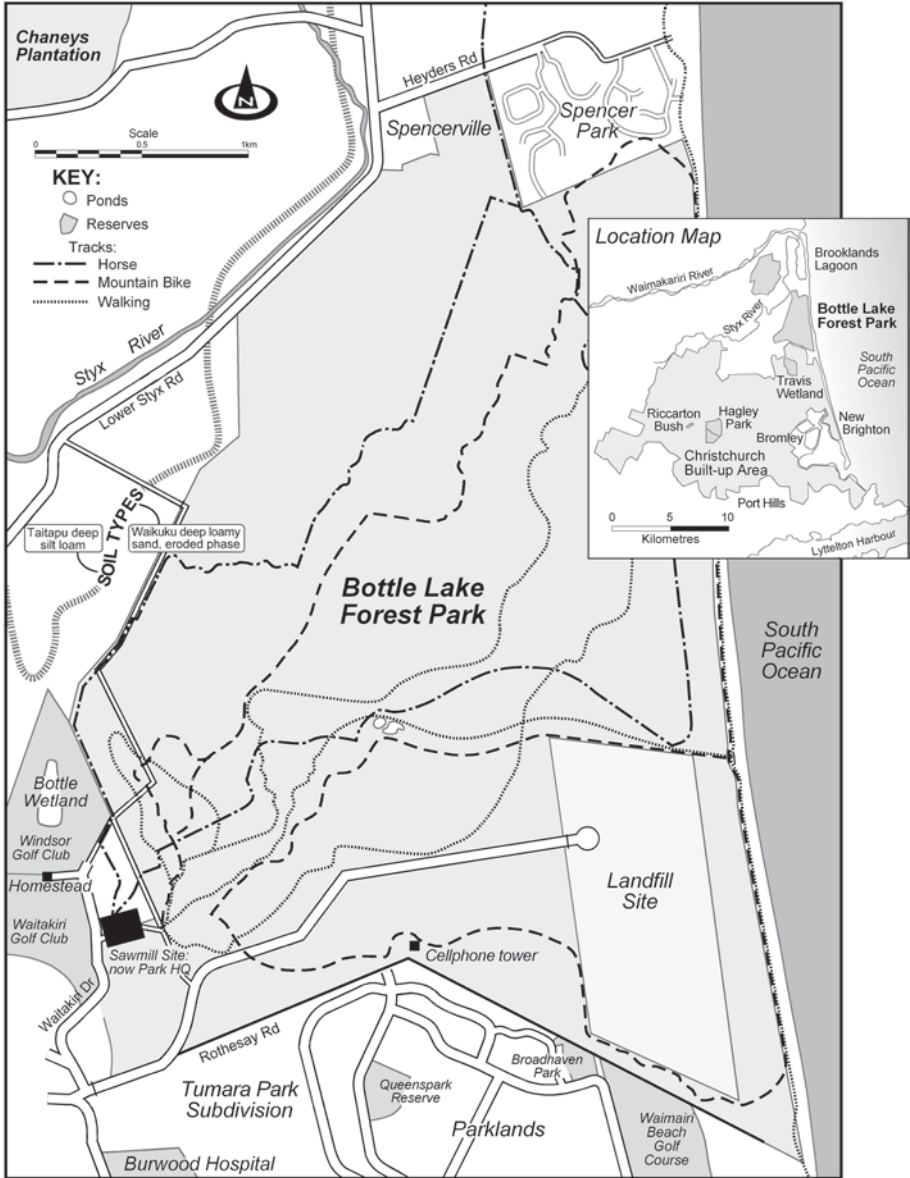


FIGURE 1. Bottle Lake and the Region



FIGURE 2. Bottle Lake

springs. The district is one of the lagoonal coastlands at the seaward edge of the Waimakariri River's gravel fan as it pushes eastward into the ocean. *Te Whakata Kaupapa* states that 'Waitakari was the old name for what is now Bottle Lake'. Once part of a network of mahinga kai (food gathering areas), due to mass drainage 'Travis Swamp and Bottle Lake are the only places that faintly remind us that Christchurch once was a place of swamps'.¹¹ Prior to European settlement the area contained flax swamps, coastal bush, an eeling lagoon, and wildlife of value to Maori.¹² Park Ranger Ian Surgenor conceptualises Waitikiri as part of a wider area, incorporating the Travis Wetlands, that was used by a major kaianga nohonga called Orupaeroa, located east of the wetlands.¹³

In 1999 the Canterbury Regional Council officially declared the nine hectare waterway that includes Bottle Lake a wetland. From being a nuisance to farming, it was now the exotic trees choking the wetland that were undesirable.¹⁴ In the same year the nearby Burwood Pegasus Community Board moved to 'save Bottle Lake', by having it recorded as a natural feature in the City Plan. As houses were built very close to the lake the group sought to 'preserve its natural character and prevent inappropriate use and development', seeking a working party to 'explore options for restoring and protecting the lake'.¹⁵



FIGURE 3. The Travis Wetlands

Following British colonisation, the land containing Bottle Lake became part of the Sandhills Run – a large runhold which extended from New Brighton to the Waimakariri River. The run was part of a huge area of land stretching from Kaiapoi to Otago which was part of the east coast land that was carved up after the Kemp Purchase (1848) from Ngai Tahu.¹⁶ Around 1853 the part that later included the Bottle Lake Forest and Chaney's Plantation to the north was let for sheep grazing. In 1860 John McLean bought the land, perhaps from the Canterbury Association. Two years later Mr Reece bought the land and planted the first pine seedlings. Reece's son William built a large wooden homestead on the edge of Bottle Lake.¹⁷

Recognising the presence of a swampy region with infertile sand, the hold of farming on the land was always tentative. Conversely, the potential of retaining the area as a wasteland was recognised by the Council, who in 1878 bought 331 hectares, which were vested in the Borough of Christchurch, under a Reserves Act, with the land considered suitable for waste disposal in the form of 'nightsoil' and offal. An alternative site further south at Bromley was favoured for the 'offensive but necessary',¹⁸ but the Council continued to purchase further areas of adjoining coastal land 'as opportunities arose'.¹⁹ Using some of the land for

a cemetery was considered. The Council also continued with the planting of trees begun by the first farmers. Although the commercial return from the trees was recognised, the Council's planting primarily served the purpose of stabilising the land and stopping sand from encroaching inland to the fertile marshlands. In 1883 the Council planted 50 hectares of Corsican and Monterey pines and in 1884 more land was bought under the Waste Lands Act. 'Progress', however, was piecemeal and meandering.

Transforming the environment through farming and the planting of pine trees made Bottle Lake part of the outreach of ecological imperialism. In accusing Crosby's thesis of ecological imperialism of hiding 'the fact that such activity was also widespread in the home territories of the European Metropolitan powers', Alan Grey chooses to case study the monterey pine (*Pinus radiata*), tracing its movement from California to France in 1786, to Britain between 1830 and 1853, to New Zealand in the 1850s, to Australia by 1869, to South Africa by 1870, and to Chile by 1883.²⁰ Later it formed forests in northern Spain and in recent years was introduced in Ecuador. In New Zealand along with its companion the Monterey cypress, it was planted as a shelter tree.²¹ At Bottle Lake, it was a suitable sand stabiliser.

As an open, and in colonial terms relatively uninhabited and relatively valueless expanse, the Bottle Lake area was also noticed by amateur military strategists, who saw the area as providing 'a natural barrier to any assault being carried out against the capital of the Plains'.²² It was also found to be suitable for military training exercises and from 1867 the Canterbury Rifle Association was shooting in the area, while contingent training regularly took place through the 1870s and 1880s.²³ On the eve of the South Africa War, Easter weekend 1899 witnessed the largest military assembly of the nineteenth century when the Canterbury Mounted Rifles, Canterbury Yeoman Cavalry, Ellesmere Mounted Rifles, South Canterbury Mounted Rifles, along with many other rifle units making up infantry companies and Christchurch East's Battery field gunners, descended upon the area. Such a crescendo at the end of the century is notable for two reasons. First, the gallivanting military exercises during the South Africa War served to further destabilise the dunes, with sand drifting inland in places up to 2.4 kilometres. As a result, in 1909 the Council decided upon an official policy of coastal afforestation for the area, with the on-going dual purpose of stabilising the dunes, and providing income from the timber.²⁴ Second, military exercises and the provision of tea in a large marquee for women visitors foreshadowed the recreational uses that would be of prime importance in the next century. Mark Billinge has written of the outdoors re-Creation in mid-nineteenth century Britain as warding off the nation's urban ills. Such a discourse became evident at Bottle Lake, making it a place 'where nature would work its own restorative *re-creational* magic'.²⁵

COMPETING DISCOURSES

At the turn of the twentieth century, building upon the discourse of the area as an empty and wild place on the margins, considered suitable for re-Creation, a medical discourse gained momentum. In November 1902 a man at Lyttelton named Shields was diagnosed as having bubonic plague. Considered too dangerous for Christchurch Hospital, the Chatham Islands were considered, before the 'isolated wilderness' of Bottle Lake was decided upon.²⁶ The original fever hospital at Bottle Lake was a camp consisting of 'bell tents', a cookhouse, and square tents for three nurses. It was a tentative and under-resourced venture. As the plague outbreak did not eventuate, there was a sense of tomfoolery in the plague officer Dr Fenwick's report:

[A] number of returned soldiers, suspected of smallpox infection were camped in the vicinity of the plague camp. They were all vaccinated but few of them "took" and no smallpox appeared. It was learned afterwards that immediately after the vaccination was performed the soldiers licked themselves clean of the vaccine. A suggestion that they should be vaccinated on a less accessible part of their anatomy was not acted upon.²⁷

At this time, a discourse of simultaneous recuperation and re-Creation gained strength in the landscape. Well-known Canterbury health worker Nurse Maude had a camp in the Sandhills at nearby New Brighton, where the fresh air and bracing climate were considered a cure for tuberculosis. These climatic features were extended to the Bottle Lake area, and as well as being considered suitable for the treatment of infectious diseases because it was an isolated wasteland, the area also came to be considered conducive to healing. From the plague bell tents a more permanent infectious diseases hospital was built. The first buildings were temporary, comprising part canvas and part galvanised iron shacks. With the outbreak of scarlet fever two large pavilions were built, and there was a 'levelling and laying out in garden the waste of sand that had hitherto existed'. Growth continued until by 1917 the site boasted a 170 bed facility claimed as 'the best and most up-to-date infectious diseases hospital in the Dominion'. Attached to the hospital was 187 acres consisting of 'mostly sand, which has now been planted in pines and from which the Board will ultimately reap a rich harvest'.²⁸ At the Bottle Lake Hospital's official opening on 12 May 1917 the chairman of the local public health committee complained about the prejudice attached to the name, which gave the impression of a swamp, although 'the lake was more than a mile away and it was dried up'.²⁹ Perhaps more significant was the nearby 'Travis Swamp', a breeding ground for mosquitoes. In 1911 it was reported that a 'plague of mosquitoes' had 'Bottle Lake Hospital Molested'.³⁰ In the first half of the twentieth century outbreaks of small pox, diphtheria and scarlet fever were amongst the infectious diseases treated at Bottle Lake.³¹

Being away from the surveillance of the city led to accusations of a lax holiday atmosphere at the hospital. In 1911 a patient child of five and a half years was reported as escaping from Bottle Lake Hospital and walking the nine kilometres home to Sydenham. A *Lyttelton Times* reporter sent to inspect the buildings and grounds found the buildings to be 'in a beautifully clean and tidy condition. The grounds are very extensive, and are mostly composed of low undulating sand banks, covered with scrub and tussock'.³² Meanwhile, an editorial in the same paper questioned 'isolation' and revealed rumours of patients attending local races and sea bathing at New Brighton.³³

PROGRESSIVE PLANTING

It was during the years following World War One that ideas of modernity were at their strongest in New Zealand. Belich contends that forestry as an industry got going in the 1920s, spurred on by British demand,³⁴ while Roche indicates the unprecedented scale of planting in the mid-1930s.³⁵ At Bottle Lake, according to Surgenor, by the late 1920s 'the stage was now set for the partially developed wasteland to be subjected to its most progressive period'.³⁶ At this time Bottle Lake Plantation came into existence as a New Zealand sand forest. The idea of stabilising coastal sand dunes was a technique worked out in eighteenth- and nineteenth-century Europe through the planting of introduced trees, grasses, lupins and artificial structures. The Bottle Lake foreshore became the theatre for such experiments, including the construction of manuka scrub fences and the planting of marram grass and trees along the coastline.³⁷

'Plantation' implies the scientific cultivation of trees, tended by a labour force. Planting exotic trees, however, was no guarantee of civilisation. In 1924 the *Press* reported that 'bushmen' were 'working in the dim light of a pine forest, plying axe and slasher day after day, and gradually accomplishing the work of changing a wilderness of trees into an orderly plantation'.³⁸ The thinning and pruning of trees was controversial, with the Secretary to the Nurserymen's Association G. A. Green stating that 'nature should be allowed to take her course' and trees not thinned.³⁹ At the end of 1927 eight returned soldiers were engaged in pruning scrub-clearing operations. This was the first time that a gang had lived in small huts and worked on the site. Six months later there were 20 men employed at the forest – not all living there.⁴⁰ Significantly, in 1927 Len Hale, a graduate of the British Technical Forestry School in the Forest of Dean, Gloucester became the Chief Forester. He remained in the position until 1962, when he was replaced by Chris Johns, also trained at the same school. Under his direction there were further plantings and the thinning for firewood proceeded.

During the Depression afforestation was considered nationally as a means of relieving and preventing unemployment.⁴¹ Camps of unemployed men worked in the forest constructing a brush fence to stop the sand, and trimming the lower

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branches to encourage growth, planting *Pinus radiata* and establishing a network of roads made from metal from the nearby Burwood rubbish dump.⁴² From 1939–47 unemployed men were again encouraged to work in the forest, with men manpowered to work there under Scheme 13 National Service Emergency Regulations during World War Two. The year 1938 witnessed the first clear-felling for sawlogs of trees planted from 1913–15. In 1947 a sawmill was opened and the cutting rights for City Council forests were let.

Military, health and rehabilitation discourses in the region became important again during World War Two. With the threat of invasion from the Japanese, a ‘Dad’s Army’ homeguard was active defending the coastline. A piggery, the intention for which was to ‘feed Britain’, started during World War Two and was still open in the 1950s. With an acute shortage of hospital beds in Christchurch Hospital, the ‘homeless aged’ were sent to Burwood, as Bottle Lake Hospital became.⁴³ Soldiers with tuberculosis were also sent, and attempting literal ‘re-creation’, Burwood was chosen for the national plastic surgery unit for soldiers.⁴⁴

In the post-war years the military training of the past evolved into muscular Christianity pursuits, with inter-war discourses of sunlight, fresh air, and modernity taking effect in the forest.⁴⁵ While boy scouts volunteered to help out in the forest, in January 1952 permission was given for a group of boys from the Stanmore Boys’ Home to camp in the forest. Eighteen boys with two guardians spent a weekend amongst the pines. The plantation was a site for moral rehabilitation in the reconstructed nature of the exotic/introduced forest. According to Surgenor the boys’ adventure was ‘the first inkling that the forest might one day become a recreational area’.⁴⁶ Military exercises, however, held precedence. In 1929 serious consideration was given to using unemployed labour to construct a municipal golf links at Bottle Lake, with Rawhiti Domain at New Brighton chosen instead.⁴⁷ In 1937 Ray Blank and several prominent Christchurch businessmen formed the Waitikiri Links Ltd and purchased the property surrounding Bottle Lake itself, on which the Waitikiri and Windsor golf courses remain.⁴⁸

FOREST PARK

In the second half of the twentieth century the recreational uses for the area grew in importance, and as Christchurch expanded to the edges of the area, exotic/introduced *Pinus radiata* transformed from ‘plantation’ into a ‘city forest’ and a ‘forest park’. It was the forward-thinking politician J. R. Robertson, Democratic Labour Candidate for the City Council and the North Canterbury Hospital Board, who in 1944 suggested opening Bottle Lake to the public at weekends and for picnics and camping.⁴⁹

During the 1970s the ‘Forest Park concept’ encapsulated a combination of forestry and recreation. In a significant shift, as the suburbs reached the edge of

the forest, visions for the area were now about a city park, rather than a wilderness. The exotic plantation was becoming sacred. Paradoxically, as the land became ordered, so too was a wilderness created. As the trees grew, the plantation became a 'forest' imbued with many cultural meanings, taking on a mystical identity as a desirable wilderness that could be compared with indigenous city forests in New Zealand and around the world. Forester Chris Johns visited Rotterdam Park in Holland for inspiration,⁵⁰ and writing in the *Press* Stan Darling suggested that the Bottle Lake Forest was 'closer than anything I have seen since Stanley Park in Vancouver, BC, to a true city forest'. Comparing the *Pinus radiata* forest to the pocket of protected native tress in the middle of Christchurch at Riccarton Bush he prophesised that 'Bottle Lake might need to be protected one day too'.⁵¹

The forest park discourse was partly fuelled by one of four major threats to the forest – development.⁵² As Christchurch grew in the post-war years housing was suggested for the area, and a flash-point was reached in the mid-1970s. In 1976, the same year the park was opened to the public, Huia Gilpin, director of parks and reserves at the Council, fought a vigorous battle against the developers. Also opposed to the development of the area, deputy mayor and chairman of park and reserves Peter Skellerup visited Bottle Lake in his red Mercedes-Benz, and described it as 'the lungs of Christchurch'.⁵³



FIGURE 4. Burwood Hospital

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The forces behind the development of Burwood Hospital (Figure 4), have been suggested to be ‘pestilence, famine and war’.⁵⁴ In the post-war years, the hospital grew and diversified, often providing for the overflow from Christchurch Hospital. In 1946 the post-war baby boom saw the opening of an obstetrical ward.⁵⁵ In continuity with its past identity, in 1968 the Board of Burwood Hospital granted approval for a Spinal Injuries Unit with rehabilitation and recreational facilities, and on 17 April 1979 the unit was opened. The emphasis on medical rehabilitation occurred in tandem with the development of Bottle Lake as a healthy forest park, and pine trees were planted around the facility. Burwood became a centre for ‘disability’ – in 1979 Ward 9 became an area for younger physically disabled patients, and pony riding for the disabled began in 1984. In 1983, 20 orthopaedic beds were given over to the elderly for a rehabilitation programme. An artificial limb centre and a new physical medicine building were opened in the early 1980s. Patients were offered physiotherapy, speech-language therapy, occupational therapy, recreation officers, rehabilitation and technical services. At the same time, in 1982 a three bed hospice for the terminally ill was built.⁵⁶ In the 1990s a new pool and gym facilities for the disabled were built, and brain injury, chronic pain, and severely handicapped children units were added. Meanwhile, continuing to foster employment, during the 1980s Burwood was the first Canterbury hospital to have a Workskill Development Scheme, whereby 150 young people were given work experience, while buses of unemployed men left Christchurch’s Cathedral Square to work at Bottle Lake Forest.

In 2000 the Christchurch City Council published a book by the third Forest Ranger, Ian Surgenor. He writes of the forest as a place of mystique and tranquillity, still containing the unconstrained and the raw. He even suggests that Bottle Lake Forest Park is a counterpart to Christchurch’s formal, open, and regular central city Hagley Park. Interestingly, Surgenor notes that ‘One is east and one is west and ne’er the twain shall meet’, evoking the social status of Christchurch, with the sense that Bottle Lake is still a marginal location.⁵⁷ The Christchurch City Council’s 1999 Bottle Lake Forest Park Management Plan considered the area as ‘complimentary to Hagley Park’. Reminiscent of discourses of curative fresh air, the plan promotes the Park’s ‘breathing space’, and as a forest, its ‘wilderness nature’. There are now over 400,000 visitors each year to the park, which offers a signposted network of roads, mountain-bike tracks, horse-trekking trails and walking tracks, and a visitor centre (see Figure 1). There are plans for the future that include an arboretum, picnic areas, a sports park, and a coastal ecological corridor. The 1999 Plan promotes the ‘harmonious integration’ of commercial forestry and refuse disposal with recreation, education and conservation’.⁵⁸

Contemporary forest park discourses of ‘clean air, water, biodiversity, wilderness and recreation’ co-exist with ‘refuse disposal’.⁵⁹ In fact, since 1984 Christchurch’s principal refuse disposal facility has been located in the area. The

site began its modern investigation in 1970, at the same time as the forest park concept grew, and developers focused on the area. The dump is unlined, and there are worries concerning carbon dioxide and methane.⁶⁰ Recently, other 'not in my back yard' features, a cellphone tower and a youth justice facility, were mooted in and close to the Park, the cellphone tower now erected.⁶¹ When the landfill closes in 2003, there are plans to create a park with mountain bike tracks, horse trails, native plantings, and picnic areas out of the piles (hills) of rubbish. Increasingly the 'Park' aspect of Bottle Lake Forest Park will not be tied to the trees. This is just as well, because the forest was sold in 1990 to avoid taxes and the mill closed in 1992. The trees are now owned by the Selwyn Plantation Board.⁶²

As an effect of being on the edge of Christchurch, Eric Pawson notes that a Burwood subdivision was advertised in 1956 as the 'healthiest spot in Christchurch. No factories, no smoke.'⁶³ The land surrounding Bottle Lake Forest Park is once more in demand for development, the land closest to the park entrance being declined rezoning for low density residential housing.⁶⁴ Ironically, current marketing for new houses surrounding the Park uses the wetland as 'environmentally friendly', with 'superb recreational opportunities all close at hand' offering 'a premier investment, set amidst some of the city's most stunning natural surroundings'.⁶⁵

THE LOCAL

Bottle Lake is a landscape in constant transformation. Its changing environmental history has involved a chain of discourses that have formed, re-formed and cross-fertilised – each influencing a new land-use or perception as wasteland, playground, wetland, or site of rehabilitation and recreation. Today an exotic/introduced plantation of *Pinus radiata* trees, potent orderly symbols of ecological imperialism co-habits with wetlands, a landfill, a golf course, a spinal injury unit, and a burns unit. At Bottle Lake, colonisation has added layers of meaning, planting, felling, shifting sand, experimenting and dumping rubbish. Where the pre-contact past was silenced, today the previously redundant Bottle Lake is recast as a vital wetland. Wilderness is now to be nurtured, wildly incorporating everything in the Bottle Lake landscape. Meanwhile, Christchurch has reached the edge of the forest, meaning that the discourse of isolation is over, but paradoxically, making the construction of wilderness essential to the area not being 'developed'.

This case study of one distinct landscape reveals that attempts to modify a literal 'wasteland' have involved much human pragmatism mingled with changing ideologies. In reality, ideas of ecological imperialism, of environmental transformation according to colonial ideologies, were much more tentative and varied than they were in theory. Over time, a variety of discourses collided in the

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Bottle Lake area, producing a specifically local environmental history. The question mark in the title of this essay is to suggest that the discourse of the area as a site of discard is not necessarily an opposite identity to an environmental playground. Rather, both are part of the unique chain of discourses that make up the area's history. While environmental historians can show evidence of ideologies of ecological imperialism, this examination of the applied geographical footprint to land considered marginal, reveals a complex, and contradictory history.

NOTES

Tom Brooking, Garth Cant, Ann Parsonson, Eric Pawson and Jim Pickles are thanked for their helpful comments. Angela Wanhalla assisted with the research and Dean Aldridge prepared the map.

¹ Eric Pawson and Tom Brooking, 'Introduction', in Eric Pawson and Tom Brooking (eds), *Environmental Histories of New Zealand* (Melbourne: Oxford University Press, 2002) 1–16, 16.

² A.W. Crosby, *Ecological Imperialism: The Biological Expansion of Europe, 900–1900* (London 1986); J. M. MacKenzie (ed.) *The Empire of Nature* (Manchester: Manchester University Press, 1987); G. Wynn, 'Remapping Tutira: contours in the environmental history of New Zealand', *Journal of Historical Geography*, 23, 4 (1997), 418–46.

³ E. Pawson, 'Confronting Nature', in J. Cookson and G. Dunstall (eds), *Southern Capital: Christchurch. Towards a City Biography 1850–2000* (Christchurch: Canterbury University Press, 2000), 60–84, 63.

⁴ G. Wynn, 'Conservation and Society in Late Nineteenth-Century New Zealand', *New Zealand Journal of History* 11, 2 (1977), 124–136, 136.

⁵ T. Griffiths, *Hunters and Collectors: The Antiquarian Imagination in Australia*, (Cambridge: Cambridge University Press 1996), 260.

⁶ Giselle Byrnes, *Boundary Markers: Land Surveying and the Colonisation of New Zealand* (Wellington: Bridget Williams Books, 2001), 125. For an original study of the relationship between ecology and history in four indigenous New Zealand ecosystems see Geoff Park, *Nga Uruora (The Groves of Life) Ecology and History in a New Zealand Landscape* (Wellington: Victoria University Press, 1995).

⁷ T. Brooking and E. Pawson, 'Writing New Zealand's Environmental Histories', *History Now* 5, 2 (1999): 28–32, 29.

⁸ See J. Beattie, 'Rapists or Romantics? European views of the Otago Environment, 1840–60', unpublished paper.

⁹ Pawson, 'Confronting Nature'. Travis Wetland 'comprises some 112 hectares of the last remaining large scale fresh water wetland within the Christchurch area'. For a history of rural Canterbury see Garth Cant and Russell Kirkpatrick (eds), *Rural Canterbury: Celebrating its History* (Wellington: Daphne Brasell Associates Ltd and Lincoln University Press, 2001).

¹⁰ *The Press*, 6 January, 2001, 12.

¹¹ Te Maire Tau, Anake Goodall, David Palmer and Rakiihia Tau, Te Whakataua *Kaupapa: Ngai Tahu Resource Management Strategy for the Canterbury Region* (Wellington: Aoraki Press, 1990), 5-20-1 and 5-24. On the fate of swamps under colonisation see Geoff Park “‘Swamps Which Might Doubtless Easily Be Drained’: Swamp Drainage and its Impact on the Indigenous’, in Pawson and Brooking, *Environmental Histories of New Zealand*, 151–65.

¹² M. Pickering (ed., compiled by Kjesten Nilsson, Karen Theobald and Lesley Symington), *Walk Christchurch: 60 Short Walks that Explore your City* (Christchurch: Leisure Unit, Christchurch City Council, 1998).

¹³ *The Press*, 30 June 1999, 5; I. Surgenor, *Water Wood: The Story of Bottle Lake Forest Park* (Christchurch: Christchurch City Council, 2000), 19.

¹⁴ *The Press*, 30 June 1999, 5.

¹⁵ *The Press*, 1 July 1999, 6.

¹⁶ Peter McKelvey, *Sand Forests: A Historical Perspective of the Stabilisation and Afforestation of Coastal Sands in New Zealand* (Christchurch: Canterbury University Press, 1999), 116. The various boundaries of the Kemp Purchase were contested by Ngai Tahu at the Waitangi Tribunal hearings of their claim.

¹⁷ Surgenor, *Water Wood*, 1, 8–9; R. Greenaway, *Burwood All Saints’ Church, 1877–1977* (Burwood All Saints’ Parochial District of Burwood, 1977), 83; and McKelvey, *Sand Forests*, 116.

¹⁸ Greenaway, *Burwood All Saints’ Church*, 84–5.

¹⁹ McKelvey, *Sand Forests*, claims that in contemporary times some sewerage is used to fertilise the trees, 120.

²⁰ Alan H. Grey, *Aotearoa and New Zealand: A Historical Geography* (Christchurch: Canterbury University Press, 1994), 385.

²¹ M. M. Roche, *Forest Policy in New Zealand: An Historical Geography 1840–1919* (Palmerston North Dunmore Press, 1987), 48, writes that the trees were introduced during the Gold Rushes from California, or through Australia.

²² Greenaway, *Burwood All Saints’ Church*, 83.

²³ Surgenor, *Water Wood*, 29–30.

²⁴ *The Canterbury Times*, April 1899, in Surgenor, *Water Wood*, 118–22. McKelvey, *Sand Forests*, 116, writes that ‘the city engineer Arthur Dudley Dobson, the man who discovered the pass to the West Coast, was to put the plan into action’.

²⁵ Mark Billinge ‘A time and place for everything: an essay on recreation, re-Creation and the Victorians’, *Journal of Historical Geography* 22, 4 (1996) 443–59, 443 and 449.

²⁶ *The Press*, 3 March 2001, 17.

²⁷ P. Clennell Fenwick, *The Christchurch Hospital: Historical and Descriptive Sketch* (Christchurch: Andrews, Baty and Co., 1926), 23.

²⁸ *Ibid.*, 36.

²⁹ *The Canterbury Times*, 23 May 1917, 2.

³⁰ *The Lyttelton Times*, 22 November 1911, 7.

³¹ See Archives New Zealand Christchurch Office CH 433/7 Historical Notes Winnifred Norris, 1942 for details of diseases and patients.

³² *The Lyttelton Times*, 30 March 1911, 8.

³³ *The Lyttelton Times*, 30 March 1911, 6.

³⁴ J. Belich, *Paradise Reforged: A History of the New Zealanders From the 1880s to the Year 2000* (Auckland: Allen Lane, Penguin, 2001), 448.

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- ³⁵ Roche, *Forest Policy in New Zealand*, 49. See also M. Roche, 'The State as Conservationist, 1920–60: "Wise Use" of Forests, Lands, and Water', in Pawson and Brooking, *Environmental Histories of New Zealand*, 183–99.
- ³⁶ Surgenor, *Water Wood*, 21.
- ³⁷ McKelvey, *Sand Forests*, 118; Greenaway, *Burwood All Saints*', 86.
- ³⁸ *The Press*, 6 September 1924, 13.
- ³⁹ *The Press*, 6 March, 1923, 4.
- ⁴⁰ Surgenor, *Water Wood*, 18–19.
- ⁴¹ 1929 Report of the Committee appointed by the Government to look into Unemployment in New Zealand, AJHR H-11b.
- ⁴² James Watson, 'Crisis and Change: Economic Crisis and Technological Change Between the World Wars', unpublished University of Canterbury PhD thesis (1984). R. Greenaway, in *The Press* 12 March 1977, 13 writes that the Burwood rubbish dump was 'being transformed by unemployed labour into Burwood Park'.
- ⁴³ Archives New Zealand Christchurch Office CH 433/10 F. O Bennett, 'Hospitals on the Plains', 1975, 30.
- ⁴⁴ *Ibid.*, 32–9.
- ⁴⁵ See Pawson, 'Confronting Nature', 76 on the Sunlight League; and on pollution, Margaret Tennant, *The Nation's Health the Children's Wealth* (Wellington: Bridgedt Williams Books Ltd and the Historical Branch); and Pyrs Gruffudd, 'Science and the Stuff of Life: Modernist Health Centres in 1930s London', *Journal of Historical Geography*, 27, 3 (2001), 395–416.
- ⁴⁶ Surgenor, *Water Wood*, 28.
- ⁴⁷ Greenaway, *Burwood All Saints*', 85.
- ⁴⁸ Surgenor, *Water Wood*, 2.
- ⁴⁹ *The Press*, 24 May 1944, 3.
- ⁵⁰ Surgenor, *Water Wood*, 43.
- ⁵¹ *The Press* 14 October 1977; McKelvey, *Sand Forests*, 120, compares Bottle Lake Forest to Stadtwald in Frankfurt, Germany.
- ⁵² Wind, fire and sand are the other threats. There have been three 'major blows': August 1945 (wind and then snow); 10 April 1968; and the biggest storm of 1 August 1975 where one third of the forest was blown-over. There were fires in 1931, Chaney's 1910/1935, 1967, and 1996 (arson).
- ⁵³ Greenaway, *Burwood All Saints*', 87. The 'car became firmly stuck in a water crossing so that it had to be pulled out by a Land Rover'.
- ⁵⁴ Archives New Zealand Christchurch Office CH 433/10 F. O. Bennett, 'Hospitals on the Plains', 1975, 5.
- ⁵⁵ Archives New Zealand Christchurch Office CH 433/7 Historical Notes Winifred Norris 1942, 39.
- ⁵⁶ A. Silversen ed. *Burwood Hospital: The Last Thirty Years*, 88.
- ⁵⁷ In general, the east of Christchurch is of lower socio-economic status than the west. This is despite the east being closer to the sea.
- ⁵⁸ Christchurch City Council, Bottle Lake Forest Park Management Plan 1999, 3, 8.
- ⁵⁹ *Ibid.*, 3.
- ⁶⁰ Surgenor, *Water Wood*, 106.
- ⁶¹ *The Press*, 26 May 2001, 2, *The Press* 24 May 2000, 4.

⁶² A. H. Clark, *The Invasion of New Zealand By People, Plants and Animals*, 371, writes that the first plantation by any local authority was that of the Selwyn Plantation Board. In 2002 a considerable mature section of the forest was felled.

⁶³ Pawson, 'Confronting Nature', 79.

⁶⁴ *The Press*, 10 May, 1999, 1.

⁶⁵ *The Press*, 2 June 2001, 44.